

行政院所屬各機關因公出國人員出國報告書  
(出國類別：國際會議)

2012 年美國地球物理協會  
秋季年度會議

服務機關：行政院環境保護署

姓名職稱：陳彥君環境監測技術師

派赴國家：美國

出國時間：101 年 12 月 2 日至 9 日

報告日期：102 年 2 月

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## 摘要

本次出席美國地球物理協會第 45 屆年秋季年度會議，會議與會人數超過 2 萬 3 千人，海報展示約有 1 萬 4 千篇，專題演講達 6 千 8 百多場次，是一個具相當規模的國際研討會。本次會議的參加，除為了解國外環境監測新知外，亦積極投稿發表論文－Analyses of Yearly Ozone Precursor Concentration at Siaogang Photochemical Assessment Monitoring Station，展現我國對臭氧前驅物監測成果，提升本署環境監測成效之國際能見度。

本次會議訂有 3 大主題，其一即為 Dust and Aerosols，主題演講及海報展覽亦有多篇與微粒之觀測及預報有關，尤其是對於細懸浮微粒-PM<sub>2.5</sub> 之探討，顯見國際間對於 PM<sub>2.5</sub> 污染問題之重視，並延伸至健康議題。以衛星反演 AOD 再反演至 PM<sub>2.5</sub>，在國際上已為一觀測 PM<sub>2.5</sub> 之重要方法，且由大區域 PM<sub>2.5</sub> 濃度配合氣象條件，可強化預報能力及準確度，目前美國海軍艦隊有提供線上可直接使用的 AOD 資料；此外，本署「輔助空氣品質及沙塵預報系統」亦有與美國 NASA 合作，由 NASA 提供 AOD 資料。建議未來可多利用 AOD 資料，配合測站監測資料，發展以 CMAQ 進行預報，可有效提升我國 PM<sub>2.5</sub> 預報能力及準確率。

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## 一、會議目的及背景

美國地球物理協會第 45 屆年秋季年度會議會期自 2012 年 12 月 3 日至 12 月 7 日為期 5 天，會議範圍涵括大氣和太空電離學 (Atmospheric and Space Electricity)、大氣科學 (Atmospheric Sciences)、生物地球科學 (Biogeosciences)、冰凍圈 (Cryosphere、地表作用 (Earth and Planetary Surface Processes)、地球及空間科學 (Earth and Space Science Informatics)、教育 (Education)、大地測量學 (Geodesy)、地磁學及古地磁學 (Geomagnetism and Paleomagnetism)、全球環境變化 (Global Environmental Change)、水文 (Hydrology)、礦物及岩石物理學 (Mineral and Rock Physics)、自然災害 (Natural Hazards)、近地表地球物理 (Near Surface Geophysics)、非線性地球物理 (Nonlinear Geophysics)、海洋科學 (Ocean Sciences)、古海洋和古氣候學 (Paleoceanography and Paleoclimatology)、行星科學 (Planetary Sciences)、地震學 (Seismology、高層大氣物理學 (SPA-Aeronomy)、磁層物理學 (SPA-Magnetospheric Physics、(SPA-Solar and Heliospheric Physics)、地球深部研究 (Study of Earth's Deep Interior)、地殼構造物理學 (Tectonophysics)、火山、地球化學及岩石學 (Volcanology, Geochemistry, and Petrology) 等，根據官方公布數據，本次會議與會人數超過 2 萬 3 千人，海報展示約有 1 萬 4 千篇，專題演講達 6 千 8 百多場次，是一個具相當規模的國際研討會。本次會議的參加，除了解國外環境監測新知外，亦積極投稿發表論文，展現我國對臭氧前驅物監測成果，提升本署環境監測成效之國際能見度。

## 二、會議過程說明

### (一)、投稿

本次參加會議目的之一為發表我國監測成果，，因此在 2012 年 7 月投稿「Analyses of Yearly Ozone Precursor Concentration at Siaogang Photochemical Assessment Monitoring Station.」，於 9 月經審查通過，以海報格式發表(圖一)。

發表論文摘要一

本文利用小港光化學評估監測站 2007 年至 2010 年監測資料，分析該地區空氣品質變化情形及臭氧前驅物濃度歷年變化。

小港地區 2007 年至 2010 年小時平均濃度前 15 大物種大致相同，乙烯為歷年小時平均濃度之冠，甲苯、異戊烷、乙烷、丙烷、正丁烷、丙烯亦有較高之小時平均濃度。以 Mann-Kendall test 分析光化前驅物之長期趨勢，多數物種皆呈現下降趨勢，其中丙烯、2-甲基戊烷、3-甲基戊烷、甲基環戊烷、1,3,5-三甲基苯、間-二乙基苯、對-二乙基苯、正十一烷更呈現顯著下降趨勢，僅 2,2-二甲基丁烷呈顯著上升趨勢。

臭氧生成潛勢前 15 名之物種內，前 7 名多亦為小時平均濃度前 15 大物種，而 8 名以後之物種，多數乃因其 MIR 值較高，造成較高之 OFP 值。

小港地區風向主要以東北風及西風為主，高值濃度發生之來源風向主要為東北風區及西北風區，部分物種之高值濃度出現次數略為上升。多數臭氧前驅物之季節分布乃呈現秋冬高、夏低之變化型態，日夜變化呈現下午較低、早晚較高之趨勢，受人為活動影響大，下午污染物濃度下降。

# Analyses of Yearly Ozone Precursor Concentration at Siaogang Photochemical Assessment Monitoring Station

Yen-Chun Chen

yenchen@epa.gov.tw

Environmental Monitoring Technical Specialist, Department of Environmental Monitoring and Information Management, Environmental Protection Administration Executive Yuan

## Introduction

There are nine Photochemical Assessment Monitoring Stations (PAMS) operated by TWEPA. Among all, the Siaogang PAMS locates in the metro/industrial area was found to have the highest TVOC concentration. Based on the monitoring data of Siaogang Photochemical Assessment Monitoring Stations from 2007 to 2010, the study focuses on the variations over the air quality and the concentration of the precursors of ozone in the Siaogang area.

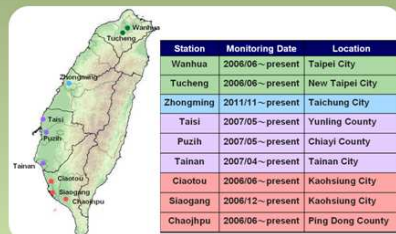


Figure 1. Taiwan PAMS Location

## Results & Discussion

Table1. Concentrations of Top 15 Pollutants from Siaogang Station

Year	2007		2008		2009		2010		2011	
	Compound	Mean (ppb)	Compound	Mean (ppb)	Compound	Mean (ppb)	Compound	Mean (ppb)	Compound	Mean (ppb)
1	Ethylene	7.91	Ethylene	7.98	Ethylene	6.38	Ethylene	6.72	Ethylene	6.63
2	Isopentane	4.88	Toluene	4.14	Isopentane	3.67	Isopentane	3.68	Toluene	4.58
3	Toluene	4.65	Isopentane	3.79	Toluene	3.29	Propane	3.50	Isopentane	4.52
4	Propane	4.57	Propane	3.72	Ethane	3.22	Toluene	3.48	Propane	3.85
5	Ethane	3.76	Ethane	3.64	Propane	3.21	Ethane	3.37	n-Butane	3.69
6	n-Butane	2.80	n-Butane	2.73	Propylene	2.38	n-Butane	2.50	Ethane	3.42
7	Propylene	2.60	Propylene	2.54	n-Butane	2.33	Acetylene	2.48	Propylene	2.71
8	Acetylene	2.52	Acetylene	2.35	Acetylene	2.11	Propylene	2.34	Acetylene	2.66
9	Xylene	2.43	Xylene	2.10	Xylene	1.84	Xylene	2.04	Xylene	2.44
10	n-Pentane	2.08	n-Pentane	1.85	n-Pentane	1.69	n-Pentane	1.79	n-Pentane	2.23
11	m,p-Xylene	1.73	m,p-Xylene	1.49	m,p-Xylene	1.31	m,p-Xylene	1.45	m,p-Xylene	1.77
12	Isobutane	1.49	Isobutane	1.39	Isobutane	1.28	Isobutane	1.36	Isobutane	1.76
13	2-methylpentane	1.11	2-methylpentane	1.01	2-methylpentane	0.94	Benzene	1.00	Benzene	1.10
14	n-Hexane	1.02	Benzene	0.96	Benzene	0.90	2-methylpentane	0.95	2-methylpentane	1.02
15	Benzene	1.01	n-Hexane	0.77	n-Hexane	0.71	n-Hexane	0.83	n-Hexane	0.84

Table 2. Statistics of Top 15 Ozone Formation Potential from Siaogang Station

Year	2007		2008		2009		2010		2011	
	Compound	OFF (ppb)	Compound	OFF (ppb)	Compound	OFF (ppb)	Compound	OFF (ppb)	Compound	OFF (ppb)
1	Ethylene	41.53	Ethylene	41.90	Ethylene	33.50	Ethylene	35.30	m,p-Xylene	38.22
2	m,p-Xylene	37.26	m,p-Xylene	32.16	m,p-Xylene	28.16	m,p-Xylene	31.13	Toluene	35.08
3	Toluene	35.69	Toluene	31.76	Toluene	25.21	Toluene	26.67	Ethylene	34.79
4	propylene	26.50	propylene	25.88	propylene	24.28	propylene	23.83	propylene	27.61
5	1,2,4-Trimethylbenzene	14.06	1,2,4-Trimethylbenzene	12.29	1,2,4-Trimethylbenzene	11.14	1,2,4-Trimethylbenzene	11.67	1,2,4-Trimethylbenzene	11.45
6	o-Xylene	11.74	o-Xylene	10.15	o-Xylene	8.97	o-Xylene	9.99	o-Xylene	11.21
7	Isopentane	10.62	Isopentane	8.25	Isopentane	7.99	Isopentane	8.00	Isopentane	9.84
8	m-Ethyltoluene	6.67	m-Ethyltoluene	5.63	m-Ethyltoluene	5.21	m-Ethyltoluene	5.70	n-Butane	5.12
9	1,2,3-Trimethylbenzene	5.98	1,2,3-Trimethylbenzene	5.00	Isoprene	4.79	1,2,3-Trimethylbenzene	4.76	1,2,3-Trimethylbenzene	4.88
10	cis-2-Butene	5.36	1,3,5-Trimethylbenzene	4.44	1,2,3-Trimethylbenzene	4.50	t-2-butene	4.11	m-Ethyltoluene	4.84
11	1,3,5-Trimethylbenzene	5.33	Ethylbenzene	3.86	1,3,5-Trimethylbenzene	4.12	Isoprene	4.10	n-pentane	4.39
12	Ethylbenzene	5.19	n-Butane	3.79	cis-2-Butene	3.57	1,3,5-Trimethylbenzene	4.05	Ethylbenzene	4.04
13	t-2-butene	4.92	n-pentane	3.63	t-2-butene	3.55	cis-2-Butene	3.73	t-2-butene	3.85
14	n-pentane	4.08	t-2-butene	3.61	n-pentane	3.33	n-pentane	3.52	1,3,5-Trimethylbenzene	3.79
15	Isoprene	3.92	cis-2-Butene	3.59	n-Butane	3.24	n-Butane	3.48	cis-2-Butene	3.28

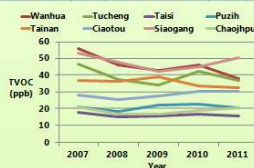


Figure 2. Average TVOC Concentration of PAMS

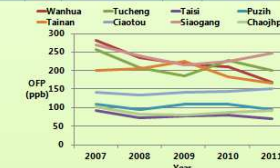


Figure 3. Average OFF of PAMS

## Conclusions

During the previous five years, the average concentrations of the top 15 pollutants in Siaogang area remain quite stable. Ethylene showed the highest concentration; the concentrations of Toluene, Isopentane, Ethane, Propane, n-Butane, Ethane and Propylene were also high. As for the precursors of ozone, the five-year observation showed a downward trend. The concentrations of Propylene, 2-Methylpentane, 3-Methylpentane, Methylcyclopentane, 1,3,5-Trimethylbenzene, m-Diethylbenzene, p-Diethylbenzene and n-Undecane has decreased remarkably with time. Only the concentration of 2,2-dimethylbutane showed a significant increase. Moreover, the concentrations of ozone precursors increased in fall and winter, but decreased in summer. Notably, the peak concentrations of precursors of ozone often appeared in the morning and evening, as assumed affected by human activities.

The concentrations of the top 15 Ozone Formation Potentials (OFFs), such as Ethylene, Toluene, Xylene, Propylene, 1,2,4-Trimethylbenzene, Isopentane, also showed a rather stable trend. In our opinion, the high values of OFF might not be caused by the concentrations but the high Maximum Increment Reactivity (MIR).

GC33C-1028

圖一、投稿海報

## (二)、行程與內容概要

12月2日	啟程，前往美國舊金山
12月3日	1. 報到 2. 參加海報展覽專區
12月4日	1. 參加主題系列演講 2. 參加海報展覽專區
12月5日	1. 論文發表 2. 參加海報展覽專區
12月6日	1. 參加主題系列演講 2. 參加海報展覽專區
12月7日	1. 參加主題系列演講 2. 參加海報展覽專區
12月8日至9日	返程

本次會議包含一小主題- 南亞的氣懸膠及空氣品質：觀測、模式及影響 (Aerosols and Air Quality in South Asia: Observations, Modeling, Impacts)，因此有許多南亞國家發表其監測結果。

1. 2008年4月至2009年3月在印度 Gual Pahari 作的觀測，發現10月至2月的  $PM_{2.5}$  及  $PM_{10}$  平均值量濃度較夏季來得高。 $PM_{2.5}$  經定性定量分析，生質燃燒來源占 53%，道路交通（尾氣排放和道路揚塵）占 7%，礦物粉塵占 7%，二次氣溶膠占 12%，和外部煤炭燃燒占 21%。(Source quantification of size and season resolved aerosols in a semi-urban area of Indo-Gangetic plain, India)
2. 2012年6月第二週中國中部及東部受到嚴重霾害影響， $PM_{2.5}$  濃度一小時內從  $43 \mu g/m^3$  上升至  $589 \mu g/m^3$ ，並於當日下午 14 時達到高峰  $613 \mu g/m^3$ ，該日 24 小時平均濃度為  $370 \mu g/m^3$ ，是  $PM_{2.5}$  標準的 10 倍以上。經監測中心分析發現，微粒中含有大量的植物有機碳含量，判斷為生質燃燒造



成，而逆溫及高濕度使得煙霧無法擴散，亦是造成本次事件的原因。但整體而言，交通運輸仍是造成中國東部地區霾害的主因，而與美國相比，測站的不足是發展 PM<sub>2.5</sub> 監測計畫目前最大的問題之一。利用大氣模式結合衛星遙測資料，可加快 PM<sub>2.5</sub> 監測網絡的建設。(Satellite Remote Sensing of Severe Haze Pollution over Eastern China on June, 2012) 在 PM<sub>2.5</sub> 的遙測方面，亦有許多相關研究，例如以地面遙測與衛星監測之 AOD 數據進行分析，探討其相關性。或是分析雲量、雲種等參數，以期能改善氣候模型的預報準確性。

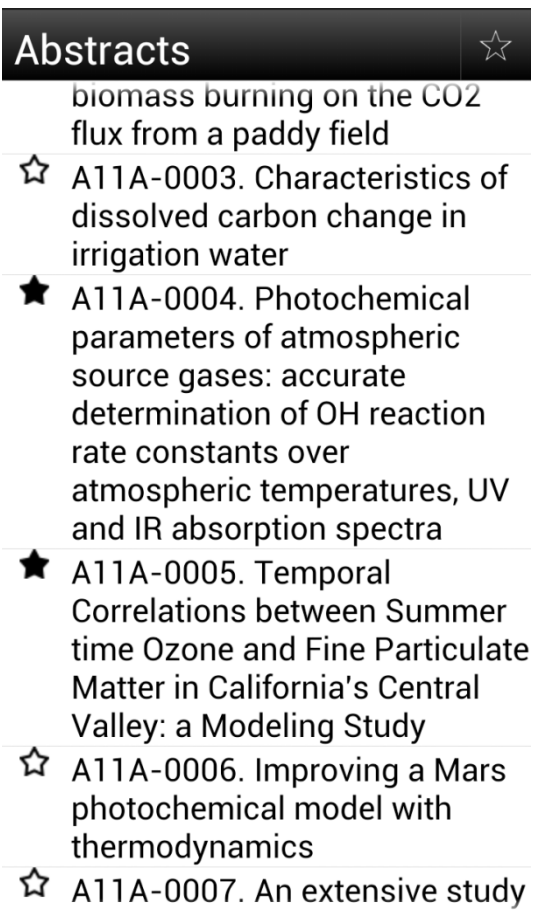
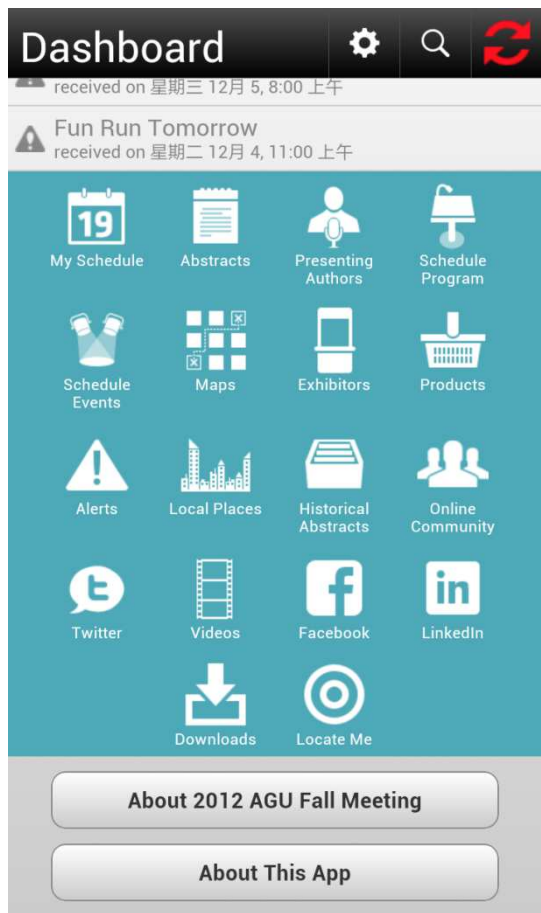
1. 全球氣膠光學監測網(AERONET)具有相當高的準確度及精密度，被廣泛使用在驗證衛星氣膠光學厚度，該篇即以 AERONET 在地面以太陽光度計觀測的 AOT 資料，與 MODIS 監測資料進行比較。比測的地點為義大利，包含冬季及夏季資料，結果顯示兩者相關性良好，六個監測點的相關係數在 0.724 至 0.964 之間。(Monitoring of urban air pollution from MODIS and AERONET Aerosol Optical Thickness data)
2. 以衛星觀測 PM<sub>2.5</sub>，雲層是一個非常重要的參數。分析發現雲量與 PM<sub>2.5</sub> 值量濃度一般是呈負相關，但是最大平均值卻是發生在雲量在 10%至 30% 之間，而非 10%以下時。而雲頂壓力(CTP)和雲的光學厚度(COT)也會影響 PM<sub>2.5</sub> 質量濃度，PM<sub>2.5</sub> 與 CTP 質量濃度呈顯著正相關，而與 COT 呈負相關。由此結果顯示，雲層參數可以用來做為預測 PM<sub>2.5</sub> 模式的參數。(Effects of Cloud Properties on PM<sub>2.5</sub> Levels in the Southeastern United States)
3. 了解氣溶膠對於區域氣候的影響，有助於改善氣候模型的預報準確性，因此本篇探討在東南亞地區，衛星觀測及模式估計氣溶膠的直接輻射效應之差異，並予以量化。東南亞主要有兩個生質燃燒高峰，一為南部 8 至 10 月，一為北部春季，且兩者都有相當高的年度變化。研究結果顯示，大氣層頂的短波輻射效應，在陸地為  $-6.61 \pm 0.48 \text{ W/m}^2$ ，海洋為  $-5.101 \pm 1.29 \text{ W/m}^2$ ，此為晴空的直接輻射效應，間接或半直接輻射效應通常更大。(The Direct Radiative Effects of Aerosols over Southeast Asia based on Satellite Observations and Modelling Calculations)

4. 東沙島氣膠監測數值與 AOD 氣膠光學厚度的相關係數達 0.9，在南海地區是最高的。( Interannual Variability of Aerosols over the South China Sea)

除了 PM<sub>2.5</sub> 以外，本次還有研究團隊以 MODIS 衛星觀測，配合修正沙塵區域大氣模式(DREAM)為花粉模式(PREAM)，來進行花粉濃度及傳輸路徑的預報，並適時發出預警，此做法可使患有哮喘及過敏症患者有更充分的預防措施。

### (三)、 會議應用程式

雖然本次會議仍印有紙本的活動手冊，但因應人手一機的時代，本次會議有設計會議專屬應用程式(APP，圖二)供參加者免費下載，並將會議參加者會使用到的相關資訊置於 APP 內，如海報摘要、演講者介紹、會場地圖、下載專區…等。由於會議參展海報及演講主題多達 2 萬篇，如果使用 APP 標註有興趣的主題，並納入個人行事曆中，除可清楚掌握關注議題的行程，亦可減少紙本手冊印製量，既便利又環保。當然，開發 APP 需要相當的經費及時間，並非所有會議都適合跟進，建議是參加人數眾多、資料量龐大並有相當經費支應的大型會議可參考。



圖二、會議 APP 介面

### 三、會議心得及建議

本次會議除本署針對光化學評估監測站監測成果有自行投稿外，亦有中央大學團隊運用本署鹿林山測站及於東沙之監測資料投稿-Baseline Measurements of Trace Gases at High Mountain and Sea-level Stations in Taiwan(圖三)，皆有助於提升我國環境監測國際能見度。

本次會議訂有 3 大主題，其一即為 Dust and Aerosols，主題演講及海報展覽亦有多篇與微粒之觀測及預報有關，尤其是對於細懸浮微粒-PM<sub>2.5</sub>之探討，顯見國際間對於 PM<sub>2.5</sub>污染問題之重視，並延伸至健康議題。

或許與研討會性質及參與會議人員背景有關，本次研討會探討 PM<sub>2.5</sub>非以一般自動或手動監測儀器量測小尺度地區性的濃度，而多以衛星反演氣膠光學厚度(Aerosol Optical Depth, AOD)，探討大尺度變化。部分研究將美國環保署 Air Quality System (AQS) PM<sub>2.5</sub> 監測數據，配合衛星反演氣膠光學厚度，進而以空氣品質預報第三代模式(Community Multi-scale Air Quality, CMAQ)等進行預測，以作為公眾健康預警之用。

以衛星反演 AOD 再反演至 PM<sub>2.5</sub>，在國際上已為一觀測 PM<sub>2.5</sub>之重要方法，且由大區域 PM<sub>2.5</sub> 濃度配合氣象條件，可強化預報能力及準確度，目前美國海軍艦隊有提供線上可直接使用的 AOD 資料；此外，本署「輔助空氣品質及沙塵預報系統」亦有與美國 NASA 合作，由 NASA 提供 AOD 資料。建議未來可多利用 AOD 資料，配合測站監測資料，發展以 CMAQ 進行預報，可有效提升我國 PM<sub>2.5</sub>預報能力及準確率。

# Baseline Measurements of Trace Gases at High Mountain and Sea-level Stations in East Asia

Chang-Feng Ou-Yang<sup>1,2</sup>, Jia-Lin Wang<sup>1</sup>, Neng-Huei Lin<sup>2</sup>, Chung-Te Lee<sup>3</sup>, Guey-Rong Sheu<sup>2</sup>, Hsin-Cheng Hsieh<sup>1</sup>, and Wen-Tzu Liu<sup>1</sup>

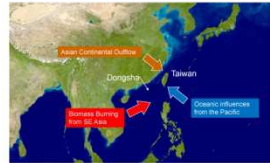
e-mail: cfouyang@cc.ncu.edu.tw

1. Department of Chemistry, National Central University, Taiwan
2. Department of Atmospheric Sciences, National Central University, Taiwan
3. Graduate Institute of Environmental Engineering, National Central University, Taiwan



## Introduction

The rapid development in East Asia in the last decade has aroused concerns on the increasing amount of anthropogenic pollutants being injected into this region altering baseline conditions of air quality and climate. Numerous studies have examined the impacts of continental outflow on air quality, mainly in the NE Asia. However, little is known about the impacts at lower latitudes in the SE Asia where high elevation baseline station is unavailable. Taiwan serves as an ideal location to monitor seasonal alternation of air masses from Asian continental outflow from mainland China, biomass burning from SE Asia, and oceanic influences from the Pacific. The Lulin Atmospheric Background Station (LABS) established aiming at studying the regional baseline conditions in the free troposphere and its coupling with local air quality in addition to LABS, baseline observation was also conducted in 2010 on a small island – Dongsha, which is situated between Taiwan and the Philippines, serving as a ground-level site in the northern SCS. In this work, we present flask and real-time measurements of trace gases at high-mountain and sea-level stations from the perspective of concentration variations and their driven mechanisms representative of the region.



## Methodologies

### Site Information

Lulin Atmospheric Background Station (LABS, 23.51°N, 120.92°E, 2862 m a.s.l.)  
 Operated since April 2006  
 Dongsha (20.70°N, 116.73°E, 3 m a.s.l.)  
 Operated since March 2010

### Instruments for Continuous Measurements

CO: Non-dispersive infrared spectroscopy (AFMA-350, Horiba, Japan)  
 O<sub>3</sub>: UV photometer (EC903, Ecotech, Australia)  
 CO<sub>2</sub> and CH<sub>4</sub>: Cavity ring-down spectroscopy (G1301, Picarro, USA)  
 Halocarbons: GC-CD (Agilent, USA)

### Model Simulation

Hybrid Single Particle Lagrangian Trajectory Model (HYPLIT v4)  
 Taiwan Air Quality Model (TAQM) with a horizontal grid size of 9 km × 9 km



Lulin Atmospheric Background Station (LABS)

## Conclusion

Seasonal maxima and minima of the trace gases were observed at all sites during spring and summer, respectively. However, the background air qualities at different altitudes were dominated by different influences. Based on real-time measurements and flask sample collection conducted at Dongsha, situated in the northern SCS, trace gases were mainly affected by the Asian continental outflow driven by the westerly monsoon from the north. But at an altitude of approximately 3 km, the seasonal patterns of the trace gases at LABS revealed signals of biomass burning arising from SE Asia. In contrast, the oceanic influences from the Pacific were dominant at all sites both at surface level and in free troposphere during summertime.

## Results and Discussion

### 1. Mountain Station (Lulin Atmospheric Background Station, LABS)

Based on six year's measurements at LABS, distinct seasonal variations in CO and ozone were observed (Fig. 1a and 1b). The springtime maximum is caused by the long-range transport of air masses from SE Asia with biomass burning signature (Fig. 2a). In contrast, the Pacific oceanic air masses cause the summertime minimum (Fig. 2b).

In addition to the seasonal variations, diurnal variations of CO and ozone at LABS were also found to be distinctly different from those at the surface. The up-slope lifting of the surface air is thought to be the cause for these patterns. CO shows maxima in late afternoon and minima at night (Fig. 3a). Ozone however shows a nearly opposite variation to CO with minima at noon (Fig. 3b), presumably caused by dry deposition and NO titration during the sea-breeze climbing of the surface air. The higher nighttime values, however, could be the result of air subsidence at night bringing ozone aloft to the LABS. Interestingly, while CO's diurnal patterns remained mostly the same year after year, the diurnal pattern of ozone, though repeated for the first five years (Fig. 4), changed since July 2011 showing a daytime peak during the second half of the year (Fig. 4b). The mechanism for the sudden change of ozone's behavior in 2011 still remains unclear at this stage.

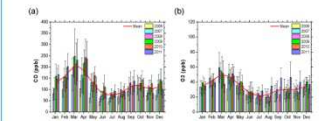


Fig. 1 Seasonal variation of (a) CO and (b) ozone observed at LABS averaged over 2006-2011.

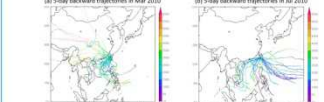


Fig. 2 Five-day backward trajectories arriving at LABS in (a) March 2010 and (b) July 2010.

### 2. Sea-level Station (Dongsha Island)

Based on the TAQM simulations (Fig. 8) and the backward trajectories (Fig. 9), elevated ozone caused by the Asian continental outflow driven was simulated. Strong northeasterly winds arising from the winter Asian monsoon transported polluted air masses from the northern continent to far south at Dongsha (latitude 20.70°N), as indicated by elevated ozone levels of approximately 50-60 ppb. In contrast, during the calm periods when the monsoon subsided, low ozone levels of about 20-30 ppb were detected, which is typical for marine air masses (Fig. 10). A case study on April 20-24, 2010 is shown in Fig. 11.

NOAA flask data of GHGs show seasonal variations with winter/spring maxima and summer minima at Dongsha during 2010 - 2011 (Fig. 12). By comparing the data of the flask air samples collected at Dongsha and Kumukahi surface site in Hawaii at approximately the same latitude (19.52°N), SF<sub>6</sub> (Fig. 12a) and CH<sub>4</sub> (Fig. 12b) levels during the southwest monsoon period in mid-summer were very low and steady, but higher in the winter when the air is coming off the Asian continent. CO<sub>2</sub> and CO data showed that during wintertime, excess CO<sub>2</sub> and CO from fossil fuel combustion and biomass burning permeated the South China Sea Basin (Fig. 12c and Fig. 12d). In spring and summer, vegetation growth on land completely dominates the CO<sub>2</sub> signal which is as clean and stable as measured at Kumukahi (Fig. 12e). The N<sub>2</sub>O data at Dongsha showed a very similar trend to that of Kumukahi, but the levels elevated when air masses come from the Asian continent (Fig. 12e).

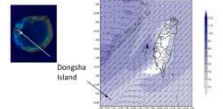


Fig. 8 TAQM simulations of ozone in Taiwan area during frontal passages.

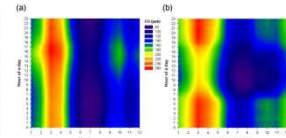


Fig. 3 Diurnal spectrum of (a) CO and (b) ozone from April 2006 to April 2011.

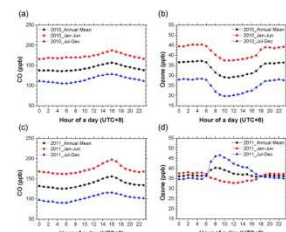


Fig. 4 Diurnal variations of CO and ozone observed in 2010 and 2011.  
 (a) CO in 2010, (b) ozone in 2010, (c) CO in 2011, and (d) ozone in 2011.

The LABS code = LULI has participated in the NOAA/NSR/GMD/CCG cooperative sampling network for measurements of greenhouse gases (GHGs) since August 2006. CO<sub>2</sub> and CH<sub>4</sub> were found to be increasing over this period. In-situ measurements of CO<sub>2</sub> and CH<sub>4</sub> were also started by using cavity ring-down spectroscopy (CRDS) at LABS in spring 2011 (Fig. 5). The CRDS CO<sub>2</sub> data agree well with NOAA's flask samples (Fig. 6). However, due to the lack of high-quality cal gas, the CRDS CH<sub>4</sub> data show a negative bias from the data of NOAA's flask samples (Fig. 6). Only a tentative calibration scale was assigned via using a locally prepared cal gas. With the high stability and linearity with the ring-down instrument, re-calibration is possible with the arrival of high-quality standards in the future.

Years after the implementation of the Montreal Protocol for the 65 countries, most of the ODS such as CFCs and Halons are expected to decline over time. Taiwan is an ideal location to witness the decline in China is also rapidly phasing out the use of ODS. Seven halocarbons, CFC-12, CFC-11, CCL, CFC-113, CH<sub>2</sub>Cl<sub>2</sub>, CH<sub>2</sub>Cl, and Halon-1211, were monitored continuously at LABS since November 2007. Most of the monitored species are found to be either leveling off (e.g. CFC-12, CFC-11, and CCL) or decreasing (e.g. CFC-11, CH<sub>2</sub>Cl<sub>2</sub>, and Halon-1211) during this period (Fig. 7). CH<sub>2</sub>Cl<sub>2</sub> was found to be quite variable due to its much shorter lifetime.

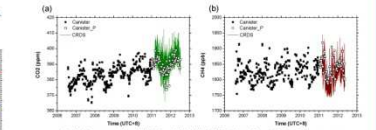


Fig. 5 Measurement of (a) CO<sub>2</sub> and (b) CH<sub>4</sub> at LABS since August 2006. Open squares represent the NOAA flask samples which are preliminary.

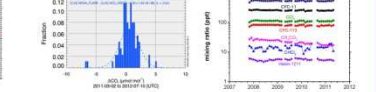


Fig. 6 Inter-comparison of CO<sub>2</sub> between in-situ measurement and flask samples. Mean offset is about 0.55 ppm.

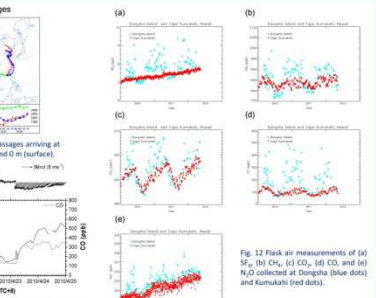


Fig. 12 Monthly averages of seven halocarbons observed at LABS from November 2007 to May 2011.

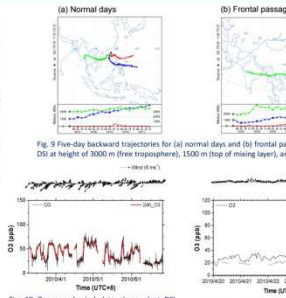


Fig. 9 Five-day backward trajectories for (a) normal days and (b) frontal passages arriving at DSI at heights of 3000 m (free troposphere), 1500 m (top of mixing layer), and 0 m (surface).

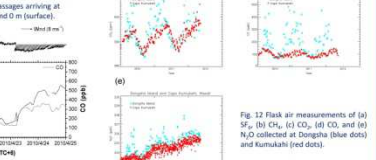
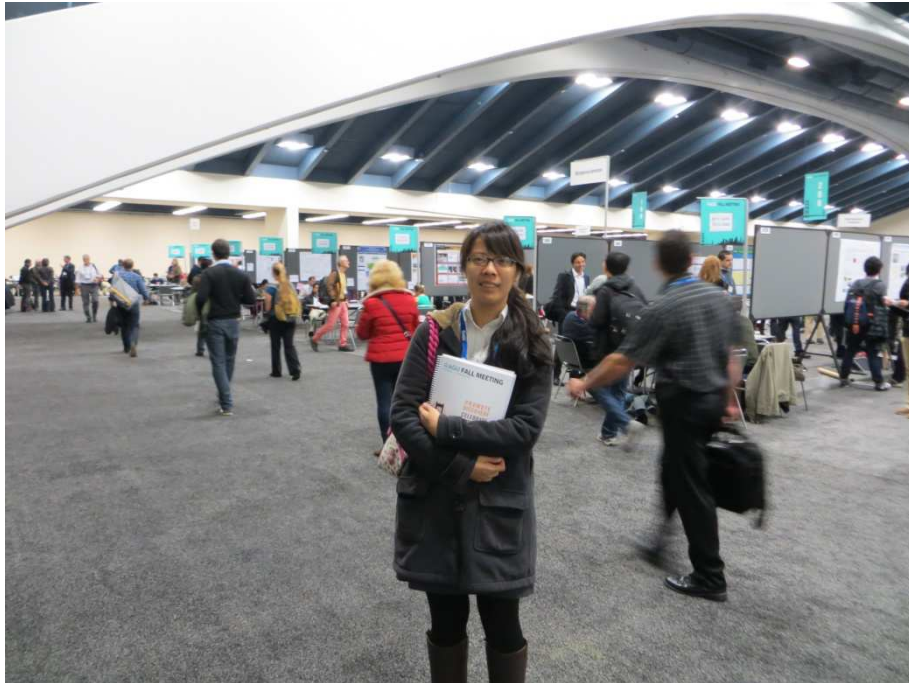


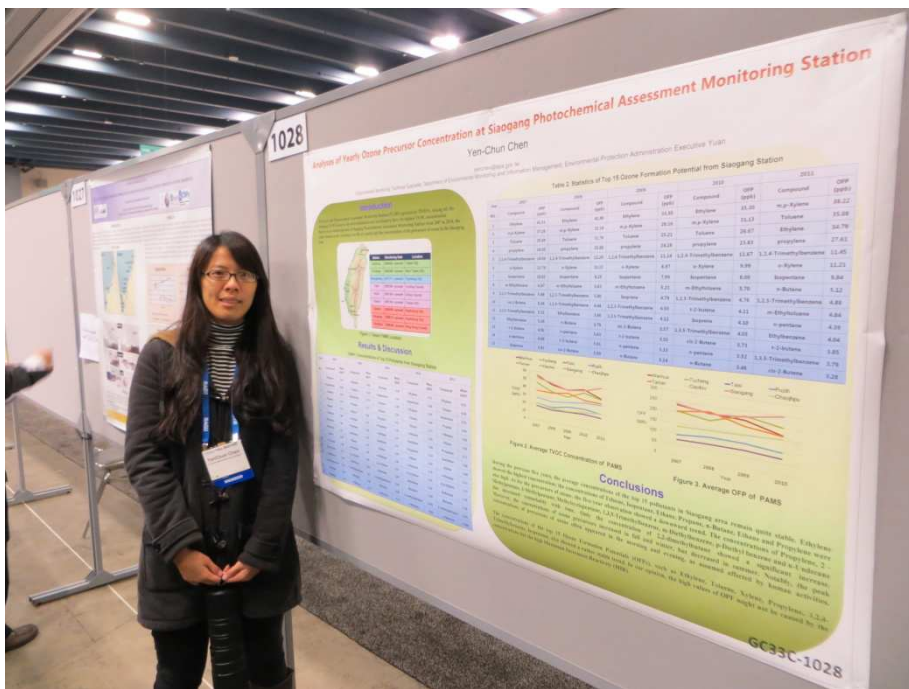
Fig. 10 Diurnal ozone and wind data observed at DSI. Wind data on top are shown in 12-hour intervals. Black solid line is the hourly average of ozone; the red solid line is the 24-hour moving average.

圖三、中央大學投稿海報

附件一、參加會議照片



圖一、海報展覽區



圖二、與投稿海報合照

附件二、會議議程及會議資料

# AGU FALL MEETING

San Francisco | 3-7 December 2012

**PROMOTE  
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# AGU FALL MEETING

San Francisco | 3–7 December 2012

## HOURS

### REGISTRATION, SESSIONS, SPEAKER READY ROOM, AND EXHIBITS

#### Registration

Preregistration and On-Site Registration  
Moscone South, Halls A–C  
Sunday, 12:00 PM–6:30 PM  
Monday–Tuesday, 7:00 AM–5:00 PM  
Wednesday–Friday, 7:30 AM–5:00 PM

#### Scientific Sessions

##### Oral Sessions

Moscone South, Gateway  
and Esplanade Ballrooms  
Moscone West, Levels 2 and 3  
Monday–Friday  
8:00 AM–10:00 AM

10:20 AM–12:20 PM

1:40 PM–3:40 PM

4:00 PM–6:00 PM

#### Poster Sessions

Moscone South, Halls A–C  
Monday–Friday  
8:00 AM–12:20 PM  
1:40 PM–6:00 PM

#### Academic Showcase and Exhibits

Moscone North, Exhibit Hall  
Tuesday–Thursday, 9:30 AM–6:00 PM  
Friday, 9:30 AM–1:30 PM

#### AGU Marketplace

Moscone North, Exhibit Hall  
Tuesday–Thursday, 9:30 AM–6:00 PM  
Friday, 9:30 AM–1:30 PM

#### Speaker Ready Room

Moscone South, Room 204  
Moscone West, Room 2001  
(Monday–Friday only)  
Sunday, 12:00 PM–7:00 PM  
Monday–Thursday, 7:00 AM–6:00 PM  
Friday, 7:00 AM–3:00 PM

## GENERAL INFORMATION

This program book contains general meeting information, a meeting summary chart, and a presenting author index.

The **Meeting Summary Chart** provides a list of sessions by day, time, and discipline. Information includes the session number, title, start time, meeting room, type of session, and session cosponsors (pages 103–207)

The **Itinerary Planner** allows attendees to view abstracts at [agu-fm12.abstractcentral.com/planner.jsp](http://agu-fm12.abstractcentral.com/planner.jsp).

The **Presenting Author Index** contains presenters' names followed by the paper number that they are presenting (pages 208–255).

## EMERGENCY CONTACT

We recommend that you create emergency contact information in your cell phone listed as ICE (In Case of Emergency) for emergency purposes, if necessary.

Content in this program book is current as of 15 October 2012.

## NOTE

Attendees at Fall Meeting may be photographed by AGU for archival and marketing purposes. Meeting attendees are not allowed to photograph, video or record information during scientific sessions.



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## BACK AGAIN!

E-Posters offer the opportunity to upload electronic files of poster presentations. To view E-Posters that have been submitted, go to the Scientific Program page of the Fall Meeting website at [fallmeeting.agu.org](http://fallmeeting.agu.org).

A Mobile App for Fall Meeting is again available! iPhone and Android users can download the app by visiting the App Store or Google Play Store on the device and search for AGU 2012. For all devices, including the iPhone, BlackBerry, Android, and other Web browser-enabled phones, simply point your mobile browser to <http://m.core-apps.com/agu2012>. From there you will be directed to the proper app version download for your particular device, or on some phones, you can bookmark that page for future reference. The mobile app will allow you to view the Exhibit Hall and floor plans and search for sessions, activities, and events, and more!

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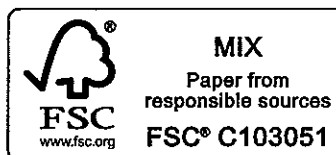
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## SAVE THE DATE

Union Nominations  
 open 15 January 2013



Download the  
 Fall Meeting App



# WELCOME TO THE AMERICAN GEOPHYSICAL UNION'S 2012 FALL MEETING

WELCOME  
MESSAGES



## Promoting Discovery Through Collaboration and Communication

It is my pleasure to welcome you to the 45th annual Fall Meeting of the American Geophysical Union, where scientists from around the globe gather to advance Earth and space science.

This year's Fall Meeting offers an exciting mix of scientific presentations, keynote lectures, town halls, social events, and networking opportunities. Whether this is your first AGU Fall Meeting or you are a veteran attendee, the program over the next week is sure to spark your imagination and expand your horizons. It will be a time to share research results, hear about the latest scientific breakthroughs, rekindle old friendships, and meet new colleagues.

A great strength of AGU is the breadth of disciplines we represent in Earth and space science. This breadth, together with the high standards of excellence we hold ourselves to, promotes not only deep insights into pressing problems in traditional areas of geophysics but also enables highly original research that cuts across disciplinary boundaries. Sessions throughout the week will thus feature an unmatched combination of scientific depth, breadth, and interconnectedness that has become a trademark of the Fall Meeting.



## Discover Fall Meeting Anew

Welcome to the 45th annual Fall Meeting of the American Geophysical Union in San Francisco.

Each year you travel to San Francisco for this special meeting that brings together Earth and space scientists, educators, and students. All are here to advance discovery about our changing world and

to consider how that discovery can benefit society. It is your integrity and passion that makes AGU's Fall Meeting significant and meaningful. That is why AGU is so committed to ensuring that this year's Fall Meeting is the best one yet.

No matter if you attend Fall Meeting to present your research, learn about the latest breakthroughs in Earth and space science, or connect with your colleagues, the robust program for this year's meeting is filled with something for everyone. The 2012 Fall Meeting will feature more than 1800 oral and poster sessions and town halls, as well as helpful workshops on communicating your science and interacting with policy makers and on career-focused programming for students and educators. A new feature this year will be organization of select sessions into cross-disciplinary research areas.

With so much to do at Fall Meeting, we are constantly looking for new technologies that will make the meeting more accessible to a wider



## Welcome to the 2012 AGU Annual Fall Meeting!

This program provides logistical information for the scientific sessions, the Exhibit Hall, and other events that are part of this year's Fall Meeting. Detailed session descriptions are available online, and there are computers set up for such use in the Convention Center.

Over the next 5 days, more than 21,500 oral and poster presentations will be given; a growth of 7% from last year's meeting and 34% growth since 2008. This year's Union-wide events include the Union Frontiers of Geophysics Lecturer Professor Sir Bob Watson, who will discuss the nexus between climate and energy system transitions for a sustainable future. In addition, Dr. Subra Suresh, Director of the National Science Foundation, will be the speaker of the Union Agency Lecture. Also, the AGU Presidential Forum will be presented by Ira Flatow, National Public Radio's Science Correspondent.

Another strength of our organization is the passion that members bring to the problems we face in ensuring a sustainable future for our planet. This passion galvanizes our science into action. You will therefore find sessions on science education, effective communication of science to broader audiences, implications of research advances for public policy formulation, and applications of our knowledge to address grand societal challenges.

Yet another great strength of AGU is our international reach. AGU members hail from 148 countries, and a third of our members are from outside North America. The scientific perspectives and cultural backgrounds represented by our diverse membership enrich the research experience and enliven our collegial interactions. The Fall Meeting is a vivid reminder that science, and in particular Earth and space science, knows no political boundaries and that we are all ambassadors for a worldwide research enterprise.

Dedication to expanding the frontiers of our knowledge, widely communicating the latest scientific advances, commitment to excellence, and unselfish cooperation in research are the foundations of our collective success. As President of AGU, it's an extraordinary privilege to preside over this annual celebration of our science. Thank you for attending and enjoy the week!

Sincerely,

Michael J. McPhaden  
President, American Geophysical Union

audience and to better meet the needs of our attendees. Last year, we added a feature for attendees to present an electronic version of their poster and a mobile app to help you navigate the meeting. In addition to continuing and improving those features, this year we have added the Fall Meeting Community, where attendees can connect with peers and colleagues on a new level. Find the Community through the meeting website [fallmeeting.agu.org](http://fallmeeting.agu.org) and begin your Fall Meeting experience like never before. As you steer through the week, we urge you to take advantage of our new technologies and to share your experiences with staff and AGU leadership.

As an organization, AGU relies on the energy of you, our members, to create exceptional programs like Fall Meeting. Your excitement and dedication to the sciences allows AGU to strengthen society's understanding of Earth and space science, encourage scientific leadership and collaboration, and increase the geoscience talent pool. We hope that this Fall Meeting program challenges our diverse scientific community and allows you to experience the exciting developments occurring within the depth and breadth of Earth and space science.

Sincerely,

Christine W. McEntee  
CEO, American Geophysical Union

This year, AGU has implemented a new "SWIRL" concept—the Program Committee identified three themes that weave a thread and swirl throughout the week. The three themes are Characterizing Uncertainty, Dust and Aerosols, and Subduction. Look for a special icon in the program to see how yours and other sections are quantifying and understanding these three themes!

On behalf of the Program Committee and the AGU meetings staff, I wish you a full and stimulating week!

I would like to explicitly call out a thanks to this year's Fall Program Committee, who worked hard with our record number of abstract submissions to make this year's meeting the best!

Sincerely,

Kathy A. Hibbard  
Fall Meeting Program Committee Chair, American Geophysical Union

# UNION ACTIVITIES

## Sunday, 2 December

**Ice Breaker Reception**  
Moscone West, Lobby  
5:30 PM–7:00 PM

## Monday, 3 December

**U12B AGU Presidential Forum: Science is Sexy**  
Moscone North, Hall E  
12:30 PM–1:30 PM  
Presented by **Ira Flatow**, National Public Radio (NPR) science correspondent and journalist

## Tuesday, 4 December

**U22C DEEPSEA CHALLENGE: New Science and Technology at Extreme Depths**  
Moscone North, Hall E  
12:00 PM–1:30 PM  
Presented by **James Cameron**, National Geographic Explorer-In-Residence; **Douglas Bartlett**, Microbiologist, Scripps Institution of Oceanography; **Patricia Fryer**, Geologist, University of Hawaii; **Kevin Hand**, Astrobiologist, NASA's Jet Propulsion Laboratory

## Wednesday, 5 December

**U32B Frontiers of Geophysics Lecture: A World Where the Atmospheric Concentration of Carbon Dioxide Exceeds 450ppm**  
Moscone North, Hall E  
12:30 PM–1:30 PM  
Presented by **Sir Bob Watson**, CMG, FRS, and Chief Scientific Adviser to Defra

**Honors Ceremony and Reception**  
Moscone North, Hall E  
7:00 PM–10:00 PM  
Open to all meeting attendees.

## Thursday, 6 December

**U42B Union Agency Lecture**  
Moscone North, Hall E  
12:30 PM–1:30 PM  
Presented by **Subra Suresh**, Director of National Science Foundation

**Honors Banquet**  
San Francisco Marriott Marquis, Yerba Buena Ballroom, Salons 8–9  
8:00 PM–11:00 PM  
Tickets required: \$85.00 U.S.

UNION  
ACTIVITIES

## AGU FALL MEETING

San Francisco | 3–7 December 2012

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Your ePoster

by 7 December 6:00pm

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# UNION SESSIONS

*Union sessions are for the benefit of attendees who have broad interests outside of their own disciplines. Check the meeting schedule for session times and locations.*

## Monday, 3 December

- U11A** Climate and Biogeochemistry of the Neoproterozoic
- U12A** Following the CFC-Ozone-Depletion Link From the Laboratory to Verification to Policy to Successful Mitigation: What Were the Key Turning Points?
  - U12B** AGU Presidential Forum: Science is Sexy
- U13A** Results From Mars Science Laboratory Mission Four Months After Landing
  - U14A** Quantitative Modeling of Social and Environmental Systems

## Tuesday, 4 December

- U21A** Urbanization and Global Change
- U22A** Evaluating Models of Climate Change Impacts on Regional Earth and Human Systems
  - U22B** Communicating Geohazard Risk Assessments: Lessons Learned From the Verdicts in the L'Aquila Earthquake Case
  - U22C** DEEPSEA CHALLENGE: New Science and Technology at Extreme Depths
- U23A** Regional-Scale Earth System Modeling to Support Policymaking
- U24A** Challenges and Opportunities for Energy and Resource Recovery

## Wednesday, 5 December

- U31A** A Community Roadmap for Discovery, Access, and Mining of Geosciences Data
  - U32A** Towards a Global Cyberinfrastructure for the Geosciences
    - U32B** Union Frontiers of Geophysics Lecture: A World Where the Atmospheric Concentration of Carbon Dioxide Exceeds 450ppm
    - U33A** Unsolved and Emerging Problems in Water
  - U34A** Scientific Observation Network Interoperability in the 21st Century

## Thursday, 6 December

- U41A** Electricity, Water, and Climate
- U42A** Fossil Fuel Production, Economic Growth, and Climate Change
  - U42B** Union Agency Lecture: New Era of Science and Engineering
- U43A** Cross-Fertilization Between Environmental Science and Planetary Exploration
  - U44A** Dissolving Boundaries Between Scientists, Media, and the Public

## Friday, 7 December

- U51A** Magmatism and Global Environmental Change
- U51B** The Arctic System: From Critical Process Studies to Global Perspectives (Video On-Demand)
- U52A** Oxygenation of the Earth



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# GENERAL SESSIONS

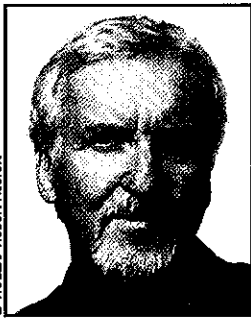
## An Inside Look



**Ira Flatow**

**U12B AGU Presidential Forum: Science is Sexy**  
**Monday, 3 December, 12:30 PM-1:30 PM**  
Moscone North, Hall E

Veteran National Public Radio (NPR) science correspondent and award-winning journalist Ira Flatow is host of "Talk of the Nation: Science Friday," bringing radio and Internet listeners worldwide a lively, informative discussion on science, technology, health, space, and the environment. Flatow is also founder and president of a nonprofit company dedicated to creating radio, TV and Internet projects that make science "user friendly." Mixing his passion for science with a tendency toward being "a bit of a ham," he describes his work as the challenge "to make science and technology a topic for discussion around the dinner table."



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**James Cameron**, National Geographic Explorer-In-Residence;  
**Douglas Bartlett**, Microbiologist, Scripps Institution of Oceanography;  
**Patricia Fryer**, Geologist, University of Hawaii;  
**Kevin Hand**, Astrobiologist, NASA's Jet Propulsion Laboratory  
**U22C DEEPSEA CHALLENGE: New Science and Technology at Extreme Depths**  
**Tuesday, 4 December, 12:00 PM - 1:30 PM**  
Moscone North, Hall E

On 26 March 2012, James Cameron became the first person in history to reach the Earth's deepest known point as a solo pilot, successfully piloting the *DEEPSEA CHALLENGER* nearly 11 kilometers, almost 36,000 feet, to the Challenger Deep in the Mariana Trench. The dive was part of the *DEEPSEA CHALLENGE* Expedition, a series of dives to investigate the New Britain and Mariana Trenches, mounted by Cameron and a team of engineers, scientists and educators. Of notable accomplishment was the sub's ability to remain at the bottom of the Challenger Deep, explore, sample and film for nearly 3 hours. Data from the sub was integrated with 19 free-falling lander deployments. The two full-ocean depth science platforms captured video footage of unprecedented clarity, collected sediment, physical oceanographic data, water samples and biological samples throughout the expedition.

Cameron, a veteran of more than 80 manned submersible dives and eight oceanographic expeditions, will discuss the innovation in engineering associated with the development of the *DEEPSEA CHALLENGER* submersible, full-ocean-depth 3D cameras, lighting, hydraulics, sampling tools and now-patented syntactic foam. Dr's Bartlett, Fryer and Hand will discuss preliminary scientific findings in the context of scientific exploration at extreme depths. Learn more about the expedition at [deepseachallenge.com](http://deepseachallenge.com).



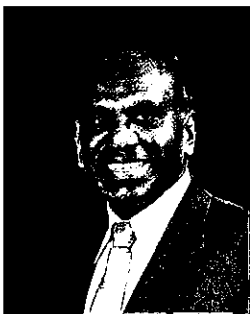
**Professor Sir Robert Watson**

**U32B Union Frontiers of Geophysics Lecture:  
A World Where the Atmospheric Concentration  
of Carbon Dioxide Exceeds 450ppm**

**Wednesday, 5 December, 12:30 PM - 1:30 PM**

Moscone North, Hall E

Professor Watson's career has evolved from research scientist at the Jet Propulsion Laboratory: California Institute of Technology, to a U.S. Federal Government programs manager/director at the National Aeronautics and Space Administration (NASA), to a scientific/policy advisor in the U.S. Office of Science and Technology Policy (OSTP), to a scientific advisor, manager, and chief scientist at the World Bank, to a Chair of Environmental Sciences at the University of East Anglia, to the Director for Strategic Direction for the Tyndall Centre, and finally to the Chief Scientific Advisor to the U.K. Department for Environment, Food and Rural Affairs.



**Dr. Subra Suresh**

**U42B Union Agency Lecture:  
New Era of Science and Engineering**

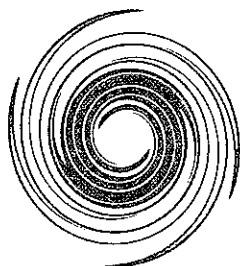
**Thursday, 6 December, 12:30 PM - 1:30 PM**

Moscone North, Hall E

A distinguished engineer and professor, Subra Suresh was nominated by President Barack Obama and unanimously confirmed by the U.S. Senate as the Director of the National Science Foundation (NSF) in September 2010. As director of this \$7-billion independent federal agency since October 2010, he leads the only government science agency charged with advancing all fields of fundamental science and engineering research and related education. NSF's programs and initiatives keep the United States at the forefront of science and engineering, empowering future generations of scientists and engineers, and fostering economic growth and innovation.

# SWIRLS

AGU has created a path for interdisciplinary collaboration at Fall Meeting. The Program Committee has identified, linked, and organized select sessions from the various sections into themes. These themes, called SWIRLS, provide Fall Meeting attendees with an interdisciplinary "walk through the week."



## Characterizing Uncertainty

It is important to recognize that uncertainty has at least two different aspects that are important for interdisciplinary science. One is the analytical and numerical quantification of uncertainty, such as the variability of observed results compared to simulated results, how we estimate model bias or error, and the difference in model outcomes that do and do not include critical processes in their framework. The other is that qualitative uncertainty is a significant component in our understanding of issues like evaluating decision criteria that can be used when implementing new policy or infrastructure and social/cultural responses to new and existing policies. This SWIRL theme includes sessions that discuss the quantification of uncertainty as well as qualitative assessments of legal issues and strategies for science communications.

Monday, 3 December

### MORNING

**A11E** Data Assimilation  
in Geosciences I Posters  
8:00 AM, Moscone South, Hall A-C

**A11F** Emissions Understanding,  
Constraints, and Changes I Posters  
8:00 AM, Moscone South, Hall A-C

**A11G** Emissions Understanding,  
Constraints, and Changes II Posters  
8:00 AM, Moscone South, Hall A-C

**A11H** Emissions Understanding,  
Constraints, and Changes III Posters  
8:00 AM, Moscone South, Hall A-C

**A11L** Application of Satellite Data to  
Serve Air Quality Management Needs I  
8:00 AM, Moscone West, Room 3004

**A11N** Data Assimilation in  
Geosciences II (Video On-Demand)  
8:00 AM, Moscone West, Room 3002

**B11E** New Mechanisms, Feedbacks,  
and Approaches for Improving Pre-  
dictions of the Global Carbon Cycle  
in Earth System Models I  
8:00 AM, Moscone West, Room 2006

**G11B** GNSS Techniques and  
Applications I Posters  
8:00 AM, Moscone South, Hall A-C

**IN11A** Earth System Data Records,  
Essential Uncertainty Information,  
and Its Representation Metadata  
and Standards I Posters  
8:00 AM, Moscone South, Hall A-C

**A12B** Application of Satellite Data  
to Serve Air Quality Management  
Needs II  
10:20 AM, Moscone West, Room 3004

**B12B** New Mechanisms, Feedbacks,  
and Approaches for Improving Pre-  
dictions of the Global Carbon Cycle  
in Earth System Models II  
10:20 AM, Moscone West, Room 2006

### AFTERNOON

**A13N** Application of Satellite Data  
to Serve Air Quality Management  
Needs III  
1:40 PM, Moscone West, Room 3004

**B13B** New Mechanisms, Feedbacks,  
and Approaches for Improving Pre-  
dictions of the Global Carbon Cycle in  
Earth System Models III Posters  
1:40 PM, Moscone South, Hall A-C

**D13C** State of the Art in  
Computational Geoscience I Posters  
1:40 PM, Moscone South, Hall A-C

**G13C** GNSS Techniques  
and Applications II

1:40 PM, Moscone West, Room 3009

**IN13D** Earth System Data Records,  
Essential Uncertainty Information,  
and Its Representation Metadata  
and Standards II  
1:40 PM, Moscone West, Room 2020

**PA13B** Countering Denial and  
Manufactured Doubt of 21st Century  
Science I  
1:40 PM, Moscone South, Room 302

**A14B** Application of Satellite Data  
to Serve Air Quality Management  
Needs IV  
4:00 PM, Moscone West, Room 3004

**A14C** Atmospheric Feedbacks and  
Climate Change: Observations,  
Theory, and Modeling I  
4:00 PM, Moscone West, Room 3012

**IN14A** Earth System Data Records,  
Essential Uncertainty Information,  
and Its Representation Metadata  
and Standards III  
4:00 PM, Moscone West, Room 2020

**U14A** Quantitative Modeling of  
Social and Environmental Systems  
4:00 PM, Moscone South, Room 102



**MORNING**

**A21B** Application of Satellite Data to Serve Air Quality Management Needs V Posters  
8:00 AM, Moscone South, Hall A-C

**A21C** Application of Satellite Data to Serve Air Quality Management Needs VI Posters  
8:00 AM, Moscone South, Hall A-C

**A21D** Atmospheric Feedbacks and Climate Change: Observations, Theory, and Modeling II Posters  
8:00 AM, Moscone South, Hall A-C

**A21E** Atmospheric Feedbacks and Climate Change: Observations, Theory, and Modeling III Posters  
8:00 AM, Moscone South, Hall A-C

**A21I** Atmospheric Feedbacks and Climate Change: Observations, Theory, and Modeling IV  
8:00 AM, Moscone West, Room 3004

**A21L** Fast Physics in Climate Models: Parameterization, Evaluation, and Observation I  
8:00 AM, Moscone West, Room 3005

**G21A** Geodetic Observations of GIA: A Window Into Past Ice Sheets and Earth Rheology I Posters  
8:00 AM, Moscone South, Hall A-C

**NH21C** Probabilistic Approaches for Tsunami Hazard Assessment Posters I  
8:00 AM, Moscone South, Hall A-C

**PA21A** Countering Denial and Manufactured Doubt of 21st Century Science II Posters  
8:00 AM, Moscone South, Hall A-C

**DI22A** State of the Art in Computational Geoscience II  
10:20 AM, Moscone South, Room 305

**NG22A** Scaling and Correlations and Their Use in Forecasting Natural Hazards I  
10:20 AM, Moscone South, Room 300

**U22A** Evaluating Models of Climate Change Impacts on Regional Earth and Human Systems  
10:20 AM, Moscone South, Room 102

**AFTERNOON**

**A23D** Fast Physics in Climate Models: Parameterization, Evaluation, and Observation II Posters  
1:40 PM, Moscone South, Hall A-C

**A23G** Atmospheric Feedbacks and Climate Change: Observations, Theory, and Modeling V  
1:40 PM, Moscone West, Room 3004

**A23I** Emissions Understanding, Constraints, and Changes IV  
1:40 PM, Moscone West, Room 3006

**G23C** Geodetic Observations of GIA: A Window Into Past Ice Sheets and Earth Rheology II  
1:40 PM, Moscone West, Room 3009

**MR23B** Dynamic and Static High-Pressure Experiments Relevant to Planetary Interiors I Posters  
1:40 PM, Moscone South, Hall A-C

**MR23C** Rheology of Deep Earth Materials: Spanning 12 Orders of Magnitude of Length Scales I Posters  
1:40 PM, Moscone South, Hall A-C

**NG23B** Scaling and Correlations and Their Use in Forecasting Natural Hazards II Posters  
1:40 PM, Moscone South, Hall A-C

**U23A** Regional-Scale Earth System Modeling to Support Policymaking  
1:40 PM, Moscone South, 102

**A24A** Emissions Understanding, Constraints, and Changes V  
4:00 PM, Moscone West, Room 3006

**NH24A** Probabilistic Approaches for Tsunami Hazard Assessment II  
4:00 PM, Moscone South, Room 304

SWIRLS

**MORNING**

**A31H** Emissions Understanding, Constraints, and Changes VI  
8:00 AM, Moscone West, Room 3006

**G31A** Observing Sea-Level Change From Decadal to Secular Scales I Posters  
8:00 AM, Moscone South, Hall A-C

**GC31C** Interpretation and Uncertainty Quantification of Climate and Integrated Earth System Models I  
8:00 AM, Moscone West, Room 3003

**MR31A** Rheology of Deep Earth Materials: Spanning 12 Orders of Magnitude of Length Scales II  
8:00 AM, Moscone South, Room 301

**A32B** Emissions Understanding, Constraints, and Changes VII  
10:20 AM, Moscone West, Room 3006

**GC32A** Interpretation and Uncertainty Quantification of Climate and Integrated Earth System Models II  
10:20 AM, Moscone West, Room 3003

**MR32A** Dynamic and Static High-Pressure Experiments Relevant to Planetary Interiors II  
10:40 AM, Moscone South, Room 301

## AFTERNOON

**A33I Remote Sensing of CO<sub>2</sub>, CO, and CH<sub>4</sub>: Emerging Challenges I Posters**  
1:40 PM, Moscone South, Hall A-C

**A33P Emissions Understanding, Constraints, and Changes VIII**  
1:40 PM, Moscone West, Room 3006

**B33H Improving Terrestrial Biogeochemical Models Through Integrating Models With Data I**  
1:40 PM, Moscone West, Room 2006

**G33C Observing Sea-Level Change From Decadal to Secular Scales II**  
1:40 PM, Moscone West, Room 3009

**GC33E Climate Extremes and Impacts: Can Big Data Mining and Fusion Help Reduce Uncertainties? I**  
1:40 PM, Moscone West, Room 3003

**NG33A Dynamic Regimes of Space Plasmas: Deterministic or Stochastic? I (Video On-Demand)**  
1:40 PM, Moscone South, Room 104

**NG33B Nonlinear and Scaling Processes in the Atmosphere and Ocean at All Scales, From Microscales to Climate I (Video On-Demand)**  
2:10 PM, Moscone South, Room 104

**GC33F Construing Uncertainty in Climate Science I**  
2:40 PM, Moscone West, Room 3003

**A34B Emissions Understanding, Constraints, and Changes IX**  
4:00 PM, Moscone West, Room 3006

**B34B Improving Terrestrial Biogeochemical Models Through Integrating Models With Data II**  
4:00 PM, Moscone West, Room 2006

**GC34B Uncertainty Quantification and Climate Change I**  
4:00 PM, Moscone West, Room 3003

## Thursday, 6 December

### MORNING

**A41K Climate Modeling in a Transparent World and Integrated Test Beds I**  
8:00 AM, Moscone West, Room 3010

**A41M Recent Field Experiments for Better Understanding and Prediction of Tropical Cyclones I**  
8:00 AM, Moscone West, Room 2018

**A41N Remote Sensing of CO<sub>2</sub>, CO, and CH<sub>4</sub>: Instruments and Algorithms II**  
8:00 AM, Moscone West, Room 3008

**A41O Scale Dependence, Scale Invariance, and Scale Aware Parameterization I**  
8:00 AM, Moscone West, Room 3004

**B41C Improving Terrestrial Biogeochemical Models Through Integrating Models With Data III Posters**  
8:00 AM, Moscone South, Hall A-C

**NG41A Dynamic Regimes of Space Plasmas: Deterministic or Stochastic? II Posters**  
8:00 AM, Moscone South, Hall A-C

**NG41C Nonlinear and Scaling Processes in the Atmosphere and Ocean at All Scales, From Microscales to Climate II Posters**  
8:00 AM, Moscone South, Hall A-C

**A42F Remote Sensing of CO<sub>2</sub>, CO, and CH<sub>4</sub>: Inverse Modeling and Data Assimilation III**  
10:20 AM, Moscone West, Room 3008

**U42A Fossil Fuel Production, Economic Growth, and Climate Change**  
10:20 AM, Moscone South, Room 102

### AFTERNOON

**A43A Climate Modeling in a Transparent World and Integrated Test Beds II Posters**  
1:40 PM, Moscone South, Hall A-C

**A43F Recent Field Experiments for Better Understanding and Prediction of Tropical Cyclones II Posters**  
1:40 PM, Moscone South, Hall A-C

**A43G Scale Dependence, Scale Invariance, and Scale Aware Parameterization II Posters**  
1:40 PM, Moscone South, Hall A-C

**A43L Remote Sensing of CO<sub>2</sub>, CO, and CH<sub>4</sub>: Remote Sensing of Megacity and Urban Emissions IV**  
1:40 PM, Moscone West, Room 3008

**GC43A Climate Extremes and Impacts: Can Big Data Mining and Fusion Help Reduce Uncertainties? II Posters**  
1:40 PM, Moscone South, Hall A-C

**GC43B Construing Uncertainty in Climate Science II Posters**  
1:40 PM, Moscone South, Hall A-C

**GC43C Interpretation and Uncertainty Quantification of Climate and Integrated Earth System Models III Posters**  
1:40 PM, Moscone South, Hall A-C

**GC43D Interpretation and Uncertainty Quantification of Climate and Integrated Earth System Models IV Posters**  
1:40 PM, Moscone South, Hall A-C

**GC43E Uncertainty Quantification and Climate Change II Posters**  
1:40 PM, Moscone South, Hall A-C

**NG43C Statistical Geodynamics I**  
1:40 PM, Moscone South, Room 300

**A44C Remote Sensing of CO<sub>2</sub>, CO, and CH<sub>4</sub>: Global distributions of CO<sub>2</sub>, CH<sub>4</sub>, and CO V**  
4:00 PM, Moscone West, Room 3008

**NG44A Stochastic Parameterizations in Numerical Weather and Climate Models I**  
4:00 PM, Moscone South, Room 300

**MORNING**

**A51J Remote Sensing of CO<sub>2</sub>, CO, and CH<sub>4</sub>: Future Missions VI**  
 8:00 AM, Moscone West, Room 3008

**G51C Reference Frames, Global Geodetic Observing Systems, and Technique Systematic Errors I**  
 8:00 AM, Moscone West, Room 3009

**NG51A Statistical Geodynamics II Posters**  
 8:00 AM, Moscone South, Hall A-C

**NG51B Stochastic Parameterizations in Numerical Weather and Climate Models II Posters**  
 8:00 AM, Moscone South, Hall A-C

**A52C Improving Climate Model Representation of Clouds and Water Vapor With the Use of Satellite and Other Observational Measurements I**  
 10:20 AM, Moscone West, Room 3006

**G52B Reference Frames, Global Geodetic Observing Systems, and Technique Systematic Errors II**  
 10:20 AM, Moscone West, Room 3009

**AFTERNOON**

**A53D Chemistry-Climate Interactions: Building on CMIP5 and ACCMIP I Posters**  
 1:40 PM, Moscone South, Hall A-C

**A53F Cloud and Multiscale Modeling of the Atmosphere I Posters**  
 1:40 PM, Moscone South, Hall A-C

**A53T Improving Climate Model Representation of Clouds and**

**Water Vapor With the Use of Satellite and Other Observational Measurements II Posters**  
 1:40 PM, Moscone West, Room 3006

**G53B Reference Frames, Global Geodetic Observing Systems, and Technique Systematic Errors III Posters**  
 1:40 PM, Moscone South, Hall A-C

**A54A Chemistry-Climate Interactions: Building on CMIP5 and ACCMIP II**  
 4:00 PM, Moscone West, Room 3004

**A54B Cloud and Multiscale Modeling of the Atmosphere II**  
 4:00 PM, Moscone West, Room 3010

SWIRLS

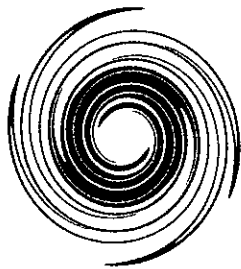
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## Dust and Aerosols

Natural and human contributions of dust and aerosols are critical to understanding climate and Earth system dynamics. In addition, dust and aerosols are important for understanding the atmospheric dynamics on other planets, such as Mars, Venus, the Moon, and other orbiting bodies, as well as contributions to deep Earth dynamics in volcanic systems with regard to tephrochronology and pyroclastic investigations into tracing volcanic eruptions. This SWIRL theme provides a path for: the paleo past; contributions to the atmosphere, including contemporary regional monsoonal, high-latitude, south Asian and African dust and aerosol generation and transport; planetary evolution; the Rosetta encounter; and how dust and aerosols contribute to our understanding of processes and mechanisms in volcanology.

**Monday, 3 December**

### MORNING

**A11L Application of Satellite Data to Serve Air Quality Management Needs I**

8:00 AM, Moscone West, Room 3004

**P11B Planetary Evolution and the Fate of Planetary Habitability I Posters**

8:00 AM, Moscone South, Hall A-C

**P11D Using Numerical Models to Understand the Venus Atmosphere**

**and Surface I Posters**

8:00 AM, Moscone South, Hall A-C

**P11G Planetary Atmospheres and Evolution I**

8:00 AM, Moscone West, Room 2007

**A12A Aerosols and Air Quality in South Asia: Observations, Modeling, Impacts I**

10:20 AM, Moscone West, Room 3006

**A12B Application of Satellite Data to Serve Air Quality Management Needs II**

10:20 AM, Moscone West, Room 3004

**P12B Planetary Atmospheres and Evolution II**

10:20 AM, Moscone West, Room 2007

SWIRLS

### AFTERNOON

**A13J Multisensor and Model Aerosol Data Intercomparison and Synergy I Posters**

1:40 PM, Moscone South, Hall A-C

**A13K Multisensor and Model Aerosol Data Intercomparison and Synergy II Posters**

1:40 PM, Moscone South, Hall A-C

**A13M Aerosols and Air Quality in South Asia: Observations, Modeling, Impacts II**

1:40 PM, Moscone West, Room 3006

**A13N Application of Satellite Data to Serve Air Quality Management Needs III**

1:40 PM, Moscone West, Room 3004

**P13B Planetary Atmospheres and Evolution III Posters**

1:40 PM, Moscone South, Hall A-C

**P13C Planetary Atmospheres and Evolution IV Posters**

1:40 PM, Moscone South, Hall A-C

**P13F Using Numerical Models to Understand the Venus Atmosphere and Surface II**

1:40 PM, Moscone West, Room 2007

**PP13A Continental Input Into the Atmosphere and Ocean, Present and Past I Posters**

1:40 PM, Moscone South, Hall A-C

**P13E Planetary Evolution and the Fate of Planetary Habitability II**

2:40 PM, Moscone West, Room 2007

**A14A Aerosols and Air Quality in South Asia: Observations, Modeling, Impacts III**

4:00 PM, Moscone West, Room 3006

**A14B Application of Satellite Data to Serve Air Quality Management Needs IV**

4:00 PM, Moscone West, Room 3004

**A14D Chemical Imaging Analysis of Atmospheric Particles I**

4:00 PM, Moscone West, Room 3008

**P14A Planetary Evolution and the Fate of Planetary Habitability III**

4:00 PM, Moscone West, Room 2007

**MORNING**

**A21A** Aerosols and Air Quality in South Asia: Observations, Modeling, Impacts IV Posters  
8:00 AM, Moscone South, Hall A-C

**A21B** Application of Satellite Data to Serve Air Quality Management Needs V Posters  
8:00 AM, Moscone South, Hall A-C

**A21C** Application of Satellite Data to Serve Air Quality Management Needs VI Posters  
8:00 AM, Moscone South, Hall A-C

**A21F** Chemical Imaging Analysis of Atmospheric Particles II Posters  
8:00 AM, Moscone South, Hall A-C

**A21O** Transport and Impacts of African Dust on Weather and Climate I (Video On-Demand)  
8:00 AM, Moscone West, Room 2022-2024

**P21B** Nonlinear Processes in Exoplanet Atmospheres and Protoplanetary Disks I Posters  
8:00 AM, Moscone South, Hall A-C

**P21D** Recent Advances in Planetary Aeolian Studies I Posters  
8:00 AM, Moscone South, Hall A-C

**P21F** Titan's Enigmatic Upper Atmosphere and Ionosphere I Posters  
8:00 AM, Moscone South, Hall A-C

**P21G** Atmosphere of Mars: New Findings From Modeling and Observations I  
8:00 AM, Moscone West, Room 2007

**PP21C** Continental Input Into the Atmosphere and Ocean, Present and Past II  
8:00 AM, Moscone West, Room 2008

**P22A** Atmosphere of Mars: New Findings From Modeling and Observations II  
10:20 AM, Moscone West, Room 2007

**PP22A** Continental Input Into the Atmosphere and Ocean, Present and Past III  
10:20 AM, Moscone West, Room 2008

**AFTERNOON**

**A23F** Transport and Impacts of African Dust on Weather and Climate II Posters  
1:40 PM, Moscone South, Hall A-C

**P23A** Atmosphere of Mars: New Findings From Modeling and Observations III Posters  
1:40 PM, Moscone South, Hall A-C

**P23E** Recent Advances in Planetary Aeolian Studies II  
1:40 PM, Moscone South, Hall A-C

**A24C** Multisensor and Model Aerosol Data Intercomparison and Synergy III  
4:00 PM, Moscone West, Room 3012

**P24C** Titan's Enigmatic Upper Atmosphere and Ionosphere II  
4:00 PM, Moscone West, Room 2005

**P24A** Nonlinear Processes in Exoplanet Atmospheres and Protoplanetary Disks II  
5:00 PM, Moscone West, Room 2005

SWIRLS

**MORNING**

**P31C** Solar System Dusty Plasma I Posters  
8:00 AM, Moscone South, Hall A-C

**P31F** Polarimetry as an Invaluable Tool to Study the Solar System and Beyond I  
8:00 AM, Moscone West, Room 2007

**V31F** Quaternary Tephrochronology: Advances and Applications I  
8:00 AM, Moscone South, Room 303

**V31G** Vulcanian Eruptions: Field Observations, Experimental Constraints, and Integrated Modeling I  
8:00 AM, Moscone South, Room 310

**A32A** Airborne Observations of Greenhouse Gases and Black Carbon I  
10:20 AM, Moscone West, Room 3008

**AFTERNOON**

**A33A** Direct Impacts of Aerosols on Radiation: Recent Observations and Modeling Results I Posters  
1:40 PM, Moscone South, Hall A-C

**A33D** Mineral Dust Aerosols: From Small-Scale to Large-Scale Understanding I Posters  
1:40 PM, Moscone South, Hall A-C

**A33E** Mineral Dust Aerosols: From Small-Scale to Large-Scale Understanding II Posters  
1:40 PM, Moscone South, Hall A-C

**A33O** Airborne Observations of Greenhouse Gases and Black Carbon II  
1:40 PM, Moscone West, Room 3008

**P33D** Polarimetry as an Invaluable Tool to Study the Solar System and Beyond II Posters  
1:40 PM, Moscone South, Hall A-C

**V33D** Vulcanian Eruptions: Field Observations, Experimental Constraints, and Integrated Modeling II Posters  
1:40 PM, Moscone South, Hall A-C

**A34A Airborne Observations of Greenhouse Gases and Black Carbon III**  
4:00 PM, Moscone West, Room 3008

**A34D Indian Summer Monsoon and Aerosols I**  
4:00 PM, Moscone West, Room 3012

**P34C Solar System Dusty Plasma II**  
4:00 PM, Moscone West, Room 2009

## Thursday, 6 December

### MORNING

**A41A Airborne Observations of Greenhouse Gases and Black Carbon IV Posters**  
8:00 AM, Moscone South, Hall A-C

**A41B Airborne Observations of Greenhouse Gases and Black Carbon V Posters**  
8:00 AM, Moscone South, Hall A-C

**A41C Airborne Observations of Greenhouse Gases and Black Carbon VI Posters**  
8:00 AM, Moscone South, Hall A-C

**A41D Airborne Observations of Greenhouse Gases and Black Carbon VII Posters**  
8:00 AM, Moscone South, Hall A-C

**A41E Indian Summer Monsoon and Aerosols II Posters**  
8:00 AM, Moscone South, Hall A-C

**A41F Indian Summer Monsoon and Aerosols III Posters**  
8:00 AM, Moscone South, Hall A-C

**A41L Mineral Dust Aerosols: From Small-Scale to Large-Scale Understanding III**  
8:00 AM, Moscone West, Room 3006

**C41D Dust and Black Carbon in the Cryosphere I (Video On-Demand)**  
8:00 AM, Moscone West, Room 3002

**P41A Accretion, Core-Mantle Differentiation, and Early Planetary Evolution I Posters**  
8:00 AM, Moscone South, Hall A-C

**P41D Preparations for Rosetta Encounter: Comet Observation and Modeling—Lessons Learned from Enceladus I**  
8:00 AM, Moscone South, Room 302

**V41B What Can Pyroclasts Tell Us? Mechanisms of Generation, Transport, and Sedimentation in Explosive Eruptions I Posters**  
8:00 AM, Moscone South, Hall A-C

**A42A Black Carbon Aerosol: Measurements, Mechanisms, and Climate Forcing I**  
1:40 PM, Moscone West, Room 3004

**A42E Mineral Dust Aerosols: From Small-Scale to Large-Scale Understanding IV**  
10:20 AM, Moscone West, Room 3006

**P42A Lunar Science in the Wake of Human Exploration: Four Decades of Samples and Surface Data I (Video On-Demand)**  
10:20 AM, Moscone South, Room 103

**P42B Small Bodies and Moons and Their Interaction With the Space Environment I**  
10:20 AM, Moscone West, Room 2007

SWIRLS

### AFTERNOON

**A43H Aerosol Observations at High Elevation I**  
1:40 PM, Moscone West, Room 3012

**A43I Black Carbon Aerosol: Measurements, Mechanisms, and Climate Forcing II**  
10:20 AM, Moscone West, Room 3004

**A43J Mineral Dust Aerosols: From Small-Scale to Large-Scale Understanding V**  
1:40 PM, Moscone West, Room 3006

**P43B Lunar Science in the Wake of Human Exploration: Four Decades of Samples and Surface Data II Posters**  
1:40 PM, Moscone South, Hall A-C

**P43C Preparations for Rosetta Encounter: Comet Observation and Modeling—Lessons Learned from Enceladus II Posters**  
1:40 PM, Moscone South, Hall A-C

**P43D Small Bodies and Moons and Their Interaction With the Space Environment II Posters**  
1:40 PM, Moscone South, Hall A-C

**V43B Quaternary Tephrochronology: Advances and Applications II Posters**  
1:40 PM, Moscone South, Hall A-C

**A44A Mineral Dust Aerosols: From Small-Scale to Large-Scale Understanding VI**  
4:00 PM, Moscone West, Room 3006

**A44D Sources, Properties, and the Budget of Ocean-Derived CCN I**  
4:00 PM, Moscone West, Room 3012

**P44A Accretion, Core-Mantle Differentiation, and Early Planetary Evolution II**  
4:00 PM, Moscone West, Room 2007

**MORNING**

- ✓ **A51A** Aerosol Observations at High Elevation II Posters  
8:00 AM, Moscone South, Hall A-C
- A51B** Black Carbon Aerosol: Measurements, Mechanisms, and Climate Forcing III Posters  
8:00 AM, Moscone South, Hall A-C
- A51D** Sources, Properties, and the Budget of Ocean-Derived CCN II Posters  
8:00 AM, Moscone South, Hall A-C
- A51G** Direct Impacts of Aerosols on Radiation: Recent Observations and Modeling Results II  
8:00 AM, Moscone West, Room 3010
- A51K** The Chemical Processing of Atmospheric Organic Aerosol I  
8:00 AM, Moscone West, Room 3004

- NH51A** Remote Sensing and Modeling Resources for Airborne Dust Research over the Pan-American Region Posters  
8:00 AM, Moscone South, Hall A-C
- P51A** Origins, Evolutions, and Processes of the Outer Planet Satellites I Posters  
8:00 AM, Moscone South, Hall A-C
- P51B** Planetary Rings: Theory and Observation I Posters  
8:00 AM, Moscone South, Hall A-C
- P51C** Recent Advances in Lunar Science: Of, On, and From the Moon I  
8:00 AM, Moscone West, Room 2007
- V51E** What Can Pyroclasts Tell Us? Mechanisms of Generation, Trans-

- port, and Sedimentation in Explosive Eruptions II  
8:00 AM, Moscone South, Room 303
- A52E** The Chemical Processing of Atmospheric Organic Aerosol II  
10:20 AM, Moscone West, Room 3004
- P52A** Recent Advances in Lunar Science: Of, On, and From the Moon II  
10:20 AM, Moscone West, Room 2007
- V52C** What Can Pyroclasts Tell Us? Mechanisms of Generation, Transport, and Sedimentation in Explosive Eruptions III (Video On-Demand)  
10:20 AM, Moscone South, Room 103

**AFTERNOON**

- A53K** Nanoparticles in the Earth's Atmosphere I Posters  
1:40 PM, Moscone South, Hall A-C
- A53O** The Chemical Processing of Atmospheric Organic Aerosol III Posters  
1:40 PM, Moscone South, Hall A-C
- A53U** Nanoparticles in the Earth's Atmosphere II  
1:40 PM, Moscone West, Room 3010
- A53W** The Chemical Processing of Atmospheric Organic Aerosol IV  
1:40 PM, Moscone West, Room 3004
- C53C** Dust and Black Carbon in the Cryosphere II Posters  
1:40 PM, Moscone South, Hall A-C

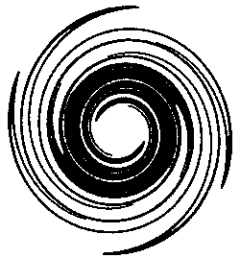
- P53A** Recent Advances in Lunar Science: Of, On, and From the Moon III Posters  
1:40 PM, Moscone South, Hall A-C
- P53B** Origins, Evolutions, and Processes of the Outer Planet Satellites II  
1:40 PM, Moscone West, Room 2007
- P53C** Recent Advances in Lunar Science: Of, On, and From the Moon IV (Video On-Demand)  
2:40 PM, Moscone West, Room 2022-2024
- V53H** What Can Pyroclasts Tell Us? Mechanisms of Generation, Transport, and Sedimentation in Explosive Eruptions IV  
1:40 PM, Moscone South, Room 102

- P54A** Origins, Evolutions, and Processes of the Outer Planet Satellites III  
4:00 PM, Moscone West, Room 2007
- P54B** Planetary Rings: Theory and Observation II  
5:00 PM, Moscone West, Room 2007
- V54C** What Can Pyroclasts Tell Us? Mechanisms of Generation, Transport, and Sedimentation in Explosive Eruptions V  
4:00 PM, Moscone South, Room 102

SWIRLS

**MAKING A DIFFERENCE!**

**A big thank you to all AGU members who volunteer their time and talent to advance the strategic plan.**



# Subduction

Subduction is an important component of understanding how and why the Earth moves in response to planetary pressures and the consequences to human systems. This SWIRL theme embraces the multiscale nature of subduction through convective systems, seismic anisotropy and plate tectonics, mechanistic attribution of the role of fluid dynamics in terrestrial and extraterrestrial processes, as well as risk and geohazards and the vulnerability of cities on subduction thrusts.

## Monday, 3 December

### MORNING

**MR11A All About Olivine! I Posters**  
8:00 AM, Moscone South, Hall A-C

**MR11C Melts and Fluids in Earth and Planetary Interiors I Posters**  
8:00 AM, Moscone South, Hall A-C

**NH11A Asia-Pacific Region Global Earthquake and Volcanic Eruption Risk Management (G-EVER) I Posters**  
8:00 AM, Moscone South, Hall A-C

**NH11C Geohazards and Disaster Risks in the North Pacific Region Posters I**  
8:00 AM, Moscone South, Hall A-C

**T11A Before and after Subduction: Downgoing Plate to Inboard Strike-Slip Faulting Posters**  
8:00 AM, Moscone South, Hall A-C

**T11C Cities on Subduction Thrusts I (Video On-Demand)**  
8:00 AM, Moscone South, 103

**T12C How, When, and Where Does Slip Occur in the Subduction Environment? I (Video On-Demand)**  
10:20 AM, Moscone South, Room 103

SWIRLS

### AFTERNOON

**T13A Anatomy of Ancient and Active Shallow Megathrusts I Posters**  
1:40 PM, Moscone South, Hall A-C

**T13B Anatomy of Ancient and Active Shallow Megathrusts II Posters**  
1:40 PM, Moscone South, Hall A-C

**T13C Cities on Subduction Thrusts II Posters**  
1:40 PM, Moscone South, Hall A-C

**T13F How, When, and Where Does Slip Occur in the Subduction Environment? II Posters**  
1:40 PM, Moscone South, Hall A-C

**T13H Before and After Subduction: Incoming Plate Structure, Outer-Rise Faulting, and the Subducted Plate**  
1:40 PM, Moscone South, Room 308

**NH13B Asia-Pacific Region Global Earthquake and Volcanic Eruption Risk Management (G-EVER) II**  
1:40 PM, Moscone South, Room 304

**MR14A Melts and Fluids in Earth and Planetary Interiors II**  
4:00 PM, Moscone South, Room 305

**NH14A Geohazards and Disaster Risks in the North Pacific Region II (Video On-Demand)**  
4:00 PM, Moscone South, Room 104

**T14A Before and After Subduction: Interface Slip and Inboard Strike-Slip Faulting**  
4:00 PM, Moscone South, Room 308

## Tuesday, 4 December

### MORNING

**DI21A Characterizing the Multiscale Convection Systems Under Western North America I Posters**  
8:00 AM, Moscone South, Hall A-C

**DI21B Seismic Anisotropy and Plate Tectonics: Insight Through Observations, Experiments, and Modeling I Posters**  
8:00 AM, Moscone South, Hall A-C

**T21C Fluids and Hydrous Phases in Subduction Zones I Posters**  
8:00 AM, Moscone South, Hall A-C

**T21F Anatomy of Ancient and Active Shallow Megathrusts III**  
8:00 AM, Moscone South, Room 308

**V21C A Comprehensive Understanding of the Melting Processes at Subduction Zones I (Video On-Demand)**  
8:00 AM, Moscone South, Room 103

**MR22A All About Olivine! II (Video On-Demand)**  
10:20 AM, Moscone West, Room 2022-2024

**T22A Anatomy of Ancient and Active Shallow Megathrusts IV**  
10:20 AM, Moscone South, Room 308



## AFTERNOON

### DI23A Mantle Flow and Subduction Dynamics I Posters

1:40 PM, Moscone South, Hall A-C

### T23G Anatomy of Ancient and Active Shallow Megathrusts V

1:40 PM, Moscone South, Room 308

### DI24A Seismic Anisotropy and Plate Tectonics: Insight Through Observations, Experiments, and Modeling II

4:00 PM, Moscone South, Room 305

### T24B Fluids and Hydrous Phases in Subduction Zones II

4:00 PM, Moscone South, Room 308

## Wednesday, 5 December

### MORNING

### V31A A Comprehensive Understanding of the Melting Processes at Subduction Zones II Posters

8:00 AM, Moscone South, Hall A-C

### V31E Metamorphic and Magmatic Processes at High Pressure I: Cosponsored by MSA (Video On-Demand)

8:00 AM, Moscone South, Room 103

### V32B The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits, Igneous Bodies, and Meteorites I: Cosponsored by MSA

10:20 AM, Moscone South, Room 303

### AFTERNOON

### DI33B Mantle Flow and Subduction Dynamics II

1:40 PM, Moscone South, Room 301

### V33C Metamorphic and Magmatic Processes at High Pressure II Posters: Cosponsored by MSA

1:40 PM, Moscone South, Hall A-C

### V33F The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits,

### Igneous Bodies, and Meteorites II: Cosponsored by MSA

1:40 PM, Moscone South, Room 303

### DI34A Characterizing the Multiscale Convection Systems Under Western North America II

5:00 PM, Moscone South, Room 301

### DI34B Mantle Flow and Subduction Dynamics III

4:00 PM, Moscone South, Room 301

### V34B The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits, Igneous Bodies, and Meteorites III: Cosponsored by MSA (Video On-Demand)

5:00 PM, Moscone South, Room 104

## Thursday, 6 December

### MORNING

### V41D The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits, Igneous Bodies, and Meteorites IV: Cosponsored by MSA (Video On-Demand)

8:00 AM, Moscone South, Room 103

### V43A From Deep to Shallow: Elemental Cycling Through UHP Metamorphism and Serpentinization I Posters

1:40 PM, Moscone South, Hall A-C

### AFTERNOON

### V43C The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits, Igneous Bodies, and Meteorites V Posters: Cosponsored by MSA

1:40 PM, Moscone South, Hall A-C

## Friday, 7 December

### MORNING

### V51C From Deep to Shallow: Elemental Cycling Through UHP Metamorphism and Serpentinization II

8:00 AM, Moscone South, Room 310

### V52A From Deep to Shallow: Elemental Cycling Through UHP Metamorphism and Serpentinization III

10:20 AM, Moscone South, Room 310

# Events at a Glance

Events scheduled as of 15 October 2012

Function	Start Time	End Time	Building	Room	Function Type	Event Type
<b>Sunday, 2 December</b>						
Heads and Chairs Workshop	7:30 AM	6:00 PM	InterContinental San Francisco	InterContinental Ballroom B	AGU Sponsored	Invite Required
AGU Council Meeting	8:00 AM	6:00 PM	InterContinental San Francisco	Grand Ballroom A-C	AGU Sponsored	Invite Required
Communicating Climate Science Workshop Plenary	8:00 AM	9:00 AM	InterContinental San Francisco	Telegraph Hill	AGU Sponsored	Invite Required
UNOLS DESSC Meeting	8:00 AM	5:00 PM	Parc 55 Wyndham	Market Street	Auxiliary Event	Invite Required
MAYEN Mars Community Science Workshop	8:30 AM	6:00 PM	Parc 55 Wyndham	Powell	Auxiliary Event	Invite Required
Communication Tools for Sharing Climate Change Solutions	9:00 AM	5:00 PM	Moscone North	Room 125	Auxiliary Event	Invite Required
GRL Editorial Board Meeting	9:00 AM	4:00 PM	Moscone North	Room 121	AGU Sponsored	Invite Required
MS PhD's Student Participants' Self-Introduction Presentations	9:00 AM	5:00 PM	Moscone South: Mezzanine	Rooms 270-274	AGU Sponsored	Open To All
Ocean RCN	9:00 AM	6:00 PM	Parc 55 Wyndham	Mission 2-3	Auxiliary Event	Invite Required
Communicating Climate Science Workshop Breakout I	9:15 AM	10:30 AM	InterContinental San Francisco	Telegraph Hill	AGU Sponsored	Invite Required
Communicating Climate Science Workshop Breakout I	9:15 AM	10:30 AM	InterContinental San Francisco	Russian Hill	AGU Sponsored	Invite Required
UNOLS MLSOC Meeting	10:00 AM	5:00 PM	Parc 55 Wyndham	Divisadero	Auxiliary Event	Invite Required
Communicating Climate Science Workshop Breakout II	10:45 AM	12:00 PM	InterContinental San Francisco	Russian Hill	AGU Sponsored	Invite Required
Communicating Climate Science Workshop Breakout II	10:45 AM	12:00 PM	InterContinental San Francisco	Telegraph Hill	AGU Sponsored	Invite Required
Finding Your Voice: Effective Science Communication	12:00 PM	5:00 PM	InterContinental San Francisco	Ballroom C	AGU Sponsored	Open To All
Public Lecture	12:00 PM	1:00 PM	Moscone South	Room 102	AGU Sponsored	Open To All
Exploration Station	1:00 PM	5:00 PM	Moscone South	Rooms 103-104	AGU Sponsored	Open To All
Rosetta Reports	1:00 PM	5:30 PM	Parc 55 Wyndham	Mission 1	Auxiliary Event	Invite Required
The Art of Science Communication Workshop Plenary	1:00 PM	2:00 PM	InterContinental San Francisco	Telegraph Hill	AGU Sponsored	Invite Required
Understanding Ice Shelf Stability: Planning Interdisciplinary Studies of the Ross Ice Shelf	1:00 PM	5:00 PM	Parc 55 Wyndham	Embarcadero	Auxiliary Event	Invite Required
Voyager Project Science Steering Group	1:00 PM	6:00 PM	Parc 55 Wyndham	Haight	Auxiliary Event	Invite Required
The Art of Science Communicating Breakout I	2:15 PM	3:30 PM	InterContinental San Francisco	Telegraph Hill	AGU Sponsored	Invite Required
The Art of Science Communicating Breakout I	2:15 PM	3:30 PM	InterContinental San Francisco	Russian Hill	AGU Sponsored	Invite Required
The Art of Science Communicating Breakout II	3:45 PM	5:00 PM	InterContinental San Francisco	Russian Hill	AGU Sponsored	Invite Required
The Art of Science Communicating Breakout II	3:45 PM	5:00 PM	InterContinental San Francisco	Telegraph Hill	AGU Sponsored	Invite Required
Session Chair Training	4:30 PM	5:00 PM	Moscone South	Room 300	AGU Sponsored	Open To All

Function	Start Time	End Time	Building	Room	Function Type	Event Type
Student Representative Meeting	5:00 PM	6:00 PM	Moscone North	Room 121	AGU Sponsored	Invite Required
Ice Breaker	5:30 PM	7:00 PM	Moscone West	Hall	AGU Sponsored	Open To All
Space Physics and Astronomy Executive Committee Dinner	6:00 PM	8:30 PM	InterContinental San Francisco	Howard	AGU Sponsored	Invite Required
Carnegie Institution Reception	6:30 PM	9:30 PM	InterContinental San Francisco	Pacific Terrace	Auxiliary Event	Invite Required
Water Resources Research Editors Reception	6:30 PM	9:00 PM	InterContinental San Francisco	InterContinental Ballroom C	AGU Sponsored	Invite Required
Planetary Science/Space Physics Career Night Mixer	7:00 PM	9:00 PM	San Francisco Marriott Marquis	Foothill G and Club Room	AGU Sponsored	Open to All
Films at AGU: Chasing Ice	7:30 PM	9:30 PM	Moscone South: Esplanade	Room 300	AGU Sponsored	Open To All
<b>Monday, 3 December</b>						
Biogeosciences Section Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 110	AGU Sponsored	Invite Required
Mineral and Rock Physics Focus Group Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 111	AGU Sponsored	Invite Required
Nonlinear Geophysics Focus Group Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 112	AGU Sponsored	Invite Required
AGU Cinema: Short Films on Science	8:00 AM	6:00 PM	Moscone West	Room 2012	AGU Sponsored	Open To All
Geophysical Information for Teachers (GIT) Workshop Day 1	7:30 AM	4:00 PM	San Francisco Marriott Marquis	Golden Gate A	AGU Sponsored	Invite Required
Council on Undergraduate Research Getting Started in Undergraduate Research Workshop	8:00 AM	12:00 PM	San Francisco Marriott Marquis	Salons 12-13	AGU Sponsored	Invite Required
One-on-One Availability with an Attorney	8:00 AM	3:00 PM	Moscone South: Mezzanine	Room 264	AGU Sponsored	Open To All
Visual Data Analysis: Tools and Techniques for the Geophysical Sciences	8:30 AM	12:30 PM	San Francisco Marriott Marquis	Salon 5	Auxiliary Event	Open To All
Career Advice Workshops	10:00 AM	4:00 PM	Moscone South: Mezzanine	Rooms 270-274	AGU Sponsored	Open To All
Legal Duties to Preserve and Disclose Scientific Data and Personal Communications	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Salon 10	AGU Sponsored	Open To All
Work-Life Balance Workshop	1:30 PM	5:30 PM	San Francisco Marriott Marquis	Salons 12-13	AGU Sponsored	Open To All
CloudSat Science Team Meeting	5:00 PM	8:00 PM	San Francisco Marriott Marquis	Salon 10	Auxiliary Event	Invite Required
GIPSY/Oasis User Group Meeting	6:00 PM	8:30 PM	San Francisco Marriott Marquis	Salons 1-2	Auxiliary Event	Invite Required
Introduction to the Web-Enabled Landsat Data (WELD) Products Using Open Source Software	6:00 PM	10:30 PM	San Francisco Marriott Marquis	Sierra A	Auxiliary Event	Open To All
Is Climate Warming More Pronounced at High Elevations?	6:00 PM	9:00 PM	San Francisco Marriott Marquis	Sierra D	Auxiliary Event	Invite Required
Student Mixer	6:00 PM	7:30 PM	San Francisco Marriott Marquis	Salon 7	AGU Sponsored	Invite Required
Biogeosciences/Hydrology-Soil Systems and Critical Zone Processes Technical Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 125	AGU Sponsored	Invite Required
Cryosphere Career Development Mentor Panel	6:15 PM	7:15 PM	San Francisco Marriott Marquis	Golden Gate C1	AGU Sponsored	Open To All
Hydrology-Ecohydrology Technical Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 111	AGU Sponsored	Invite Required
Hydrology-Ground Water Technical Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 112	AGU Sponsored	Invite Required
Hydrology-Hydrogeophysics Technical Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 113	AGU Sponsored	Invite Required
Hydrology-Large-Scale Field Experimentation Technical Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 114	AGU Sponsored	Invite Required

**EVENTS AT  
A GLANCE**

Function	Start Time	End Time	Building	Room	Function Type	Event Type
Hydrology-Precipitation Technical Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 121	AGU Sponsored	Invite Required
Hydrology/Societal Impacts and Policy Sciences-Water and Society Technical Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 110	AGU Sponsored	Invite Required
Near-Surface Geophysics Focus Group Executive Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 122	AGU Sponsored	Invite Required
Paleoceanography and Paleoclimatology Focus Group Executive Committee Meeting	6:15 PM	7:15 PM	Moscone North	Room 124	AGU Sponsored	Invite Required
Section and Focus Group Web Editors Meeting	6:15 PM	7:15 PM	San Francisco Marriott Marquis	Sierra I	AGU Sponsored	Invite Required
Space Physics and Aeronomy Education and Public Outreach Committee Meeting	6:15 PM	7:15 PM	San Francisco Marriott Marquis	Sierra B	AGU Sponsored	Invite Required
25- and 50- Year Member Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Club Room	AGU Sponsored	Invite Required
Open Mic Night: Tall Tales and Earth Sonnets	6:30 PM	8:30 PM	Jillian's at Metreon: 175 4th Street	n/a	AGU Sponsored	Open To All
University of Delaware Reception for Alumni, Faculty, and Students, and Celebration of Dr. George Luther as AGU Fellow	7:00 PM	10:00 PM	San Francisco Marriott Marquis	Salon 9	Auxiliary Event	Invite Required
Editors' Evening	7:30 PM	10:00 PM	City Club: 155 Sansome Street	n/a	AGU Sponsored	Invite Required
<b>Tuesday, 4 December</b>						
Earth and Space Science Informatics Focus Group Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 110	AGU Sponsored	Invite Required
Heads and Chairs Breakfast	6:45 AM	7:45 AM	San Francisco Marriott Marquis	Sierra B	AGU Sponsored	Invite Required
Hydrology-Remote Sensing Technical Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 111	AGU Sponsored	Invite Required
Hydrology-Surface Water Technical Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 112	AGU Sponsored	Invite Required
Hydrology-Unsaturated Zone Technical Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 113	AGU Sponsored	Invite Required
Hydrology-Water Quality Technical Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 114	AGU Sponsored	Invite Required
National Academy of Sciences Sections 15/16 Breakfast	6:45 AM	7:45 AM	San Francisco Marriott Marquis	Salons 1-2	Auxiliary Event	Invite Required
Ocean Sciences Section Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 121	AGU Sponsored	Invite Required
Student Breakfast	6:45 AM	7:45 AM	San Francisco Marriott Marquis	Salon 8	AGU Sponsored	Open To All
Study of the Earth's Deep Interior Focus Group Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 122	AGU Sponsored	Invite Required
Tectonophysics Section Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 124	AGU Sponsored	Invite Required
OAR All Hands	7:00 AM	7:45 AM	San Francisco Marriott Marquis	Salon 10	Auxiliary Event	Invite Required
Geophysical Information for Teachers (GIFT) Workshop Day 2	7:30 AM	4:00 PM	San Francisco Marriott Marquis	Golden Gate A	AGU Sponsored	Invite Required
AGU Cinema: Short Films on Science	8:00 AM	6:00 PM	Moscone West	Room 2012	AGU Sponsored	Open To All
CHANS Fellows Orientation	8:00 AM	9:00 AM	San Francisco Marriott Marquis	Sierra I	Auxiliary Event	Invite Required
One-on-One Availability with an Attorney	8:00 AM	3:00 PM	Moscone South: Mezzanine	Room 264	AGU Sponsored	Open To All
STELAR-S2S Mekong Project Meeting	9:00 AM	5:00 PM	San Francisco Marriott Marquis	Sierra K	Auxiliary Event	Invite Required
Career Advice Workshops	10:00 AM	4:00 PM	Moscone South: Mezzanine	Rooms 270-274	AGU Sponsored	Open To All



Function	Start Time	End Time	Building	Room	Function Type	Event Type
Train and Entrain New Users of Lower Atmospheric Observing Facilities	10:00 AM	12:00 PM	San Francisco Marriott Marquis	Sierra J	Auxiliary Event	Open To All
Convocation of Scientific Societies Luncheon	11:30 AM	1:30 PM	San Francisco Marriott Marquis	Salons 3-4	AGU Sponsored	Invite Required
NSF-Division of Undergraduate Education Program to Improve Undergraduate Geoscience Education	12:15 PM	1:45 PM	San Francisco Marriott Marquis	Club Room	AGU Sponsored	Open To All
Scientific Data Management 101	12:20 PM	1:40 PM	San Francisco Marriott Marquis	Salons 5-6	Auxiliary Event	Open To All
Atmospheric and Space Electricity Focus Group Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 110	AGU Sponsored	Invite Required
Atmospheric Sciences Section Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 111	AGU Sponsored	Invite Required
Biogeosciences Section Luncheon	12:30 PM	1:30 PM	Canton Seafood & Dim Sum Restaurant: 655 Folsom Street	n/a	AGU Sponsored	Ticket Required
Eos Editorial Board Lunch	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Salons 1-2	AGU Sponsored	Invite Required
Geodesy Section Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 112	AGU Sponsored	Invite Required
Geomagnetism and Paleomagnetism Section Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 113	AGU Sponsored	Invite Required
Global Biogeochemical Cycles Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra D	AGU Sponsored	Invite Required
Global Environment Change Focus Group Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 114	AGU Sponsored	Invite Required
How to be a Congressional Science Fellow or Mass Media Fellow Luncheon Workshop	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Golden Gate B	AGU Sponsored	Open To All
Hydrology Section Business Meeting and Luncheon	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Salon 8	AGU Sponsored	Ticket Required
JGR-Planets Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra F	AGU Sponsored	Invite Required
JGR-Solid Earth Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra A	AGU Sponsored	Invite Required
Journal of Advances in Modeling Earth Systems (JAMES) Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra C	AGU Sponsored	Invite Required
Near Surface Geophysics Focus Group Meeting and Luncheon	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Golden Gate C3	AGU Sponsored	Ticket Required
NOAA Climate and Global Change Postdoctoral Fellowship Program Luncheon	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Salon 11	Auxiliary Event	Invite Required
Ocean Sciences Section Business Meeting and Luncheon	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Golden Gate C2	AGU Sponsored	Ticketed Event
Paleoceanography Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra I	AGU Sponsored	Invite Required
Planetary Science Education Working Group Lunch	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra H	AGU Sponsored	Invite Required
Planetary Sciences Section Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 121	AGU Sponsored	Invite Required
Reviews of Geophysics Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra G	AGU Sponsored	Invite Required
Seismology Section Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 122	AGU Sponsored	Invite Required
Space Weather Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra E	AGU Sponsored	Invite Required
The Law for Government Scientists	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Salon 10	AGU Sponsored	Open To All
Volcanology, Geochemistry, and Petrology Section Executive Committee Meeting	12:30 PM	1:30 PM	Moscone North	Room 124	AGU Sponsored	Invite Required
National Association of Geoscience Teachers Effective Teaching and Learning in a Large Classroom Setting Workshop	1:00 PM	5:00 PM	San Francisco Marriott Marquis	Salons 12-13	AGU Sponsored	Ticket Required



# EVENTS AT A GLANCE

Function	Start Time	End Time	Building	Room	Function Type	Event Type
Session Chair Training	4:30 PM	5:00 PM	Moscone West	Room 2003	AGU Sponsored	Open To All
Bloggers Forum: Science on the Web	5:00 PM	6:00 PM	Moscone West	Room 3000	AGU Sponsored	Open To All
Editors-in-Chief Meeting	6:00 PM	7:30 PM	San Francisco Marriott Marquis	Sierra C	AGU Sponsored	Invite Required
University of Arizona: Atmospheric Sciences, Geosciences, Hydrology, and Tree-Ring Research	6:00 PM	8:00 PM	San Francisco Marriott Marquis	Sierra B	Auxiliary Event	Invite Required
Space Physics and Aeronomy Section Agency Night	6:15 PM	7:15 PM	Moscone West	Room 2002	AGU Sponsored	Open To All
Atmospheric and Space Electricity Focus Group Business Meeting and Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Salon 10	AGU Sponsored	Open To All
Atmospheric Sciences Section Business Meeting and Banquet	6:30 PM	8:30 PM	Empress of China: 838 Grant Avenue	Grand Ballroom	AGU Sponsored	Ticket Required
Biogeosciences Section Reception	6:30 PM	8:00 PM	InterContinental San Francisco	Grand Ballroom A	AGU Sponsored	Open To All
Cryosphere Focus Group Business Meeting and Reception	6:30 PM	8:00 PM	InterContinental San Francisco	Grand Ballroom B-C	AGU Sponsored	Ticket Required
Earth and Planetary Surface Processes Focus Group Business Meeting and Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Salon 11	AGU Sponsored	Open To All
Earth and Space Science Informatics Focus Group Business Meeting and Reception	6:30 PM	8:00 PM	Infusion Lounge: 124 Ellis Street	n/a	AGU Sponsored	Ticket Required
Geodesy Section Business Meeting and Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Golden Gate C2-C3	AGU Sponsored	Open To All
Geomagnetism and Paleomagnetism Section Business Meeting and Reception	6:30 PM	8:00 PM	InterContinental San Francisco	InterContinental Ballroom C	AGU Sponsored	Open To All
Global and Environmental Change/Societal Impacts and Policy Sciences Focus Group Joint Business Meeting and Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Salon 8	AGU Sponsored	Open To All
Mineral and Rock Physics/Study of the Earth's Deep Interior Focus Group Joint Business Meeting and Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Salons 1-7	AGU Sponsored	Open To All
Nanjing University Alumni Reception in 2012 AGU Fall Meeting	6:30 PM	9:30 PM	San Francisco Marriott Marquis	Salons 14-15	Auxiliary Event	Open To All
Natural Hazards Focus Group Business Meeting and Reception	6:30 PM	8:00 PM	InterContinental San Francisco	InterContinental Ballroom A	AGU Sponsored	Open To All
Nonlinear Geophysics Focus Group Business Meeting and Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Club Room	AGU Sponsored	Open To All
Ocean Sciences Section/Paleoceanography and Paleoclimatology Focus Group Joint Business Meeting and Reception	6:30 PM	8:00 PM	InterContinental San Francisco	InterContinental Ballroom B	AGU Sponsored	Open To All
Planetary Sciences Section Business Meeting and Reception	6:30 PM	8:30 PM	Sellers Market: 595 Market Street	n/a	AGU Sponsored	Ticket Required
Seismology/Tectonophysics Section Joint Business Meeting and Reception	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Golden Gate B	AGU Sponsored	Open To All
Volcanology, Geochemistry, and Petrology Section Business Meeting and Reception	6:30 PM	8:30 PM	San Francisco Marriott Marquis	Salon 9	AGU Sponsored	Open To All
CHANS Banquet	7:00 PM	9:30 PM	San Francisco Marriott Marquis	Sierra A	Auxiliary Event	Invite Required
Space Physics and Aeronomy Section Business Meeting and Banquet	7:30 PM	10:00 PM	Four Seas Restaurant: 731 Grant Avenue	n/a	AGU Sponsored	Ticket Required
UNAVCO Meeting	7:30 PM	9:00 PM	San Francisco Marriott Marquis	Golden Gate C1	Auxiliary Event	Invite Required
Nonlinear Geophysics Focus Group Dinner	8:30 PM	10:30 PM	Restaurant Lulu, 816 Folsom Street	n/a	AGU Sponsored	Ticket Required



Function	Start Time	End Time	Building	Room	Function Type	Event Type
Executive Meeting with Wiley - Blackwell	6:30 AM	7:30 AM	San Francisco Marriott Marquis	Salons 3-4	AGU Sponsored	Invite Required
Committee on International Participation Breakfast	6:45 AM	7:45 AM	San Francisco Marriott Marquis	Sierra A	AGU Sponsored	Invite Required
Cryosphere Focus Group Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 110	AGU Sponsored	Invite Required
Fun Run	6:45 AM	8:00 AM	South Beach Harbor at Pier 40	n/a	AGU Sponsored	Ticket Required
Hydrology-Technical Committee Chairs Meeting	6:45 AM	7:45 AM	Moscone North	Room 111	AGU Sponsored	Invite Required
Mineral and Rock Physics-Subcommittee on Physical Properties of Earth's Materials	6:45 AM	7:45 AM	Moscone North	Room 113	AGU Sponsored	Invite Required
Natural Hazards Focus Group Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 112	AGU Sponsored	Invite Required
Fleming Medalist Breakfast	7:00 AM	8:30 AM	San Francisco Marriott Marquis	Sierra B	Auxiliary Event	Invite Required
Session Chair Training	7:00 AM	7:30 AM	Moscone West	Room 2003	AGU Sponsored	Open To All
AGU Cinema: Short Films on Science	8:00 AM	6:00 PM	Moscone West	Room 2012	AGU Sponsored	Open To All
Navigating the NSF System Workshop	8:00 AM	12:00 PM	San Francisco Marriott Marquis	Golden Gate A	AGU Sponsored	Open To All
One-on-One Availability with an Attorney	8:00 AM	3:00 PM	Moscone South: Mezzanine	Room 264	AGU Sponsored	Open To All
CHANS Workshop	9:00 AM	11:00 AM	San Francisco Marriott Marquis	Salons 1-2	Auxiliary Event	Invite Required
Career Advice Workshops	10:00 AM	4:00 PM	Moscone South: Mezzanine	Rooms 270-274	AGU Sponsored	Open To All
Presidents' Club Luncheon	11:30 AM	1:30 PM	San Francisco Marriott Marquis	Salon 11	AGU Sponsored	Invite Required
VEXAG Executive Committee Meeting	11:30 AM	2:00 PM	San Francisco Marriott Marquis	Sierra J	Auxiliary Event	Invite Required
WInSAR Luncheon	11:30 AM	12:30 PM	San Francisco Marriott Marquis	Club Room	Auxiliary Event	Invite Required
BrightStars and MS PhD's Luncheon	12:00 PM	1:30 PM	San Francisco Marriott Marquis	Salons 3-6	AGU Sponsored	Invite Required
Career Opportunities Networking Lunch	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Salon 7	AGU Sponsored	Ticket Required
Geophysical Journal International Editorial Board Meeting	12:00 PM	2:30 PM	San Francisco Marriott Marquis	Salons 1-2	Auxiliary Event	Invite Required
Honors and Recognition Committee Meeting	12:00 PM	1:30 PM	San Francisco Marriott Marquis	Sierra E	AGU Sponsored	Invite Required
An Inside Look at the Michael Mann Case	12:30 PM	1:30 PM	Moscone South: Mezzanine	Room 226	AGU Sponsored	Open To All
Books Board Luncheon	12:30 PM	2:30 PM	San Francisco Marriott Marquis	Sierra B	AGU Sponsored	Invite Required
Communicating with Congress Luncheon Workshop	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Golden Gate B	AGU Sponsored	Open To All
Geochemistry, Geophysics, Geosystems Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra A	AGU Sponsored	Invite Required
JGR-Atmospheres Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra H	AGU Sponsored	Invite Required
JGR-Biogeosciences Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra F	AGU Sponsored	Invite Required
JGR-Earth Surface Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra C	AGU Sponsored	Invite Required
JGR-Oceans Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra I	AGU Sponsored	Invite Required

**EVENTS AT  
A GLANCE**

Function	Start Time	End Time	Building	Room	Function Type	Event Type
JGR-Space Physics Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra K	AGU Sponsored	Invite Required
Tectonics Editorial Board Meeting	12:30 PM	1:30 PM	San Francisco Marriott Marquis	Sierra G	AGU Sponsored	Invite Required
Testifying in Court and Before Legislatures	12:30 PM	1:30 PM	Moscone South: Mezzanine	Room 226	AGU Sponsored	Open to All
Ocean Sciences Strategic Planning Meeting	1:00 PM	4:00 PM	San Francisco Marriott Marquis	Salon 13-14	AGU Sponsored	Invite Required
Succeeding on the Tenure Track Workshop	1:00 PM	5:00 PM	San Francisco Marriott Marquis	Golden Gate A	AGU Sponsored	Open To All
Climate Communication: Tools and Tips	1:30 PM	3:30 PM	San Francisco Marriott Marquis	Golden Gate C1-C3	AGU Sponsored	Open To All
Asia Oceania Geosciences Society (AOGS) Connects	6:00 PM	8:30 PM	San Francisco Marriott Marquis	Salon 5-6	Auxiliary Event	Invite Required
Ignite @ AGU 2012	6:00 PM	9:00 PM	Infusion Lounge: 124 Ellis Street	n/a	Auxiliary Event	Open To All
Honors Ceremony	7:00 PM	9:00 PM	Moscone North	Hall E Rooms 134-135	AGU Sponsored	Open To All
Honors Reception	9:00 PM	10:00 PM	Moscone North	Hall E Rooms 130-133	AGU Sponsored	Open To All
<b>Thursday, 6 December</b>						
Earth and Planetary Surface Processes Focus Group Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 110	AGU Sponsored	Invite Required
Hydrology Section Executive Committee Meeting	6:45 AM	7:45 AM	Moscone North	Room 111	AGU Sponsored	Invite Required
AGU Cinema: Short Films on Science	8:00 AM	6:00 PM	Moscone West	Room 2012	AGU Sponsored	Open To All
Exhibitor Advisory Breakfast	8:30 AM	10:00 AM	Moscone North	Room 112	AGU Sponsored	Invite Required
Career Advice Workshops	10:00 AM	4:00 PM	Moscone South: Mezzanine	Rooms 270-274	AGU Sponsored	Open To All
Hydrological Processes Editorial Board Luncheon	11:30 AM	12:15 PM	San Francisco Marriott Marquis	Salon 3-4	Auxiliary Event	Invite Required
Films at AGU: The Cosmic Shore	1:30 PM	4:00 PM	San Francisco Marriott Marquis	Golden Gate C1-C3	AGU Sponsored	Open To All
Geometrics, Inc.	1:00 PM	1:30 PM	Moscone North, Exhibit Hall	Product Theatre	Auxiliary Event	Open To All
NSF Key Concepts in Geomorphology Textbook Vignette Creation Workshop	4:00 PM	8:00 PM	San Francisco Marriott Marquis	Walnut	Auxiliary Event	Invite Required
Executive Meeting with Wiley - Blackwell	5:00 PM	6:30 PM	San Francisco Marriott Marquis	Salons 3-4	AGU Sponsored	Invite Required
2012 AGU Journalism Awards Reception	5:30 PM	6:30 PM	Moscone West	Room 3001A	AGU Sponsored	Open To All
Caltech Tectonics Observatory	6:00 PM	8:00 PM	San Francisco Marriott Marquis	Sierra C	Auxiliary Event	Invite Required
Indianapolis Flux Project Meeting	6:00 PM	9:00 PM	San Francisco Marriott Marquis	Sierra H	Auxiliary Event	Open To All
Earthworm Users Group Meeting	6:30 PM	8:00 PM	San Francisco Marriott Marquis	Sierra J	Auxiliary Event	Open To All
VIP Honors Reception	7:00 PM	8:00 PM	San Francisco Marriott Marquis	Club Room	AGU Sponsored	Invite Required
Honors Banquet	8:00 PM	11:00 PM	San Francisco Marriott Marquis	Salons 8-9	AGU Sponsored	Ticket Required
<b>Friday, 7 December</b>						
AGU Cinema: Short Films on Science	8:00 AM	12:00 PM	Moscone West	Room 2012	AGU Sponsored	Open To All
FameLab: Exploring Earth and Beyond	9:00 AM	5:00 PM	San Francisco Marriott Marquis	Salon 5-6	AGU Sponsored	Invite Required







# YOU'VE ONLY JUST ARRIVED & ALREADY WE'RE THINKING OF YOUR NEXT TRIP

As the official airline network for the 2012 AGU Fall Meeting, we'd like to thank you for choosing the Star Alliance network and hope that all goes really well for you here today.

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THE WAY THE EARTH CONNECTS

# AGU SPECIAL AND EDUCATIONAL EVENTS

Events scheduled as of 15 October 2012

## CAREERS

**Sunday, 2 December**

### Planetary Science/Space Physics

#### Career Night Mixer

**EVENING**

**7:00 PM-9:00 PM**

San Francisco Marriott Marquis, Foothill G and Club Room  
Join notable scientists in planetary science and space physics at this mixer and find out about their careers in a variety of professional backgrounds (e.g., academics, industry, federal labs, etc.)! Get a better understanding of what kinds of careers are available in planetary science and space physics, and how to pursue them.

**Monday, 3 December**

### Career Advice Workshops

**ALL DAY**

**10:00 AM-4:00 PM**

Moscone South, Mezzanine, Rooms 270-274  
Get expert advice and guidance during the Fall Meeting! Geoscience professionals and career counselors will give you tips and solid ideas about preparing for and managing your career!

### Cryosphere Career Development Mentor Panel

**EVENING**

**6:15 PM-7:15 PM**

San Francisco Marriott Marquis, Golden Gate C1  
This panel discussion, led by experts in the field, will address the exciting career opportunities and challenges faced by scientists who study these frozen realms. The panel will introduce themselves briefly and then we will open the floor for a moderated conversation on any aspect of careers in polar science that the audience would like. This event is held in partnership with the Association of Polar Early Career Sciences (<http://apecs.is/>).

**Tuesday, 4 December**

### Career Advice Workshops

**ALL DAY**

**10:00 AM-4:00 PM**

Moscone South, Mezzanine, Rooms 270-274  
Get expert advice and guidance during the Fall Meeting! Geoscience professionals and career counselors will give you tips and solid ideas about preparing for and managing your career!

**Wednesday, 5 December**

### Career Advice Workshops

**ALL DAY**

**10:00 AM-4:00 PM**

Moscone South, Mezzanine, Rooms 270-274

Get expert advice and guidance during the Fall Meeting! Geoscience professionals and career counselors will give you tips and solid ideas about preparing for and managing your career!

### Career Opportunities Networking Lunch

**AFTERNOON**

**12:30 PM-1:30 PM**

San Francisco Marriott Marquis, Salon 7

Making connections, practicing skills! Talk to professionals in a variety of geoscience careers, discuss your career interests, hear about exciting opportunities, promote yourself! Networking is a necessary and effective skill to have. Practice during this event and expand your network! Ticket Required.  
Sponsored by Chevron, ELSS Inc., and Swiss Re.

**Thursday, 6 December**

### Career Advice Workshops

**ALL DAY**

**10:00 AM-4:00 PM**

Moscone South, Mezzanine, Rooms 270-274

Get expert advice and guidance during the Fall Meeting! Geoscience professionals and career counselors will give you tips and solid ideas about preparing for and managing your career!

## VOLUNTEERS

**One of AGU's most precious resources!**

Thanks to everyone who contributed their time and talent to advance AGU's strategic plan this year.

# COMMITTEE AND BOARD MEETINGS

Sunday, 2 December

## Student Representative Meeting

EVENING

5:00 PM-6:00 PM

Moscone North, Room 121

Section and focus group student leadership will meet to discuss student involvement in AGU activities. Committee meetings are by invitation only.

Tuesday, 4 December

## Eos Editorial Board Lunch

AFTERNOON

12:30 PM-1:30 PM

San Francisco Marriott Marquis, Salons 1-2

The Eos Editors and Editorial Advisory Board will meet to discuss how Eos can be strengthened and can evolve to meet members' needs better. By invitation only.

# COMMUNICATING SCIENCE

Sunday, 2 December

## Films @ AGU: Chasing Ice

EVENING

7:30 PM-9:30 PM

Moscone South, Esplanade, Room 300

Photographer James Balog was a climate change skeptic – until he saw glaciers retreating first-hand. Convinced there

was a story in the ice, Balog journeyed to the planet's coldest extremes, shooting time-lapse videos of shrinking glaciers to share with the world. Watch mountains of ice disappear, and the struggles of this skeptic-turned-advocate, in "Chasing Ice." Balog will join a panel of speakers after the free film screening; open to all. Space is limited.

Monday, 3 December

## AGU Cinema: Short Films on Science

ALL DAY

8:00 AM-6:00 PM

Moscone West, Room 2012

Drop by any time during Fall Meeting to cool your heels and enjoy a short film or two (or more!). The videos will focus on the Earth and space sciences and could feature your scientific colleagues as cast or crew. Films will run all day, every day. To check out the schedule of screenings, please search for "Cinema" on the Fall Meeting events calendar: <http://fallmeeting.agu.org/2012/calendar/>

## Open Mic Night: Tall Tales and Earth Sonnets

EVENING

6:30 PM-8:30 PM

Jillian's at Metreon, 175 4th Street

Do you write field haikus? Pen seismic short stories? Sing original songs about space? If so, share your talents at the inaugural Open Mic Night! Richard Alley, of "EARTH: The Operators' Manual" fame, hosts this evening of rhyming, sharing, and emoting about science. Appetizers will be served. Email [news@agu.org](mailto:news@agu.org) to save a 3-5 minute slot in advance, or sign up on site as space permits. All are invited to applaud their colleagues.

Tuesday, 4 December

## AGU Cinema: Short Films on Science

ALL DAY

8:00 AM-6:00 PM

Moscone West, Room 2012

Drop by any time during Fall Meeting to cool your heels and enjoy a short film or two (or more!). The videos will focus on the Earth and space sciences and could feature your scientific colleagues as cast or crew. Films will run all day, every day. To check out the schedule of screenings, please search for "Cinema" on the Fall Meeting events calendar: <http://fallmeeting.agu.org/2012/calendar/>

## Bloggers Forum: Science on the Web

AFTERNOON

5:00 PM-6:00 PM

Moscone West, Room 3000

Get expert advice from seasoned bloggers and spark new discussions on the future of blogging at the Bloggers Forum. Come with questions, ideas, or observations on the nature of blogging about Earth and space sciences. The forum will be webstreamed for those unable to attend the Fall Meeting.

AGU SPECIAL  
EVENTS

## Wednesday, 5 December

### AGU Cinema: Short Films on Science

ALL DAY

8:00 AM-6:00 PM

Moscone West, Room 2012

Drop by any time during Fall Meeting to cool your heels and enjoy a short film or two (or more!). The videos will focus on the Earth and space sciences and could feature your scientific colleagues as cast or crew. Films will run all day, every day. To check out the schedule of screenings, please search for "Cinema" on the Fall Meeting events calendar: <http://fallmeeting.agu.org/2012/calendar/>

### Climate Communication: Tools and Tips

AFTERNOON

1:30 PM-3:30 PM

San Francisco Marriott Marquis, Golden Gate C1-C3

Want to improve your abilities to: communicate successfully about climate science, create effective messages about your research, give public presentations, talk to reporters, speak with policymakers, and answer commonly asked questions about climate change? Come and gain valuable tools and tips from climate change communication specialist Susan Joy Hassol, climate scientist Richard Somerville, and photographer James Balog. They will address what we say, how we say it, framing, cultural issues, the power of images, etc.

## Thursday, 6 December

### AGU Cinema: Short Films on Science

ALL DAY

8:00 AM-6:00 PM

Moscone West, Room 2012

Drop by any time during Fall Meeting to cool your heels and enjoy a short film or two (or more!). The videos will focus on the Earth and space sciences and could feature your scientific colleagues as cast or crew. Films will run all day, every day. To check out the schedule of screenings, please search for "Cinema" on the Fall Meeting events calendar: <http://fallmeeting.agu.org/2012/calendar/>

### Films @ AGU: The Cosmic Shore

AFTERNOON

1:30 PM-4:00 PM

San Francisco Marriott Marquis, Golden Gate C1-C3

For the first time, one of the most enigmatic phenomena in Earth's atmosphere has been captured on high-speed video. "Sprites: A Mysterious Burst of Light," part of the NHK (Japan Broadcasting Corp.) series "The Cosmic Shore," features astronauts and AGU scientists investigating this rare, fleeting pillar of lightning that reaches from thunderstorms into space. A screening of this film will be followed by a panel of scientists involved in its production. Open to all.

## Friday, 7 December

### AGU Cinema: Short Films on Science

MORNING

8:00 AM-12:00 PM

Moscone West, Room 2012

Drop by any time during Fall Meeting to cool your heels and enjoy a short film or two (or more!). The videos will focus on the Earth and space sciences and could feature your scientific colleagues as cast or crew. Films will run all day, every day. To check out the schedule of screenings, please search for "Cinema" on the Fall Meeting events calendar: <http://fallmeeting.agu.org/2012/calendar/>

### FameLab: Exploring Earth and Beyond

ALL DAY

9:00 AM-5:00 PM

San Francisco Marriott Marquis, Salons 5-6

Are you the next Jane Goodall or Neil deGrasse Tyson, or simply passionate about science and love to share it? If so, this competition is for you. FameLab is something like "American Idol" for scientists...you give a 3-minute, PowerPoint-free talk to a panel of judges, and they give constructive feedback. The talks are followed by a communications workshop for all of the competitors. Come join a fun-filled day of competition, coaching, and camaraderie that's all about communicating science! By invitation only. Sign up at <http://famelab-eeb.arc.nasa.gov/>

AGU SPECIAL  
EVENTS

## PUBLIC AFFAIRS

## Monday, 3 December

### One-On-One Availability with an Attorney

ALL DAY

8:00 A.M.-3:00 PM

Moscone South, Mezzanine, Room 264

In recent years, an increasing number of scientists have found themselves involved in legal discussions about their work, their correspondence, and their public statements. To better prepare the scientific community for these challenges, AGU and the Climate Science Legal Defense Fund have provided an opportunity for you to have a private meeting with an attorney who works on science litigation. Sign up for a time slot outside the meeting room to set your appointment.

### Legal Duties to Preserve and Disclose Scientific Data and Personal Communications

AFTERNOON

12:30 PM-1:30 PM

San Francisco Marriott Marquis, Salon 10

Michael Gerrard is the director of the Center for Climate Change Law at Columbia University. He will lead a brown bag lunch discussion to help scientists better understand the increasing number of Freedom of Information Act requests and subpoenas that scientists are facing and what kinds of documents scientists are required to disclose and to whom. Michael will leave ample time to answer your questions at this event.

**One-On-One Availability with an Attorney**

ALL DAY

8:00 AM-3:00 PM

Moscone South, Mezzanine, Room 264

In recent years, an increasing number of scientists have found themselves involved in legal discussions about their work, their correspondence, and their public statements. To better prepare the scientific community for these challenges, AGU and the Climate Science Legal Defense Fund have provided an opportunity for you to have a private meeting with an attorney who works on science litigation. Sign up for a time slot outside the meeting room to set your appointment.

**How to be a Congressional Science Fellow or Mass Media Fellow Luncheon**

AFTERNOON

12:30 PM-1:30 PM

San Francisco Marriott Marquis, Golden Gate B

Learn about two exciting AGU Fellowships and if they could be right for you. Current Congressional Science Fellows will detail their experiences working in Congress for 1 year. Past Mass Media Fellows will share their stories of working as a science reporter for a news organization for 10 weeks. Join the discussion on how these experiences opened doors and provided insight into the importance of expanding the conversations on science. Lunch will be served, but space is limited. No advance registration is required. For more information, visit [http://www.agu.org/sci\\_pol/cong\\_fellowship](http://www.agu.org/sci_pol/cong_fellowship) and [http://www.agu.org/news/mass\\_media\\_fellowship](http://www.agu.org/news/mass_media_fellowship).

**The Law for Government Scientists**

AFTERNOON

12:30 PM-1:30 PM

San Francisco Marriott Marquis, Salon 10

Jeff Ruch is the Executive Director of Public Employees for Environmental Responsibility (PEER). Everyday PEER helps government scientists with a wide range of legal issues. Learn about legal provisions that affect you as a government scientist at this brown bag lunch event. Jeff will leave ample time to answer your questions.

**Thank You!**

**AGU volunteers are making a difference by contributing their time and talent to advance the strategic plan.**

**One-On-One Availability with an Attorney**

ALL DAY

8:00 A.M.-3:00 PM

Moscone South, Mezzanine, Room 264

In recent years, an increasing number of scientists have found themselves involved in legal discussions about their work, their correspondence, and their public statements. To better prepare the scientific community for these challenges, AGU and the Climate Science Legal Defense Fund have provided an opportunity for you to have a private meeting with an attorney who works on science litigation. Sign up for a time slot outside the meeting room to set your appointment.

**Communicating with Congress Luncheon Workshop**

AFTERNOON

12:30 PM-1:30 PM

San Francisco Marriott Marquis, Golden Gate B

Sound policy is informed by sound science. As a scientist, you can be a valuable and trusted resource to your legislators on important Earth and space science issues. Join the conversation and learn how to effectively communicate your science to local and national policymakers. This event will give you the tools to communicate with Congress, even those with experience can pick up some important pointers at this event. Lunch will be served, but space is limited. No advance registration required.

**Testifying in Court and Before Legislatures**

AFTERNOON

12:30 PM-1:30 PM

Moscone South, Mezzanine, Room 226

Peter Fontaine is counsel to Michael Mann and a leader of Cozen O'Connor's Brownfield Development and Climate Change practices. At this event, Peter will discuss how and why your email might be requested for legal reasons; potential ways to protect correspondence from disclosure, such as the First Amendment and Academic Freedom; and emerging trends in this dynamic intersection between science and the law. Come to this brown bag lunch event with your questions regarding legal issues for scientists.

**ePOSTER**

**Remember to upload your ePoster by 7 December 6:00 PM at [fallmeeting.agu.org](http://fallmeeting.agu.org)**

AGU SPECIAL EVENTS

# PUBLIC EDUCATION EVENTS

Sunday, 2 December

## Public Lecture

AFTERNOON

12:00 PM-1:00 PM

Moscone South, Room 102

This free talk by leading scientists on a hot topic in Earth and space science is open to all! The event takes place immediately before Exploration Station.

## Exploration Station

AFTERNOON

1:00 PM-5:00 PM

Moscone South, Rooms 103-104

A free, family, informal science event held the weekend before the Fall Meeting. Many exhibitors from all areas of Earth and space science encourage Bay Area families to learn about science and participate in experiments and other activities.

## SECTION AND FOCUS GROUP EVENTS

### Section and Focus Group committee meetings:

Annual executive and technical committee meetings will be conducted by section and focus group leadership. These meetings are by invitation only.

### Section and Focus Group business meetings:

Section and focus group business meetings (luncheons, banquets, or receptions) offer members an opportunity to engage with leaders and colleagues in an informal setting. These events are open or ticketed.

Sunday, 2 December

### Space Physics and Aeronomy

#### Executive Committee Dinner

EVENING

6:00 PM.-8:30 PM

InterContinental Hotel, Howard Room

By Invitation Only

Monday, 3 December

BY INVITATION ONLY

### Biogeosciences Section

#### Executive Committee Meeting

MORNING

6:45 AM-7:45 AM

Moscone North, Room 110

### Mineral and Rock Physics

#### Focus Group Executive

#### Committee Meeting

MORNING

6:45 AM-7:45 AM

Moscone North, Room 111

### Nonlinear Geophysics

#### Focus Group Executive

#### Committee Meeting

MORNING

6:45 AM-7:45 AM

Moscone North, Room 112

### Biogeosciences/Hydrology–

### Soil Systems and Critical

### Zone Processes Technical

#### Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 125

### Hydrology-Ecohydrology

#### Technical Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 111

### Hydrology-Ground Water

#### Technical Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 112

### Hydrology-Hydrogeophysics

#### Technical Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 113

### Hydrology-Large-Scale Field

#### Experimentation Technical

#### Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 114

### Hydrology-Precipitation

#### Technical Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 121

### Hydrology/Societal Impacts

### and Policy Sciences–Water

### and Society Technical

### Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 110

### Near-Surface Geophysics

#### Focus Group Executive

#### Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 122

### Paleoceanography and

### Paleoclimatology Focus Group

#### Executive Committee Meeting

EVENING

6:15 PM-7:15 PM

Moscone North, Room 124

### Section and Focus Group Web

#### Editors Meeting

EVENING

6:15 PM-7:15 PM

San Francisco Marriott Marquis, Sierra I

### Space Physics and Aeronomy

#### Education and Public Outreach

#### Committee Meeting

EVENING

6:15 PM-7:15 PM

San Francisco Marriott Marquis, Sierra B

**BY INVITATION ONLY UNLESS OTHERWISE NOTED**

**Earth and Space Science Informatics  
Focus Group Executive Committee  
Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 110

**Hydrology-Remote Sensing  
Technical Committee Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 111

**Hydrology-Surface Water  
Technical Committee Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 112

**Hydrology-Unsaturated Zone  
Technical Committee Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 113

**Hydrology-Water Quality  
Technical Committee Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 114

**Ocean Sciences Section  
Executive Committee Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 121

**Study of the Earth's Deep  
Interior Focus Group Executive  
Committee Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 122

**Tectonophysics Section  
Executive Committee Meeting**  
MORNING  
6:45 AM-7:45 AM  
Moscone North, Room 124

**Atmospheric and Space  
Electricity Focus Group  
Executive Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 110

**Atmospheric Sciences Section  
Executive Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 111

**Biogeosciences Section Luncheon**  
AFTERNOON  
12:30 PM-1:30 PM  
Canteen Seafood and Dim Sum  
Restaurant, 655 Folsom Street  
**Ticket Required**

**Geodesy Section Executive  
Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 112

**Geomagnetism and Paleomagnetism  
Section Executive Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 113

**Global Environment Change  
Focus Group Executive  
Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 114

**Hydrology Section Business Meeting  
and Luncheon**  
AFTERNOON  
12:30 PM-1:30 PM  
San Francisco Marriott Marquis, Salon 8  
**Ticket Required**

**Near-Surface Focus Group  
Business Meeting and Luncheon**  
AFTERNOON  
12:30 PM-1:30 PM  
San Francisco Marriott Marquis, Golden  
Gate C3  
Sponsored by Geometrics Inc, Iris In-  
struments, and Zonge Engineering and  
Research Organization, Inc.  
**Ticket Required**

**Ocean Sciences Section Luncheon**  
AFTERNOON  
12:30 PM- 1:30 PM  
San Francisco Marriott Marquis, Golden  
Gate C2  
**Ticket Required**

**Planetary Science Education  
Working Group Lunch**  
AFTERNOON  
12:30 PM-1:30 PM  
San Francisco Marriott Marquis, Sierra H

**Planetary Sciences Section  
Executive Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 121

**Seismology Section Executive  
Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 122

**Volcanology, Geochemistry,  
and Petrology Section Executive  
Committee Meeting**  
AFTERNOON  
12:30 PM-1:30 PM  
Moscone North, Room 124

**Space Physics and Aeronomy  
Section Agency Night**  
EVENING  
6:15 PM-7:15 PM  
Moscone West, Room 2002  
**Open**

**Atmospheric and Space Electricity  
Focus Group Business Meeting and  
Reception**  
EVENING  
6:30 PM-8:00 PM  
San Francisco Marriott Marquis, Salon 10  
Sponsored by Vision Research, Inc.  
**Open**

**Atmospheric Sciences Section  
Business Meeting and Banquet**  
EVENING  
6:30 PM-8:30 PM  
Empress of China, 838 Grant Avenue,  
Grand Ballroom  
**Ticket Required**

**Biogeosciences Section  
Business Meeting and Reception**  
EVENING  
6:30 PM-8:00 PM  
InterContinental Hotel,  
Grand Ballroom A  
**Open**

## Tuesday, 4 December

### **Cryosphere Focus Group Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

InterContinental Hotel,  
Grand Ballroom B-C

Sponsored by ARCUS, ClIC (Climate and Cryosphere), and University of Alaska Fairbanks.

**Ticket Required**

### **Earth and Planetary Surface Processes Focus Group Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

San Francisco Marriott Marquis, Salon 11  
**Open**

### **Earth and Space Science Informatics Focus Group Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

Infusion Lounge, 124 Ellis Street

**Ticket Required**

### **Geodesy Section Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

San Francisco Marriott,  
Golden Gate C2-C3

Sponsored by UNAVCO.

**Open**

### **Geomagnetism and Paleomagnetism Section Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

InterContinental Hotel, Ballroom C

Sponsored by 2G Enterprises.

**Open**

### **Global and Environmental Change/ Societal Impacts and Policy Sci- ences Focus Group Joint Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

San Francisco Marriott Marquis, Salon 8  
**Open**

### **Mineral and Rock Physics/Study of the Earth's Deep Interior Focus Group Joint Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

San Francisco Marriott Marquis, Salons 1-7  
Sponsored by easyLab Technologies Ltd.

**Open**

### **Natural Hazards Focus Group Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

InterContinental Hotel, Ballroom A

**Open**

### **Nonlinear Geophysics Focus Group Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

San Francisco Marriott Marquis, Club Room

**Open**

### **Ocean Sciences Section/Paleocean- ography and Paleoclimatology Focus Group Joint Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

InterContinental Hotel, Ballroom B

Sponsored by ACS Publications.

**Open**

### **Planetary Sciences Section Business Meeting and Reception**

EVENING

6:30 PM-8:30 PM

Sellers Market, 595 Market Street

Sponsored by Ball Aerospace, Lockheed  
Martin, and Orbital Science.

**Ticket Required**

### **Seismology/Tectonophysics Section Joint Business Meeting and Reception**

EVENING

6:30 PM-8:00 PM

San Francisco Marriott Marquis,  
Golden Gate B

**Open**

### **Volcanology, Geochemistry, and Petrology Section Business Meeting and Reception**

EVENING

6:30 PM-8:30 PM

San Francisco Marriott Marquis, Salon 9

Sponsored by the Mineralogical Society of  
America.

**Open**

### **Space Physics and Aeronomy Section Business Meeting and Banquet**

EVENING

7:30 PM-10:00 PM

Four Seas Restaurant, 731 Grant Avenue

Sponsored by Lockheed Martin.

**Ticket Required**

### **Nonlinear Geophysics Focus Group Dinner**

EVENING

8:30 PM-10:30 PM

Restaurant Lulu, 816 Folsom Street

**Ticket Required**

AGU SPECIAL  
EVENTS

## Wednesday, 5 December

### **Cryosphere Focus Group Executive Committee Meeting**

MORNING

6:45 AM-7:45 AM

Moscone North, Room 110

**By Invitation Only**

### **Hydrology-Technical Committee Chairs Meeting**

MORNING

6:45 AM-7:45 AM

Moscone North, Room 111

**By Invitation Only**

### **Mineral and Rock Physics-Subcommittee on Physical Properties of Earth's Materials**

MORNING

6:45 AM-7:45 AM

Moscone North, Room 113

**By Invitation Only**

### **Natural Hazards Focus Group Executive Committee Meeting**

MORNING

6:45 AM-7:45 AM

Moscone North, Room 112

**By Invitation Only**

### **Ocean Sciences Strategic Planning Meeting**

AFTERNOON

1:00 PM-4:00 PM

San Francisco Marriott Marquis, Salon 13-14

**By Invitation Only**



## Ignite@AGU 2012

EVENING

6:00 PM.-9:00 PM

Infusion Lounge, 124 Ellis Street

### Open

NASA's Applied Sciences Program – in partnership with AGU's Earth and Space Science Informatics (ESSI) group and the ESIP Federation – is thrilled to co-sponsor Ignite@AGU 2012 at the upcoming Fall AGU meeting. Ignite ([www.igniteshow.com](http://www.igniteshow.com)), a

concept created by O'Reilly Media, provides presenters a strict presentation format - five minutes and 20 slides that auto-advance every 15 seconds - to make their point. Enlighten us, but make it quick! Ignite@AGU presenters will span AGU topic areas and session tracks providing the audience a snapshot of new domain science, IT that supports Earth Science applications and innovative connections between IT and domain science. For all details see the website: <http://wiki.esipfed.org/index.php/Ignite@AGU>

## Thursday, 6 December

### Earth and Planetary Surface Processes Focus Group Executive Committee Meeting

MORNING

6:45 AM-7:45 AM

Moscone North, Room 110

By Invitation Only

### Hydrology Section Executive Committee Meeting

MORNING

6:45 AM-7:45 AM

Moscone North, Room 111

By Invitation Only

## SPECIAL EVENTS

### Sunday, 2 December

#### Icebreaker

EVENING

5:30 PM-7:00 PM

Moscone West, Hall

An opportunity to meet your colleagues before the week of sessions begin!

### Monday, 3 December

#### 25- and 50-Year Member Reception

EVENING

6:30 PM-8:00 PM

San Francisco Marriott Marquis, Club Room

AGU celebrates the valued members for whom 2012 marks their 25th and 50th years of membership. By invitation only.

### Wednesday, 5 December

#### Fun Run

MORNING

6:45 AM-8:00 AM

South Beach Harbor at Pier 40, the intersection of The Embarcadero and Townsend Street, next door to AT&T Park Exercise your body as well as your mind at the AGU Fall Meeting! Join your fellow meeting attendees in the 5K Fun Run/Walk on Wednesday, 5 December. Participants will receive an event T-shirt, and a portion of the race entry fee of \$30 will support the AGU Bright STaRS program. Registration is available online (<http://fallmeeting.agu.org>) and at the AGU Fun Run counter in the Moscone South Upper Lobby, Monday, 3 December and Tuesday, 4 December.

#### Honors Ceremony

EVENING

7:00 PM-9:00 PM

Moscone North, Rooms 134-135

Ceremony paying tribute to AGU's 2012 Union Awardees, Fellows, Prize recipient, and Medalists.

#### Honors Reception

EVENING

9:00 PM-10:00 PM

Moscone North, Rooms 130-133

Reception celebrating the 2012 Union Awardees, Fellows, Prize recipient, and Medalists accomplishments, which follows the Honors Ceremony.

#### Presidents' Club Luncheon

AFTERNOON

11:30 AM-1:30 PM

San Francisco Marriott Marquis, Salon 11

Members of AGU's Presidents' Club include Union and Section past-presidents who are also benefactors. The Presidents' Club represents AGU's institutional memory, and its members serve and champion Union outreach activities and fundraising initiatives. By invitation only.

## SAVE THE DATE

Union Nominations  
open 15 January 2013

### Thursday, 6 December

#### VIP Honors Reception

EVENING

7:00 PM-8:00 PM

San Francisco Marriott Marquis, Club Room

The 2012 Union Awardees, Fellows, Prize recipient, and Medalists are invited to a private, celebratory reception prior to the Honors Banquet.

#### Honors Banquet

EVENING

8:00 PM-11:00 PM

San Francisco Marriott Marquis, Salons 8-9

A night of elegance and entertainment to celebrate AGU's 2012 Union Awardees, Fellows, Prize recipient, and Medalists.

A full course meal is served and dancing follows. Cash bar in the Honors Tribute Lounge.

# STUDENT ACTIVITIES

**Monday, 3 December**

## **Student Mixer**

**EVENING**

**6:00 PM-7:30 PM**

San Francisco Marriott Marquis, Salon 7

The AGU Fall Meeting can be daunting for first-time attendees, the majority of whom are students. AGU established the inaugural Student Mixer at Fall Meeting 2011 as an event to facilitate networking and camaraderie between the student attendees with music, food, and beer! Ticket cost is \$5, which can be paid at the door.

**Tuesday, 4 December**

## **Student Breakfast**

**MORNING**

**6:45 AM-7:45 AM**

San Francisco Marriott Marquis, Salon 8

All students registered for the meeting are welcome to attend this complimentary breakfast on Tuesday, 4 December at 6:45 a.m. Take advantage of the opportunity to meet AGU leadership and staff and learn about the future course of the Union and its programs. Meet fellow students and future colleagues. Seating is strictly limited to 400 on a first-come, first-served basis. Sponsored exclusively by ExxonMobil.

# WORKSHOPS

**Sunday, 2 December**

## **Heads and Chairs Workshop**

**MORNING**

**7:30 AM-6:00 PM**

InterContinental Hotel, Ballroom B

This one-day workshop provides an opportunity for heads and chairs of Earth and space science departments to discuss issues and strategies for building a strong department, meet other heads and chairs, and learn more about faculty personnel issues. Sponsored by BSGD, SERC, Carleton College; Department of Geosciences, University of Missouri-Kansas City; College of Atmospheric and Geographic Sciences, University of Oklahoma; and Department of Earth and Ocean Sciences, University of South Carolina. By invitation only.

## **Finding Your Voice: Effective Science Communication**

**AFTERNOON**

**12:00 PM-5:00 PM**

InterContinental Hotel, Ballroom C

Want to share science with others? Need to sharpen your communications skills? This Sunday afternoon event offered by AGU and COMPASS will help demystify media interactions, introduce you to useful tools for honing your message, offer hands-on practice in explaining your work to general audiences, and foster a network of connections and support. The event is free and lunch will be provided. Advance sign up is required.

## **Communicating Climate Science Workshop**

**MORNING**

**8:00 AM-1:00 PM**

InterContinental Hotel, Telegraph Hill

Develop and hone your climate communication skills at this Sunday morning interactive panel and workshop offered by AGU and the Union of Concerned Scientists. The workshop will focus on identifying and overcoming misinformation and the biggest gaps in public understanding regarding climate science. Participants will learn to avoid common missteps made when addressing climate science and to become stronger science communicators. The event is free and lunch will be provided. Advance sign up is required.

## **MAKING A DIFFERENCE!**

**A big thank you to all AGU members  
who volunteer their time and talent  
to advance the strategic plan.**

## **AGU FALL MEETING**

San Francisco | 3-7 December 2012



Exercise your body as well as your mind at the AGU Fall Meeting! Join your fellow meeting attendees in the 5K Fun Run/Walk on Wednesday, 5 December.

Participants will receive an event T-shirt, and a portion of the race entry fee of \$30 will support the AGU Bright STARS program.

Registration is available at the AGU Fun Run counter in the Moscone South Upper Lobby, Monday 3 December and Tuesday 4 December.

**Monday, 3 December**

**Council on Undergraduate Research Getting Started in Undergraduate Research Workshop**

**MORNING**

**8:00 AM-12:00 PM**

San Francisco Marriott Marquis, Salons 12-13

Cost: \$30.00.

This workshop presents strategies and approaches for developing and sustaining research programs at the undergraduate level. The workshop covers, and participants receive materials on, funding opportunities (including NSF), project selection and mentoring of undergraduates, and institutional support for undergraduate research. Facilitators work with the participants to develop their own strategy for developing a research program involving undergraduates. This workshop is a partnership between AGU Education and the CUR Geosciences Division.

**Geophysical Information for Teachers**

**Workshop Day 1**

**ALL DAY**

**7:30 AM-4:00 PM**

San Francisco Marriott Marquis, Golden Gate A

The AGU-NESTA GIFT Workshop is held in conjunction with the annual meeting. This two-day workshop for current and preservice K-12 teachers and informal educators includes talks by leading research scientists coupled with take-it-to-the-classroom activities! The workshop is offered at no cost to participants. K-12 teachers must register for this workshop when registering for the meeting.

**Work-Life Balance Workshop**

**AFTERNOON**

**1:30 PM-5:30 PM**

San Francisco Marriott Marquis, Salons 12-13

Work-life satisfaction is a critical issue in today's STEM environment. Loss of top talent is a likely issue for both universities and corporations and having rigorous development opportunities can make a difference. This workshop's goal is to give individuals the tools they need to achieve satisfaction and an effective balance between their professional and personal lives, facilitating sustainable engagement and success in their jobs. This workshop is a partnership between AGU, AWG, and ESWN. Free.

**Tuesday, 4 December**

**Geophysical Information for Teachers**

**Workshop Day 2**

**ALL DAY**

**7:30 AM-4:00 PM**

San Francisco Marriott Marquis, Golden Gate A

The AGU-NESTA GIFT Workshop is held in conjunction with the annual meeting. This two-day workshop for current and preservice K-12 teachers and informal educators includes talks by leading research scientists coupled with take-it-to-the-classroom activities! The workshop is offered at no cost to participants. K-12 teachers must register for this workshop when registering for the meeting.

**National Association of Geoscience Teachers Effective Teaching and Learning in a Large Classroom Setting Workshop**

**AFTERNOON**

**1:00 PM-5:00 PM**

San Francisco Marriott Marquis, Salons 12-13

Cost: \$25.00.

This active-engagement half-day workshop will focus on philosophy, strategies, techniques, assessment, and available resources on effective teaching and learning in large classrooms. Many institutions are implementing larger classes, which present a unique set of opportunities and challenges. Participants will leave this workshop armed with research-based knowledge and practical advice from the leaders and the geoscience education community about what does, and does not, work well in the large classroom setting.

**NSF Division of Undergraduate Education Program to Improve Undergraduate Geoscience Education**

**AFTERNOON**

**12:15 PM-1:45 PM**

San Francisco Marriott Marquis, Club Room

This session provides current information about the NSF Division of Undergraduate Education TUES program. The TUES program supports a wide range of activities aimed at improving the undergraduate geoscience curriculum for majors and nonmajors. The TUES program supports the design of new courses and curricular materials, acquisition of research-quality instrumentation, and faculty development activities. Free, but those interested in attending should email Jill Singer (singerjk@buffalostate.edu) or Jeff Ryan (ryan@mail.usf.edu).

**AGU SPECIAL  
EVENTS**

**Wednesday, 5 December**

**Navigating the NSF System Workshop**

**MORNING**

**8:00 AM-12:00 PM**

San Francisco Marriott Marquis, Golden Gate A

How do you make your proposal as NSF-savvy as possible? How do you best describe your broader impacts? How do you find and apply for education and outreach funding opportunities? Answer these questions, meet in small groups with Program Officers, get to know what they are looking for, and learn how to ask the right questions, give the right answers, and get funded. This workshop is being sponsored by ESWN and AGU Education. Free.

**Succeeding on the Tenure Track Workshop**

**AFTERNOON**

**1:00 PM-5:00 PM**

San Francisco Marriott Marquis, Golden Gate A

The tenure track can seem mysterious. In this workshop, we aim to demystify the process and share secrets to success. A panel of recently tenured faculty members in Earth science disciplines share their "lessons learned" and answer questions. Geared towards assistant professors on the tenure track now, as well as grad students and postdocs considering an academic career; all are invited. This workshop is a partnership between ESWN and AGU. Free.

# SECTION AND FOCUS GROUP LECTURES

## Bowie\* and Named Lectures

The Bowie Lecture Series was inaugurated in 1989 to commemorate the fiftieth presentation of the William Bowie Medal, which is AGU's highest honor and is named for AGU's first president. Bowie Lectures are distinguished below with an asterisk. All lectures will be videotaped for on-demand viewing and posted on the Fall Meeting Web site.

### Tuesday, 4 December

#### A22A Bjerknes Lecture\*

Moscone West, Room 3002, 10:20 AM

##### *Tropical Convection: A Half Century Quest for Understanding*

Presented by **Robert Houze**, University of Washington, Seattle, USA

#### H22A Langbein Lecture\*

Moscone South, Room 104, 10:20 AM

##### *The Soil Underfoot: Green Water and Global Food Security*

Presented by **Garrison Sposito**, University of California, Berkeley, USA

#### V22A Bowen Lecture

Moscone South, Room 103, 10:20 AM

##### *The Andesite Problem: Why is this Planet to be the Earth?*

Presented by **Yoshiyuki Tatsumi**, JAMSTEC, Japan

#### A22B Charney Lecture\*

Moscone West, Room 3002, 11:20 AM

##### *Mitigating Near-Term Climate Change While Advancing Human Development*

Presented by **Drew T. Shindell**, NASA Goddard Institute for Space Studies and Columbia University, New York, USA

#### NH22B White Lecture

Moscone South, Room 103, 11:20 AM

##### *Defeating Earthquakes*

Presented by **Ross Stein**, U.S. Geological Survey, Menlo Park, California, USA

#### GP23A Bullard Lecture\*

Moscone South, Room 104, 1:40 PM

##### *Magnetotelluric studies in East Africa*

Presented by **Kathryn Whaler**, University of Edinburgh, UK

#### S23C Gutenberg Lecture\*

Moscone South, Room 103, 1:40 PM

##### *Earthquake Forecasting as a System-Science Problem*

Presented by **Thomas Jordan**, University of Southern California, Los Angeles, USA

#### IN24B Leptoukh Lecture

Moscone South, Room 104, 4:00 PM

##### *Bridging Informatics and Earth Science: a Look at Gregory Leptoukh's Contributions*

Presented by **Christopher Lynnes**, NASA/GSFC, Greenbelt, Maryland, USA

#### C24A Nye Lecture

Moscone South, Room 103, 5:00 PM

##### *'Hot Ice and Wondrous Strange Snow': Three-Phase Mixtures or Something More?*

Presented by **Elizabeth M. Morris**, Scott Polar Research Institute, Cambridge, UK

#### G24A Bowie Lecture\*

Moscone South, Room 104, 5:00 PM

##### *How Attractive is our Planet?*

Presented by **Reinhard F. Rummel**, Technische Universität München, Germany

### Wednesday, 5 December

#### AE31A Franklin Lecture

Moscone West, Room 2022-2024, 8:00 AM

##### *Lightning and Climate*

Presented by **Earle R. Williams**, Massachusetts Institute of Technology, Cambridge, USA

#### B31H Sagan Lecture

Moscone West, Room 2022-2024, 9:00 AM

##### *The Race to Understand a Changing Planet*

Presented by **Piers J. Sellers**, NASA/GSFC, Greenbelt, Maryland, USA

#### EP32A Sharp Lecture

Moscone West, Room 2022-2024, 10:20 AM

##### *Bedrock Hillslopes to Deltas: New Insights into Landscape Mechanics*

Presented by **Michael P. Lamb**, California Institute of Technology, Pasadena, USA

### PP32A Emiliani Lecture

Moscone South, Room 103, 10:20 AM

**"No Future Without a Past" or "History will Teach us Nothing"?**

Presented by **Richard E. Zeebe**, University of Hawaii, Manoa, Honolulu, USA

### T32A Birch Lecture\*

Moscone South, Room 103, 11:20 AM

**Inside a Crustal Earthquake - The Rock Evidence**

Presented by **Richard Sibson**, University of Otago, New Zealand

### P33E Shoemaker Lecture\*

Moscone West, Room 2022-2024, 1:40 PM

**Gravity, Topography and the Early Evolution of the Moon**

Presented by **Maria T. Zuber**, Massachusetts Institute of Technology, Cambridge, USA

### P33F Whipple Lecture

Moscone West, Room 2022-2024, 2:40 PM

**Clues to a Hot, Wet and Violent Ancient Mars: Spirit in**

### the Columbia Hills and Opportunity at Endeavour Crater

Presented by **Steven W. Squyres**, Cornell University, Ithaca, New York, USA

### NG34A Lorenz Lecture

Moscone South, Room 104, 4:00 PM

**Fighting Chaos: Applications of Breeding**

Presented by **Eugenia Kalnay**, University of Maryland, College Park, USA

### SM34A Van Allen Lecture\*

Moscone West, Room 2022-2024, 4:00 PM

**Magnetospheric Exploration:**

**Basic Research with a High Public Purpose**

Presented by **Daniel N. Baker**, University of Colorado, Boulder, USA

### SH34A Parker Lecture\*

Moscone West, Room 2022-2024, 5:00 PM

**The Inner Heliosphere at 50**

Presented by **Janet G. Luhmann**, University of California, Berkeley, USA

## Thursday, 6 December

### V41C Daly Lecture\*

Moscone South, Room 103, 9:00 AM

**Deep Crustal Metamorphic Carbon Cycling in Collisional Orogens: What do we Really Know?**

Presented by **Jay Ague**, Yale University, New Haven, Connecticut, USA

### GC43H Schneider Lecture

Moscone West, Room 2022-2024, 1:40 PM

**The Transformation of Climate Models to Earth System Models and their Role in Policy Development and Decision Support**

Presented by **Warren M. Washington**, National Center for Atmospheric Research, Boulder, Colorado, USA

### GC43I Tyndall Lecture

Moscone West, Room 2022-2024, 2:40 PM

### Successful Predictions

Presented by **Raymond Pierrehumbert**, University of Chicago, Illinois, USA

## Friday, 7 December

### OS53F Sverdrup Lecture\*

Moscone West, Room 2022-2024, 1:40 PM

**Deep Margins Under Pressure: Sustaining Biodiversity and Function where Climate Change and Humans Collide**

Presented by **Lisa A. Levin**, Scripps Institution of Oceanography, La Jolla, California, USA

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SECTION AND  
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# SESSIONS: ON DEMAND

*In addition to the Named Lectures, the following sessions will also be videotaped for on-demand viewing.*

## Monday, 3 December

### **A11N Data Assimilation in Geosciences II**

Moscone West, Room 3002, 8:00 AM

### **H110 Shallow and Deep Geothermal Systems: Characterization, Integration, Stimulation, Simulation, and Induced Seismicity I**

Moscone South, Room 104, 8:00 AM

### **OS11H Science Results From the Aquarius and SMOS Ocean Salinity Missions I**

Moscone West, Room 2022-2024, 8:00 AM

### **T11C Cities on Subduction Thrusts I**

Moscone South, Room 103, 8:00 AM

### **AE12A Lightning and Atmospheric Electricity in Thunderstorms II**

Moscone West, Room 3002, 10:20 AM

### **H12F Shallow and Deep Geothermal Systems: Characterization, Integration, Stimulation, Simulation, and Induced Seismicity II**

Moscone South, Room 104, 10:20 AM

### **OS12C Science Results From the Aquarius and SMOS Ocean Salinity Missions II**

Moscone West, Room 2022-2024, 10:20 AM

### **T12C How, When, and Where Does Slip Occur in the Subduction Environment? I**

Moscone South, Room 103, 10:20 AM

### **GC13E The National Climate Assessment: Draft Findings, Building Capacity, and Implementing a Sustained Process**

Moscone West, Room 3002, 1:40 PM

### **OS13H Sustainable Oceans I**

Moscone South, Room 104, 1:40 PM

### **SA13D Solar and Space Physics Science and the Need for Innovation Into the Next Decade II**

Moscone West, Room 2022-2024, 1:40 PM

### **V13F Space, Time, and Transport in Petrology and Geochemistry I: Cosponsored by MSA**

Moscone South, Room 103, 1:40 PM

### **GC14C The North American Regional Climate Change Assessment Program: Studies Based on NARCCAP Simulations**

Moscone West, Room 3002, 4:00 PM

### **NH14A Geohazards and Disaster Risks in the North Pacific Region II**

Moscone South, Room 104, 4:00 PM

### **SH14A Interaction of Coronal Mass Ejections With Coronal and Heliospheric Structures I**

Moscone West, Room 2022-2024, 4:00 PM

SESSIONS:  
ON DEMAND

## Tuesday, 4 December

### **A21M Gravity Waves in the Atmosphere and Ocean I**

Moscone West, Room 3002, 8:00 AM

### **A21O Transport and Impacts of African Dust on Weather and Climate I**

Moscone West, Room 2022-2024, 8:00 AM

### **PA21B Communication of Science Through Art: A Raison d'Etre for Interdisciplinary Collaboration I**

Moscone South, Room 104, 8:00 AM

### **V21C A Comprehensive Understanding of the Melting Processes at Subduction Zones I**

Moscone South, Room 103, 8:00 AM

### **MR22A All About Olivine! II**

Moscone West, Room 2022-2024, 10:20 AM

### **B23I Disturbance Impacts and Responses I**

Moscone West, Room 3002, 1:40 PM

### **H23I Hydroepidemiology: Understanding Connections Between Hydrology and Human Health II**

Moscone West, Room 2022-2024, 1:40 PM

### **IN23F Near Real Time Data Uses for Earth Science and Space Weather Applications: Use of Social Media I**

Moscone South, Room 104, 2:40 PM

### **S23B Citizen-Empowered Seismology II**

Moscone South, Room 103, 2:40 PM

### **B24A Disturbance Impacts and Responses II**

Moscone West, Room 3002, 4:00 PM

### **OS24C Living on the Edge: Societies on the Front Line of Coastal Change I**

Moscone West, Room 2022-2024, 4:00 PM

## Wednesday, 5 December

### **A31K** New Atmospheric Sciences Fellows Presentations I

Moscone West, Room 3002, 8:00 AM

### **H31L** Advancing Drought Monitoring and Prediction With Applications to Decision Making I

Moscone South, Room 104, 8:00 AM

### **V31E** Metamorphic and Magmatic Processes at High Pressure I: Cosponsored by MSA

Moscone South, Room 103, 8:00 AM

### **A32D** New Atmospheric Sciences Fellows Presentations II

Moscone West, Room 3002, 10:20 AM

### **H32C** Advancing Drought Monitoring and Prediction With Applications to Decision Making II

Moscone South, Room 104, 10:20 AM

### **EP32B** The Future of Human-Landscape Systems II

Moscone West, Room 2022-2024, 11:35 AM

### **B33G** Impacts of Extreme Climate Events and Disturbances on Carbon Dynamics I

Moscone West, Room 3002, 1:40 PM

### **NG33A** Dynamic Regimes of Space Plasmas: Deterministic or Stochastic? I

Moscone South, Room 104, 1:40 PM

### **T33J** The Geodynamics of Plate Tectonics I

Moscone South, Room 103, 1:40 PM

### **NG33B** Nonlinear and Scaling Processes in the Atmosphere and Ocean at All Scales, From Microscales to Climate I

Moscone South, Room 104, 2:10 PM

### **B34A** Impacts of Extreme Climate Events and Disturbances on Carbon Dynamics II

Moscone West, Room 3002, 4:00 PM

### **T34C** The Geodynamics of Plate Tectonics II

Moscone South, Room 103, 4:00 PM

### **V34B** The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits, Igneous Bodies, and Meteorites III: Cosponsored by MSA

Moscone South, Room 104, 5:00 PM

## Thursday, 6 December

### **C41D** Dust and Black Carbon in the Cryosphere I

Moscone West, Room 3002, 8:00 AM

### **DI41B** Mantle Plumes: What Do We Really Know? I

Moscone South, Room 104, 8:00 AM

### **SM41D** Geoeffectiveness of Space Storms I

Moscone West, Room 2022-2024, 8:00 AM

### **V41D** The Geophysics and Geochemistry of Terrestrial Environments: Fluids, Subduction Zones, Metasomatism, Ore Deposits, Igneous Bodies, and Meteorites IV: Cosponsored by MSA

Moscone South, Room 103, 8:00 AM

### **A42D** Interactions Between Tropospheric Chemistry and Climate I

Moscone West, Room 3002, 10:20 AM

### **P42A** Lunar Science in the Wake of Human Exploration: Four Decades of Samples and Surface Data I

Moscone South, Room 103, 10:20 AM

### **S42C** Using Historical Information to Improve Seismic Data Processing Methods I

Moscone South, Room 104, 10:20 AM

### **SM42B** Particle Acceleration, Transport, and Loss in the Radiation Belts and Ring Current II

Moscone West, Room 2022-2024, 10:20 AM

### **C43E** Climate Change and Cryospheric Systems I

Moscone West, Room 3002, 1:40 PM

### **V43E** Calderas: Genesis, Evolution, and Eruption of Large Silicic Magma Chambers—Petrology and Thermal Evolution III

Moscone South, Room 103, 1:40 PM

### **C43F** Cryospheric Contribution to Sea Level Rise: Current Estimates and Projections I

Moscone West, Room 3002, 3:55 PM

### **GC44C** Special Lecture in Ocean Acidification: Consequences of Excess Carbon Dioxide in the Marine Environment

Moscone West, Room 2022-2024, 4:00 PM

### **V44B** Linking Diverse Constraints on Volcanic Unrest: Petrology, Geophysics, Geochemistry, and CO<sub>2</sub> Emissions II

Moscone South, Room 103, 4:00 PM

### **P44B** DAWN III

Moscone West, Room 2022-2024, 5:00 PM

SESSIONS:  
ON DEMAND

**A51L Tropospheric O3 Profiles: Measurement Strategies, Anthropogenic Influences, Climate Change Forcing, and Implications for Air Quality I**  
Moscone West, Room 3002, 8:00 AM

**GC51H The Anthropocene: Confronting the Prospects of a +4°C World I**  
Moscone South, Room 104, 8:00 AM

**U51B The Arctic System: From Critical Process Studies to Global Perspectives**  
Moscone South, Room 103, 8:00 AM

**EP52C Human Influences on Hydroecogeomorphic Processes Across Spatial Scales in Forested Landscapes II**  
Moscone West, Room 2022-2024, 10:20 AM

**GC52A Mechanisms of Past and Future Droughts in the Southwest United States and Investigation of Past and Future Changes in the Hadley Circulation I**  
Moscone South, Room 104, 10:20 AM

**NS52A Applied Geophysics in the Global Marketplace II**  
Moscone West, Room 3002, 10:20 AM

**V52C What Can Pyroclasts Tell Us? Mechanisms of Generation, Transport, and Sedimentation in Explosive Eruptions III**  
Moscone South, Room 103, 10:20 AM

**A53S Climate/Meteorological Applications for GNSS and Related Remote Sensing Techniques I**

Moscone West, Room 3002, 1:40 PM

**GC53D Climate Engineering and Carbon Sequestration Monitoring II**

Moscone South, Room 104, 1:40 PM

**S53I Understanding Recent and Historical Seismicity in the Central and Eastern U.S. II**

Moscone South, Room 103, 1:40 PM

**P53C Recent Advances in Lunar Science: Of, On, and From the Moon IV**

Moscone West, Room 2022-2024, 2:40 PM

**A54F Space-Based, Operational Global Earth Observations From NPP and JPSS III**

Moscone West, Room 2022-2024, 4:00 PM

**B54A Climatic Controls on Net Ecosystem Exchange (NEE) II**  
Moscone West, Room 3002, 4:00 PM

**IN54B Designing a Road Map for Workflow Cyberinfrastructure in the Geosciences: From Big Data to the Long Tail**

Moscone South, Room 104, 4:00 PM

**S54D Understanding Recent and Historical Seismicity in the Central and Eastern U.S. III**

Moscone South, Room 103, 4:00 PM

# AGU EDUCATION

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SESSIONS:  
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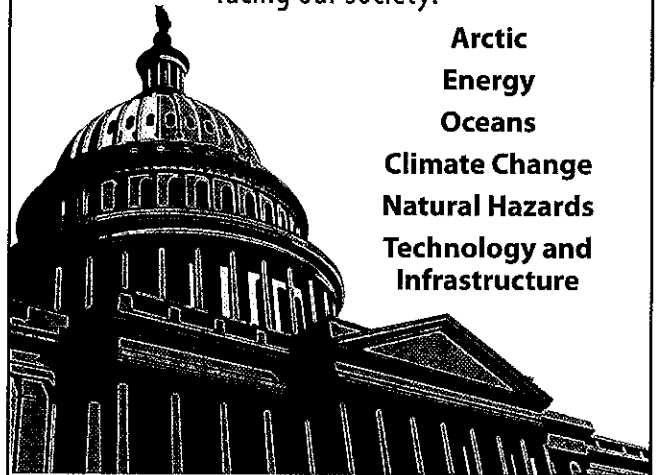
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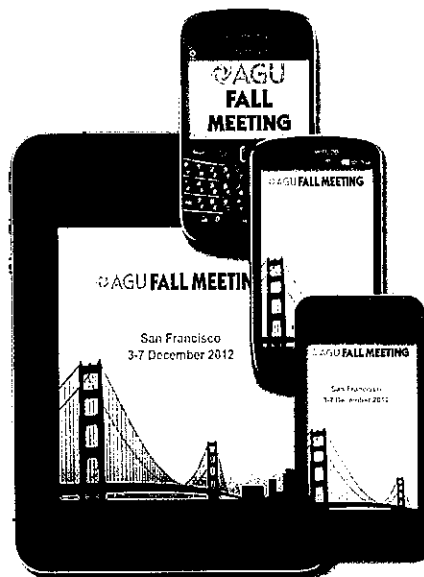
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Thank you!



# TOWN HALL MEETINGS

Monday, 3 December

5:00 PM-6:00 PM

## Town Hall on AGU Publishing Practices

Moscone South, Room 103

AGU President Mike McPhaden, and President-elect Carol Finn will host an open question and answer session for members focused on AGU's publishing partnership with Wiley. Areas of discussion will be directed by the questions but will likely focus on the rationale behind the decision, governance and decision making processes, and suggestions for further improvements in organizational transparency.

Monday, 3 December

6:15 PM-7:15 PM

## AGU Position Statements: Announcing New Submission and Review Methods

Moscone West, Room 2007

Cosponsored by PA

This Town Hall will better educate AGU membership about AGU position statements and their purpose, as well as announce the new review method and online submission process. Members of the AGU Outreach Committee as well as AGU Public Affairs staff will be on hand to give the presentation and answer questions from the audience.

## A U.S. Carbon Cycle Science Plan (2011): Federal Agencies Respond

Moscone West, Room 2004

Cosponsored by AS, B, GC

Authored by 25 researchers, A U.S. Carbon Cycle Science Plan (2011) identifies the next decade's key research priorities for carbon cycle science. During this town hall, the lead authors will address the research priorities identified within the Plan with AGU meeting participants. The Carbon Cycle Interagency Working Group (CCIWG)'s federal program managers will discuss potential actions and opportunities that support it.

## Community Input for the Study of Environmental Arctic Change (SEARCH)

Moscone West, Room 2010

Cosponsored by C, GC, OS, PP

SEARCH is a program that works with the science community to plan, conduct, and synthesize studies of arctic change. SEARCH has developed 5-year goals and is working on a new implementation plan. This will be a forum for open exchange on SEARCH opportunities, including the Arctic Observing Network, the Sea Ice Outlook, and others. The audience will include scientists, educators, and agencies. <http://www.arcus.org/search>

## European Research Council: Funding Opportunities

Moscone West, Room 2003

The European Research Council (ERC) is a funding body supporting excellent frontier research. ERC calls are open to researchers around the world. The ERC offers grants of ~1.5-3.5 million for individual scientists and up to 15 million for projects with collaborating scientists. All nationalities are welcome for projects carried out at a host institution in Europe. The ERC funding opportunities will be presented.

## Exploring Solutions for Diverse Science Workforce

Moscone West, Room 2002

Cosponsored by B, ED, PP, PA

Moderator: David Schimel (NEON); Speakers and panelists: Marcia McNutt (USGS), Kate O'Brien (Univ of Queensland); Panelists: Marilyn Fogel (NSF), Marge Cavanaugh (NSF), Wanda Ward (NSF); Panelists pending: DOE, NOAA, EPA. Goals: To discuss potential solutions and to gather input from AGU members on how organizations can nurture excellence and personal success for women in all stages of their science careers.

## Geosciences at NSF

Moscone West, Room 2006

Cosponsored by AS, B, OS

The NSF Advisory Committee for Geosciences and GEO senior staff will present on the status of GEO programs and plans. AC GEO members will present their follow-up report to the 'GEO Vision' report, 'Strategic Frameworks for Education & Diversity, Facilities, International Activities and Data Informatics in the Geosciences.' GEO management will present information on the current standing of discovery programs as well as cross-disciplinary initiatives such as EarthCube and SEES.

## Geoscientists in Geoh heritage Sites

Moscone West, Room 2009

Geoh heritage promotion is important for outreach, working best when locals, economic interests and government work in unison. The geoscientist role is like in georisk, as partners, information and expertise suppliers, but not leaders. We will discuss our role in sites with proposed UNESCO world heritage sites and geoparks (Chaîne des Puys - Limagne Fault, France / Italian Alps), instigating a discussion involving educators, policy makers and scientists.

## More International Scientific Collaboration

Moscone West, Room 2011

Scientific Collaboration Development Center (SCDC) seeks to discuss with AGU members issues facing scientific international collaboration. SCDC will provide proposal guidance for collaborators, build a confidential data bank, and organize workshops and scientific development visits. This Town Hall meeting will provide a forum for describing services at SCDC and discuss what other capabilities should be added to ensure its usefulness for researchers.

## Scientific Drilling in the Polar Regions

Moscone West, Room 2008

Cosponsored by C, GC, OS, PP

Ice sheets and ocean sediments hold important climate evidence from the past. International collaboration for drilling in the polar regions requires coordination between science, technology, and logistics. The research community is invited to hear updates on recent planning by the IDPO/IDDO, IPICS, ANDRILL, IODP, SCAR-ACE, and WAIS initiatives. Opportunities for community involvement in interdisciplinary planning will be highlighted and input solicited.

## Tsunami Component of the 2015 UN-ISDR Global Assessment Report (GAR)

Moscone West, Room 2005

Cosponsored by NH, OS, S

Target audience: Tsunami scientists, risk managers, seismologists, stakeholders. Goals: The GAR 2015 will aim at quantifying the global tsunami hazard and exposure probabilistically. The global challenge calls for a joint international approach. The tsunami community is invited for a discussion on the approach taken and on how the project may benefit from information shared by the international community.

**Tuesday, 4 December**

**12:30 PM-1:30 PM**

## DOE's Strategy for Next Generation Ecosystem Experiments

Moscone West, Room 2002

Cosponsored by AS, GC

DOE has recently developed a strategy to combine experimental and modeling components into long term field studies that target sensitive climate ecosystems. Called Next Generation Ecosystem Experiments (NGEE's), the studies emphasize basic science, yet package research to advance community modeling capabilities. The first NGEE project studies ecosystems experiencing permafrost thaw; the second NGEE will target tropical ecosystems.

## Earthquake Science in Indonesia: Where to From Here?

Moscone West, Room 2009

Cosponsored by NH, OS, S

The 2004 Sumatra Earthquake led to a surge of interest in Indonesian earthquake science. Major investments have been made in seismic/geodetic infrastructure, and the capacity of Indonesian scientists to advance their field has never been greater. This meeting will bring interested AGU members up-to-date on the state of earthquake science in Indonesia, and discuss how to best direct this science toward the reduction of earthquake fatalities.

## Engaging with Coupled Human and Natural Systems

Moscone West, Room 2006

Cosponsored by OS

With support from NSF, the International Network of Research on Coupled Human and Natural Systems (CHANS-Net.org) facilitates collaborative research by natural and social scientists exploring complex human-nature interactions to find solutions that benefit the environment and enable people to thrive. The Town Hall Meeting will showcase research success stories, identify opportunities, and seek new collaboration across the AGU community.

## InTeGrate: Interdisciplinary Teaching of Geoscience for a Sustainable Future

Moscone West, Room 2018

Cosponsored by ED, OS

InTeGrate is a NSF-funded community project to improve geoscience literacy and build a workforce that can make use of geoscience to address societal issues. At this town hall AGU members can learn about first year activities, hear about opportunities to be involved in materials development teams, implementation programs, and workshops in the upcoming year, and give input on future directions for the project.

## NASA Air Quality Applied Sciences Team (AQAST)

Moscone West, Room 2003

Cosponsored by AS

AQAST focuses on increasing the value of Earth Science data for U.S. air quality management. Team members work with

air quality agencies on a broad portfolio of projects. They can respond quickly to evolving needs. The goal of this Town Hall is to introduce AQAST and to generate new project ideas and collaborations. The target audience includes air quality managers and Earth Scientists interested in air quality applications.

## NASA Town Hall—Science Highlights and Future Plans

Moscone West, Room 2010

NASA leads the nation on a great journey of discovery, seeking new knowledge and understanding of our planet Earth, our Sun and solar system, and the universe. NASA's Science Mission Directorate and the nation's science community use space observatories to conduct scientific studies of the Earth from space to visit and return samples from other bodies in the solar system, and to peer out into our Galaxy and beyond.

## NSF's Division of Antarctic Sciences

Moscone West, Room 2004

Discussion of research opportunities and outcomes of two USAP reviews: the NRC Report "Review of the U.S. Antarctic program: Future science opportunities in the Antarctic and Southern Ocean" and the Blue Ribbon Panel "More and Better Science In Antarctica Through Increased Logistical Effectiveness". Planning activities will be discussed: an interdisciplinary workshop on future research in the Transantarctic Mountains and the Antarctic Data Consortium.

## Research 'Made in Germany'—First Class Research Opportunities in Marine and Climate Sciences

Moscone West, Room 2011

Come meet scientists from three top-level German research centers in marine and climate sciences. These Centers of Excellence encourage and support innovative cutting-edge research. Learn more about current projects, research results and the experiences of climate and ocean researchers from Germany! Find out how you can take advantage of Germany's numerous research funding opportunities.

## The Agricultural Model Intercomparison and Improvement Project (AgMIP) Town Hall

Moscone West, Room 2007

Cosponsored by GC

AgMIP ([www.agmip.org](http://www.agmip.org)) is an international effort linking the climate, crop, and economics communities to produce the next generation of climate impacts projections for the agricultural sector. This meeting will engage the AGU community by providing a brief overview of AgMIP, soliciting feedback on the current research plan of AgMIP, and inviting suggestions to inform the future objectives of AgMIP.

TOWN HALL MEETINGS

### **The International Polar Initiative (IPI)**

Moscone West, Room 2005

Cosponsored by AS, C, ED, GC, H, OS

IPI is a novel cooperation framework to address, in a coordinated and resourceful manner, the challenges due to the ongoing dramatic changes in Polar Regions. IPI envisages a plan of sustained observations, research, outreach, and services, to be built on the legacy of International Polar Year 2007-2008. This town hall meeting will seek polar science community's input and feedback on the IPI Concept (<http://www.iasc.info/index.php/home/initiatives/22>).

### **Update on EarthCube: Past, Present, and Future**

Moscone West, Room 2008

Cosponsored by OS

The EarthCube endeavor started in June 2011 and has increasingly engaged a global community of geoscientists and cyber-

technologists. A set of community-guide activities has resulted in roadmaps, workshops, numerous WebExs/conference calls, and two Charrettes. This town hall meeting will briefly review previous EarthCube activities, the current set of happenings, and plans for future actions.

### **U.S. CLIVAR Town Hall—Science Plan for the Post-2013 Era**

Moscone West, Room 2016

Cosponsored by GC, OS

U.S. CLIVAR convenes a Town Hall for climate scientists to preview the draft Plan and garner input from the community for potential changes prior to formal public and NRC reviews during 2013. The presentations will outline the progress of U.S. CLIVAR science over the past decade, identify future scientific questions, articulate program mission and goals, and identify science elements to be implemented to achieve those goals.

## **Tuesday, 4 December**

**6:15 PM-7:15 PM**

### **Space Physics and Aeronomy Section Agency Night**

Moscone West, Room 2016

Cosponsored by SH

This town hall features representatives from NASA and NSF, as well as the co-chairs of the Decadal Survey for Solar and Space Physics. It is a valuable opportunity to learn about future plans for the discipline and to provide feedback to the funding agencies.

## **Wednesday, 5 December**

**12:30 PM-1:30 PM**

### **AGU Scientific Integrity and Professional Ethics Townhall Session**

Moscone West, Room 2011

Science doesn't exist without scientific integrity. AGU has updated its Scientific Integrity and Professional Ethics policy. After rigorous analysis, and a multi-tiered member review and comment period, the draft policy is being presented to the Council for consideration and adoption at this meeting. The Task Force will present their final recommendations in this critical Town Hall. Come hear the report and join the discussion on the recommendations to the Council.

### **A Water Strategy for the Global Earth Observing System of Systems (GEOSS)**

Moscone West, Room 2009

Cosponsored by H

AGU hydrologists and atmospheric scientists are invited to provide input to the GEOSS Water Strategy. The current status of the strategy will be introduced and Town Hall participants will be asked to give perspectives on ways to improve observational, analysis and prediction systems, and on issues such as data sharing, interoperable systems, integration across variables and data types, and data inputs to decision-making.

### **Belmont Forum International Opportunities Fund IDEAS RALLY – Data & e-Infrastructures**

Moscone West, Room 2005

Cosponsored by GC

The IDEAS RALLY provides the geoscience communities with an opportunity to identify potential research areas and critical capabilities where international, interdisciplinary collaboration can effectively address challenges in data management, common data policies, and standards relevant to global change research e-infrastructure. Join us to help focus one of the next Belmont Forum IOF call for proposals.

### **Building Bilateral Collaboration in Geohazards of the Russian Far East – Alaska Region**

Moscone West, Room 2008

Cosponsored by G, NH, S, T, V

Bilateral collaboration can reduce the disaster risk from extreme geophysical events in our shared backyard. A first bilateral geohazards meeting was held under the aegis of the Bilateral Presidential Commission in Moscow in July. Please come to provide your ideas for bilateral projects and a 2013 workshop. Topics: Moscow meeting; Extreme events; Monitoring; What is at risk; Reducing risk.

### **Emissions Information & Communication: Progress & Priorities**

Moscone West, Room 2004

Cosponsored by AS, B, IN, GC

We invite all 2012 AGU Fall Meeting participants to join an interactive discussion of current capabilities and future priorities for emissions information and communication in research, assessment, regulation, operations, and policy. We will update you on progress with community forums for the exchange of emissions expertise and information, including GEIA (<http://www.geiacenter.org/>), ECCAD (<http://eccad.sedoo.fr/>), and CIERA (<http://ciera-air.org/>).

### **ICESat-2 Applications Town Hall**

Moscone West, Room 2006

Cosponsored by B, C, G, H, OS

ICESat-2 will provide measurements for Land and Sea ice, Land and Water elevation, and Vegetation. Expanded capabilities of the new instrument ATLAS, over the heritage ICESat GLAS, will enable enhanced understanding of the Cryosphere as well as provide new datasets for land, vegetation and water. This town hall will provide insight into the mission and opportunities to meet project science representatives.

## **National Soil Carbon Network: Data Resources for Carbon Cycle Science Synthesis**

Moscone West, Room 2002

Cosponsored by B

The National Soil Carbon Network, a community of agency and academic scientists from the U.S. and international institutions, seeks to encourage use of its dynamic, growing database of >30,000 geo-referenced soil profiles. This Town Hall meeting will showcase recent uses of the NSCN Database and highlight data resources of interest to soil scientists, ecosystem modelers, and all with an interest in soil carbon.

## **Publishing Research Data: Peer Review, Data Center Accreditation, and Linking**

Moscone West, Room 2007

Cosponsored by IN

Publication is an increasingly important mechanism for incentivizing the sharing of research data. The PREPARDE Project is

working to investigate barriers and drivers to publishing, sharing, peer review and re-use of geoscientific datasets. This meeting will provide an overview of the project's progress to date and invite input from anyone interested in developing mechanisms that promote the publishing of research data.

## **Strategies for Leadership Class Computing and Climate Modeling at DOE**

Moscone West, Room 2003

Cosponsored by AS, GC, OS

DOE strategies for advancing computationally intensive climate modeling including its Climate-Computing (BER-ASCR) SciDAC partnership program, prospects for computational advances in accelerated systems (eg GPUs) and challenging extreme-scale architectures, and how climate modeling research may co-evolve. Community input is invited on climate-computing modeling priorities, relevant research gaps and computational limitations.

**Thursday, 6 December**

**12:30 PM-1:30 PM**

## **Future Earth - Research for Global Sustainability**

Moscone West, Room 2005

Cosponsored by GC

Future Earth is a new 10-year international initiative on interdisciplinary Earth system research. It will provide the knowledge required by societies to face global environmental change risks and to transition towards global sustainability. Panelists will discuss the research framework of the initiative with researchers from natural and social sciences and other interested stakeholders (funders, private sector, civil society, policy makers).

## **NASA Earth Science Division Town Hall**

Moscone West, Room 2003

Cosponsored by AS, B, C, IN, G, GC, OS

NASA's Earth Science Division leadership team will present an update of status and plans, with significant time for audience discussion. Highlighted items include status of operating and future satellite missions; initial implementation of Venture Class activities; evolution of and plans for the research, applied sciences, and technology elements; and contribution to inter-agency and international Earth observation and global change programs.

## **NASA Heliophysics Town Hall**

Moscone West, Room 2007

The community is invited to participate in the effort to develop NASA Heliophysics strategic plans with the goal of improving understanding of the Sun and its interactions with the Earth and the solar system. The NRC report, *Solar and Space Physics: a Science for a Technological Society* will be used as the basis for the Heliophysics science roadmap. Programs outlined in the roadmap are designed to make advances in the processes governing the space environment.

## **NASA Operation IceBridge Open Town Hall**

Moscone West, Room 2008

Cosponsored by C, G

IceBridge images Earth's polar ice in unprecedented detail to better understand processes that connect the polar regions with the global climate system. IceBridge utilizes research aircraft and a sophisticated suite of science instruments to characterize annual changes in thickness of sea ice, glaciers, and ice sheets. The town hall meeting will provide the cryospheric science community

with an update about IceBridge data products and future plans.

## **New Lidar Technologies and Vision for the Future**

Moscone West, Room 2010

Cosponsored by EP, G

NCALM, OpenTopography, and UNAVCO, have advanced technology and community access to high-resolution Earth-surface observations with lidar. Goals of this town hall: 1) To present new technologies and data search tools; 2) To gather the community's opinion on where future efforts should be directed; 3) To disseminate information about how to obtain lidar. Community feedback will be communicated to NSF through participating program officers.

## **NOAA's Role in Marine Microbes Science:**

### **Where Do We Go From Here?**

Moscone West, Room 2002

Cosponsored by B, OS

Strengthening NOAA's holistic comprehension of the ocean's physical, biological, chemical and geologic components is key to foster resiliency and promote sustainable resource management. The Town Hall discussion seeks inputs from the wider community to assist NOAA in better focusing its efforts in marine microbe science. Everyone interested in biogeochemical cycles and microbial science is invited to attend.

## **Reducing Hazards and Risk in Developing Nations: Responding to the ENHANS Declaration**

Moscone West, Room 2011

Cosponsored by NH

The goal of this session is to target members of the Natural Hazards Focus Group to explore the feasibility of a special publication that will address the goals of the ENHANS declaration by integrating scientific knowledge and understanding within a socioeconomic and cultural context through an inter-disciplinary approach to hazard, risk and vulnerability research.

## **The Evolving AmeriFlux Network**

Moscone West, Room 2004

Cosponsored by AS, B, GC, H

AmeriFlux Network measurements provide the crucial linkage between organisms, ecosystems, and process-scale studies at climate-relevant scales of landscapes to continents. A com

**TOWN HALL MEETINGS**

munity driven effort, AmeriFlux continues to evolve and expand to meet the needs of the community. Join us for an opportunity to learn about the new DOE AmeriFlux Network Management Project ([ameriflux.lbl.gov](http://ameriflux.lbl.gov)), provide feedback, exchange ideas, and influence the direction of the Project.

### **Undergraduate Geoscience Education: A Call for Community Strategic Planning**

Moscone West, Room 2009

Cosponsored by ED, OS

Undergraduate STEM education is undergoing accelerated change. Despite a better understanding of what works in geoscience education, promising practices fail to reach scale. Technological innovations offer transformation, but with attendant disruption. NSF's GEO and EHR Directorates seek input

from the geoscience community on developing a shared vision and action plan for the future of undergraduate geoscience education.

### **Water Security Challenges in East Asia**

Moscone West, Room 2006

Cosponsored by H

Water security problems are acute in East Asia, where growing population, rapid urbanization, and climate change are leading to soaring water demand and likely more uncertain supply. The meeting is to gather expertise that addresses evolving East Asia water security challenges from professionals in water-related sciences. The meeting is sponsored by Hydrology and International Association of Chinese Youth in Water Sciences which has 50+ meeting attendees.

**Friday, 7 December**

**12:30 PM-1:30 PM**

### **Belmont Forum International Opportunities Fund IDEAS RALLY – HAZARDS**

Moscone West, Room 2002

Cosponsored by AS, B, H, NH

The IDEAS RALLY is an opportunity for the geoscience communities to provide input for an international interdisciplinary research call focusing on resilience and vulnerability to hazards and disasters. The Belmont Forum seeks insights and approaches to promote long-term data collection, cross-cutting knowledge sharing, and synthesis of models/theory. Join us to help focus one of the next Belmont Forum IOF call for proposals.

### **Coordinating Office for Research on the Sedimentary Crust, Deep-Time and the Earth-Life System**

Moscone West, Room 2003

GSA, SEPM, and the Paleontological Society have formed a NSF-funded community coordinating Office ('STEPPE': Sedimentary Geology, Time, Environment, Paleontology, Paleoclimate and Energy) to facilitate collaboration and communication among existing and new initiatives, build capacity, and advocate for research into the deep-time record of Earth processes. Town Hall will solicit input on the office.

### **EarthScope Town Hall**

Moscone West, Room 2008

Cosponsored by IN, ED, G, S, T

EarthScope enables the exploration of the structure and evolution of the North American continent by accessing a range of seismological, geodetic, in situ fault zone, geochronology, and high resolution topography resources. EarthScope offers superb opportunities for science education. We will update EarthScope science, facilities, and activities, and solicit feedback. The target audience is colleagues interested in the science and broader impacts of EarthScope.

### **Earth System Prediction Capability–Five Weather-Climate Demonstrations**

Moscone West, Room 2006

Cosponsored by AS, GC, NH, OS

ESPC is an effort to improve collaboration across federal environmental research and operational prediction communities. ESPC is identifying and developing sources of extended range predictability as well as supporting common modeling architectures, data and archive standards, and metrics. A set of five

weather-climate demonstrations are under development and ESPC will present the scientific goals and invite participation.

### **Forum on the Southern Ocean Observing System (SOOS)**

Moscone West, Room 2011

Cosponsored by OS

SOOS, co-sponsored by SCOR and SCAR, has the goal of coordinating international data gathering to develop a sustained set of observations in the circumpolar Southern Ocean to address key scientific and societal challenges. SOOS SSC members will discuss current activities, international coordination, and wish to receive SO community ideas on how to advance SOOS both internationally and in the U.S.

### **Frontiers in Ecosystem Science: Energizing the Research Agenda**

Moscone West, Room 2004

Cosponsored by AS, B, GC, H

We have funding from NSF to organize workshops at multiple scientific-society meetings over the next 2 years to engage scientists from many disciplines in a discussion about the "frontiers" of Ecosystem Science. For this workshop, we will make an overview presentation to serve as a jumping off point for the session, which will focus on exciting developments in ecosystem ecology.

### **Global ULF Pc5 Pulsations During Strong Magnetic Storms: Excitation Mechanisms and Equatorward Expansion**

Moscone West, Room 2016

Cosponsored by SM

The dynamics of global Pc5 waves during the magnetic storms on October 29-31, 2003 and May 15, 2005 is studied, using the data from trans-American network of magnetometers composed by SAMBA, MAGDAS, CARISMA, and MACCS arrays. The incorporation SAMBA array gives an opportunity to realize a global study of the behavior of Pc5 during strong magnetic storms.

### **International Earth Science Organizations and You**

Moscone West, Room 2009

Cosponsored by AE, AS, B, C, EP, IN, ED, G, GP, GC, H, MR, NH, NS, NG, OS, PP, P, PA, S, SA, SM, SH, DI, T, V

The U.S. National Committee (USNC) for the International Union for Geodesy and Geophysics (IUGG) invites you to learn about international activities by U.S. scientists and opportunities in international science organizations. The town hall will feature brief presentations from a range of AGU disciplines,

with ample time for questions and discussion. Refreshments will be served. Come join us and start participating in international geoscience.

### **NEON's Mobile Deployment Platform (MDP):**

#### **Seeking Input on a Community Resource**

Moscone West, Room 2005

Cosponsored by AS, B, H, NH

Here, we present ideas for NEON's MDP and foster dialogue to advance its design. Broadly, the MDP will be a PI /agency requestable resource capable of observing a diverse range of ecological quantities, change and gradients that cannot be reliably captured with fixed location sampling. We wish to glean community input toward selecting relevant and effective MDP infrastructure. A unique opportunity for NEON and AGU scientists.

#### **Snow from Space: Building a Vision**

Moscone West, Room 2018

Cosponsored by C, GC, H

Capitalizing on technological progress, and wanting to energize the U.S. snow community with respect to remote sensing, a new

Snow Remote Sensing Working Group seeks ideas, enthusiasm, and action towards developing orbital/suborbital snow mission concepts for the next Decadal Survey. The goal of this town hall is to inform and engage partners in creating a compelling vision for a snow remote sensing mission and developing a roadmap for mission success.

#### **Surface Process Experiments - A Community Discussion**

Moscone West, Room 2007

Cosponsored by EP

Following technical session EP002: Advances in Experimental Earth Surface Processes, this town hall will facilitate discussion among scientists whose focus is Earth-surface processes. It will be a venue for community discussion on issues from data management, sharing, and publication, to sharing technical expertise in surface process experiments with the goal of developing community resources to promote efficiencies in experimental productivity.

## **MAKING A DIFFERENCE!**

**A big thank you to all AGU members who volunteer their time and talent to advance the strategic plan.**

# **AGU FALL MEETING**

San Francisco | 3-7 December 2012

## **SHARE YOUR SCIENCE!**

Want to share your science with the broader world? Visit AGU's new "Sharing Science" web site, where you will find resources and tools to help you reach out to policy-makers, reporters, students, fellow scientists and the general public.

[sharingscience.agu.org](http://sharingscience.agu.org)



**TOWN HALL MEETINGS**

# 2012 FALL MEETING PROGRAM COMMITTEE

## Chair and Union (U)

**Kathy Hibbard**

Pacific Northwest National Laboratory

## Atmospheric Sciences (A)

**Natasha Andronova**

University of Michigan

**Steven Massie**

National Center for Atmospheric Research

**Surabi Menon**

ClimateWorks Foundation

## Atmospheric and Space Electricity (AE)

**Steven Cummer**

Duke University

**Xuan-Min Shao**

Los Alamos National Laboratory

## Biogeosciences (B)

**Mariah Carbone**

National Center for Ecological Analysis and Synthesis

**Brian Schubert**

University of Hawaii

**Scott Werts**

Winthrop University

## Cryosphere (C)

**Paul Winberry**

Central Washington University

**Adam Winstral**

USDA

**Tad Pfeffer**

University of Colorado

## Earth and Space Science Informatics (IN)

**Karen Moe**

NASA Goddard Space Flight Center

**Michael Piasecki**

The City College of New York

**Kerstin Lehnert**

Lamont Doherty Earth Observatory

## Earth and Planetary Surface Processes (EP)

**Raymond Torres**

University of South Carolina

**Susan Moskalski**

University of South Carolina

## Education (ED)

**Stephen Macko**

University of Virginia

**Jim Byrne**

University of Lethbridge

## Geodesy (G)

**Brian Gunter**

Delft University of Technology

## Geomagnetism and Paleomagnetism (GP)

**Laurie Brown**

University of Massachusetts

## Global Environmental Change (GEC)

**Steven Lloyd**

NASA Goddard Space Flight Center

**Figen Mekik**

Grand Valley State University

## Hydrology (H)

**Michael H. Cosh**

U.S. Department of Agriculture

**Stefan Kollet**

University of Bonn

**Charles Luce**

USDA Forest Service

## Mineral and Rock Physics (MRP)

**Sébastien Merkel**

Université Lille

**Wen-lu Zhu**

University of Maryland

## Natural Hazards (NH)

**Yev Kontar**

University of Findlay





*Fall Meeting Program Committee at AGU Headquarters during the program scheduling meeting in September.*

Near Surface Geophysics (NS)

**Chet Weiss**  
Virginia Polytechnic Institute

Nonlinear Geophysics (NG)

**Alin Carsteanu**  
Escuela Superior de Física y Matemáticas -  
Instituto Politécnico Nacional

Ocean Sciences (OS)

**Rob Evans**  
Woods Hole Oceanic Institute  
**Elizabeth Canuel**  
Virginia Institute of Marine Science

Paleoceanography and Paleoclimatology (PP)

**Bärbel Hönlisch**  
Lamont Doherty Earth Observatory  
**Matthew Schmidt**  
Texas A&M University

Planetary Sciences (P)

**Nathan Bridges**  
Applied Physics Laboratory  
**Jörn Helbert**  
German Aerospace Center  
**Linda T. Elkins-Tanton**  
Massachusetts Institute of Technology

Public Affairs (PA)

**Simon Schneider**  
Kordinierungsbüro Geotechnologien

Seismology (S)

**Sean Ford**  
Lawrence Livermore National Lab

**Vedran Lekic**  
University of Maryland

SPA-Aeronomy (SA)  
**Larisa Goncharenko**  
Massachusetts Institute of Technology

SPA-Solar and Heliospheric Physics (SH)  
**Ian Richardson**  
NASA Goddard Space Flight Center

SPA-Magnetospheric Physics (SM)  
**Aaron Ridley**  
University of Michigan

Study of Earth's Deep Interior (DI)  
**Nicholas Schmerr**  
NASA Goddard Space Flight Center

**Catherine Cooper**  
Washington State University

Tectonophysics (T)

**Jolante van Wijk**  
University of Houston  
**Becky Flowers**  
University of Colorado at Boulder

**Beatrice Magnani**  
University of Memphis

Volcanology, Geochemistry and Petrology (V)

**Matt Kohn**  
Boise State University  
**Julia Hammer**  
University of Hawaii  
**Sarah Penniston-Dorland**  
University of Maryland

# MEETING SERVICES

## AGU ACTIVITIES AND EVENTS

MEETING  
SERVICES

### Academic Showcase

Moscone North, Exhibit Hall  
Tuesday-Thursday, 9:30 AM-6:00 PM  
Friday, 9:30 AM-1:30 PM

### AGU Gift Shop

Moscone West, Level 2  
Monday-Thursday, 10:00 AM-6:00 PM  
Friday, 9:00 AM-1:00 PM

### AGU Marketplace

Moscone North, Exhibit Hall  
Tuesday-Thursday, 9:30 AM-6:00 PM  
Friday, 9:30 AM-1:30 PM

- Renew your membership
- Update your member profile
- Purchase AGU books and merchandise at a special meeting discount
- Attend interactive presentations

### Donor Lounges

Moscone South, Room 250-262  
Moscone West, Room 2018  
Monday-Friday, 7:00 AM-6:00 PM

- South Donor Lounge: The South Donor Lounge offers a quiet atmosphere for AGU donors of \$120 in 2012 to start the morning, relax between sessions, and check e-mail.
- West Donor Lounge: The West Donor Lounge welcomes AGU benefactors and donors of \$120 or more in 2012, and 2012 Fellows, Medalists, and Awardees to start the morning, relax between sessions, and check e-mail.

### Editor's Resource Center

Moscone West, Alcove 2014  
Monday-Thursday, 8:00 AM-6:00 PM  
Friday, 8:00 AM-5:00 PM

The Editors' Resource Center serves as the Fall Meeting on-site info hub where AGU Editors and Associate Editors may relax, get a cup of coffee, catch up on e-mail, or hold informal meetings. While there, Editors and AEs will experience an environment conducive to collaboration with their counterparts on other AGU journals. It is also where they can share approaches to various editorial challenges and develop new collegial relationships. Internet/Wi-Fi connection, a computer, and a printer will be available.

Staff will be on hand with individual journal publishing statistics for their formal editorial board meetings. They will assist Editors and AEs with any questions or problems and provide information about upcoming editor searches, developments in the AGU journal publishing process, and news about the HQ Publications Division.

### Exhibits

Moscone North, Exhibit Hall  
Tuesday-Thursday, 9:30 AM-6:00 PM  
Friday, 9:30 AM-1:30 PM

### Honors Tribute Booth

Moscone South, near Registration  
Monday-Tuesday, 8:00 AM-5:00 PM  
Wednesday, 8:00 AM-3:00 PM  
Thursday, 8:00 AM-5:00 PM

Services include general information about the 2012 Honors Tribute events, honors banquet seating, and tickets.

### Press Room

Moscone West, Room 3001A  
Monday-Thursday, 7:30 AM-6:30 PM  
Friday, 7:30 AM-2:00 PM

To promote public understanding of Earth and space sciences, AGU operates a press room and holds press conferences as part of this international meeting; press conferences are held in Moscone West, Room 3000, Monday through Friday, 8:00 AM-6:00 PM. Press releases about research presented at the meeting are made available to reporters online, as well as in the press room.

## GENERAL SERVICES

### Business Center: Moscone

Moscone West, Main Lobby  
Moscone South, Lower Lobby  
Monday-Friday, 8:00 AM-6:00 PM

The Business Center's services and products include computer rental, printing, copying, fax transmission and receipt, package shipping, office products, and more.

### Business Center: San Francisco Marriott Marquis

Daily, 7:00 AM-7:00 PM

The Business Center's services and products include computer rental, printing, copying, fax transmission and receipt, package shipping, office products, and more.

### Career Center and Career Lounge

Moscone South, Poster Hall, Rooms 105 and 106  
Monday-Friday, 8:30 AM-6:00 PM

AGU continues its acclaimed and successful Career Center and Career Lounge, a valuable resource for employment positions, current career information, and the latest data on employment trends in the geosciences.

### Child Care

Moscone South Mezzanine, Rooms 236-238  
Monday-Friday, 7:30 AM-6:30 PM

KiddieCorp provides a professional children's program at the meeting. Fees are \$10 per hour per child for children ages 6 months through 12 years and \$12 per hour per child for children under 6 months. Children must be registered for

a minimum of two (2) consecutive hours per child per day. A Mothers' Room is also available; see page – for details. For more information, please contact KiddieCorp by phone at +1.858.455.1718. Child care services are a contractual agreement between each individual and the child care company. AGU assumes no responsibility for the services rendered.

### Coat Check

Moscone South, Moscone North, and Moscone West Lobbies  
Monday, 7:30 AM-6:30 PM (MW)  
Monday, 7:30 AM-8:00 PM (MS)  
Tuesday-Friday, 7:30 AM-6:30 PM\*  
\*Coat check service hours will be extended on Wednesday for the Honors Ceremony.  
There is a charge of \$3.00 USD for coats or luggage.

### First Aid

Moscone West, Lobby  
Monday-Friday, 8:00 AM-6:00 PM  
A registered nurse will be on call during regular meeting hours to provide basic first-aid services and supply items such as bandages and acetaminophen.

### General Information Booth

Moscone West, Level 2  
Moscone South, Upper Lobby  
Sunday, 12:00 PM-6:30 PM (Moscone South only)  
Monday-Tuesday, 7:00 AM-5:00 PM  
Wednesday-Thursday, 7:30 AM-5:00 PM  
Friday, 7:30 AM-5:00 PM  
General meeting information is available here. This central information center is accessible to anyone trying to contact meeting attendees or AGU staff. Lost and found items will be held here until the end of each day after which items will be taken to Moscone Security in Moscone South. Messages for attendees may be posted on message boards. Individuals cannot be paged. Outside of registration hours it is recommended that messages be left at the attendee's hotel. Names and phone numbers of hotels are listed on page xxx.

### Internet Stations

Moscone North, South Concourse  
Moscone South, Upper Lobby and Poster Hall  
Moscone West, Levels 2 and 3

### Lost and Found

Lost and Found will be located at the General Information Booths during session hours. At the end of each day, articles will be brought to Central Security on Moscone West, Level 1. The Moscone Security Control room can be contacted by dialing 4021 on a white courtesy phone.

### Mothers' Room

Moscone South, Room 218  
Monday-Friday, 7:30 AM-6:30 PM  
A private room has been set aside near Child Care. A refrigerator is available in the Child Care room (Moscone South, Rooms 236-238).

### Refreshments

Moscone South, Poster Hall and Esplanade  
Moscone West, Levels 2 and 3  
Moscone North, Exhibit Hall (Tuesday-Thursday, and Friday morning)  
10:00 AM-11:00 AM: Coffee/Tea  
3:30 PM-4:30 PM: Coffee/Tea, Soft Drinks, and Beer

### Special Needs

AGU staff will work with its vendors to provide reasonable support to anyone with special needs. If you require assistance during the meeting, contact the General Information Booth in Moscone South or West.

### Wireless Help Desks

Moscone South, Halls A-C, Poster Hall  
Moscone West, Level 2  
Monday-Friday, 9:00 AM-5:00 PM  
Wireless Internet access is available throughout all areas of Moscone Center with the exception of the Exhibit Hall and oral session rooms. Instructions for accessing WiFi can be found here. If you plan to upload your ePoster, higher bandwidth is available in the Poster Hall. Visit the Wireless Help Desk for assistance.

## PRESENTER SERVICES

### Outstanding Student Paper Awards (OSPA) Resource Center

Moscone South, Poster Hall, Room 101  
Sunday, 12:00 PM-6:30 PM  
Monday-Tuesday, 7:00 AM-5:00 PM  
Wednesday-Friday, 7:30 AM-5:00 PM  
Section and focus group OSPA coordinators and judges may visit the booth for assistance and relevant materials.

### Poster Help

Moscone South, Poster Hall  
Monday-Friday, 7:30 AM-6:00 PM  
Staff will be available to assist you with your poster location and other on-site needs. Push pins, tape, and scissors will be available for your use. If you have special needs for your poster presentation, we suggest you bring those supplies with you to the meeting. Presenters will also be able to place on-site orders for audio visual equipment here.

### Poster Printing Services – AlphaGraphics

Moscone South, Upper Lobby

Sunday, 12:00 PM-6:30 PM  
Monday-Thursday, 7:00 AM-5:00 PM  
Friday, 7:30 AM-10:30 AM  
AGU has teamed with AlphaGraphics to print posters for pickup at the Moscone Center. Attendees who submitted and paid through the AlphaGraphics site may pick up their posters at the Poster Printing Services booth in the Upper Lobby of Moscone South. AlphaGraphics can also assist with on-site printing needs. At least 24 hours are needed for on-site orders.

### Speaker Ready Room

Moscone West, Room 2001 (Monday-Friday only)  
Moscone South Mezzanine, Room 204  
Sunday, 12:00 PM-7:00 PM  
Monday-Thursday, 7:00 AM-6:00 PM  
Friday, 7:00 AM-3:00 PM  
ALL speakers are required to check into the Speaker Ready Room at least 24 hours before their presentation. Those presenting on Monday, 3 December, must check in on Sunday.

## REGISTRATION SERVICES

### AGU Fun Run/Walk Booth

Moscone South, upper lobby

Sunday, 12:00 PM-6:00 PM

Monday-Tuesday, 7:45 AM-6:00 PM

Visit the booth to register for the AGU Fun Run/Walk and to pick up your race T-shirt.

The race will begin at 7:00 AM on Wednesday, 5 December. Please arrive by 6:45 AM at the starting line to receive course instructions. The race starts and finishes at South Beach Harbor at Pier 40, the intersection of The Embarcadero and Townsend Street, which is next door to AT&T Park. This location is within walking distance of most AGU Fall Meeting hotels. For information on public transportation to the race, go to 511.org and enter your starting location and ending location (i.e., Pier 40).

### Guests

Registered attendees may also register a guest or spouse at a charge of \$50 on site. A guest is a spouse, friend, or adult child (18 years old and older) who is not working in a geophysical science-related occupation or field. A colleague or associate working in a related geophysical sciences field or studying geophysics in school may not register as a guest. Registered guests may not attend the scientific sessions; however, they may go to the Exhibit Hall and attend and purchase tickets to social events at the advertised rates.

### Housing

Moscone South, Upper Lobby

Sunday, 12:00 PM-6:30 PM

Monday-Thursday, 7:00 AM-5:00 PM

Friday, 7:30 AM-10:30 AM

AGU has teamed with AlphaGraphics to print posters for pickup at the Moscone Center. Attendees who submitted and paid through the AlphaGraphics site may pick up their posters at the Poster Printing Services booth in the Upper Lobby of Moscone South. AlphaGraphics can also assist with on-site printing needs. At least 24 hours are needed for on-site orders.

### Registration

Moscone South, Lower Level

Sunday, 12:00 PM-6:30 PM

Monday-Tuesday, 7:00 AM-5:00 PM

Wednesday-Friday, 7:30 AM-5:00 PM

All attendees must register and wear their conference badge while attending all Fall Meeting functions.

### Registration Help

Moscone South, Lower Level, Registration Area

Sunday, 12:00 PM-6:30 PM

Monday-Tuesday, 7:00 AM-5:00 PM

Wednesday-Friday, 7:30 AM-5:00 PM

Staff will be on hand to answer any questions related to the registration process.

### Ribbon Pickup

Moscone South, Upper Level

Sunday, 12:00 PM-6:30 PM

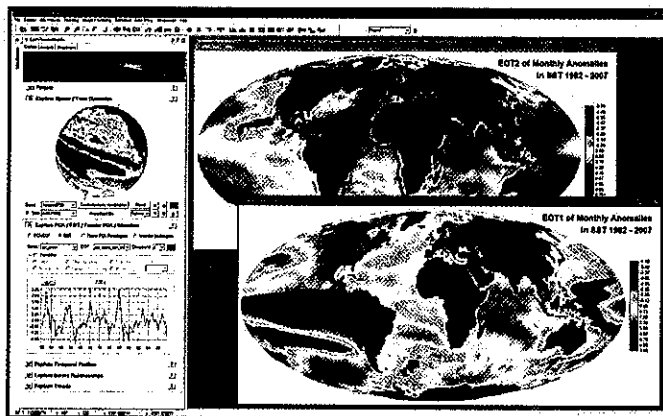
Monday-Tuesday, 7:00 AM-5:00 PM

Wednesday-Friday, 7:30 AM-5:00 PM

Booth **412** // visit for a demonstration of our software

IDRISI Selva software featuring

# Earth Trends Modeler



ETM provides a wide range of spectral decomposition tools, such as S- and T-mode PCA, Extended PCA, CCA, Multichannel Singular Spectrum Analysis and Empirical Orthogonal Teleconnection (EOT) analysis. In this image we see the first two components from an EOT analysis of sea surface temperature anomalies – the familiar ENSO and Atlantic Multidecadal Oscillation phenomena.

- professional tools for trend analysis and spectral decomposition, including EOF, EEOF, EOT, CCA, Fourier PCA and more
- extremely easy to use and highly affordable
- includes a full tutorial and sample data sets

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Offer expires **March 15th, 2013**.

# 2012

AMERICAN GEOPHYSICAL UNION

# HONORS TRIBUTE

RECOGNIZING THE EXCEPTIONAL SCIENTIFIC  
CONTRIBUTIONS AND ACHIEVEMENTS OF  
EIGHTY-TWO INDIVIDUALS  
MEDALISTS ▸ FELLOWS ▸ PRIZE RECIPIENT ▸ UNION AWARDEES

## HONORS CEREMONY

WEDNESDAY, 5 DECEMBER 2012  
7:00 PM  
MOSCONE NORTH, ROOM 135  
MOSCONE CONVENTION CENTER  
OPEN TO THE PUBLIC

## HONORS BANQUET

THURSDAY, 6 DECEMBER 2012  
8:00 PM  
YERBA BUENA BALLROOM  
SAN FRANCISCO MARRIOTT MARQUIS  
TICKETED EVENT  
DINNER AND DANCING  
BUSINESS AFFAIR  
CASH BAR IN THE HONORS BANQUET LOUNGE

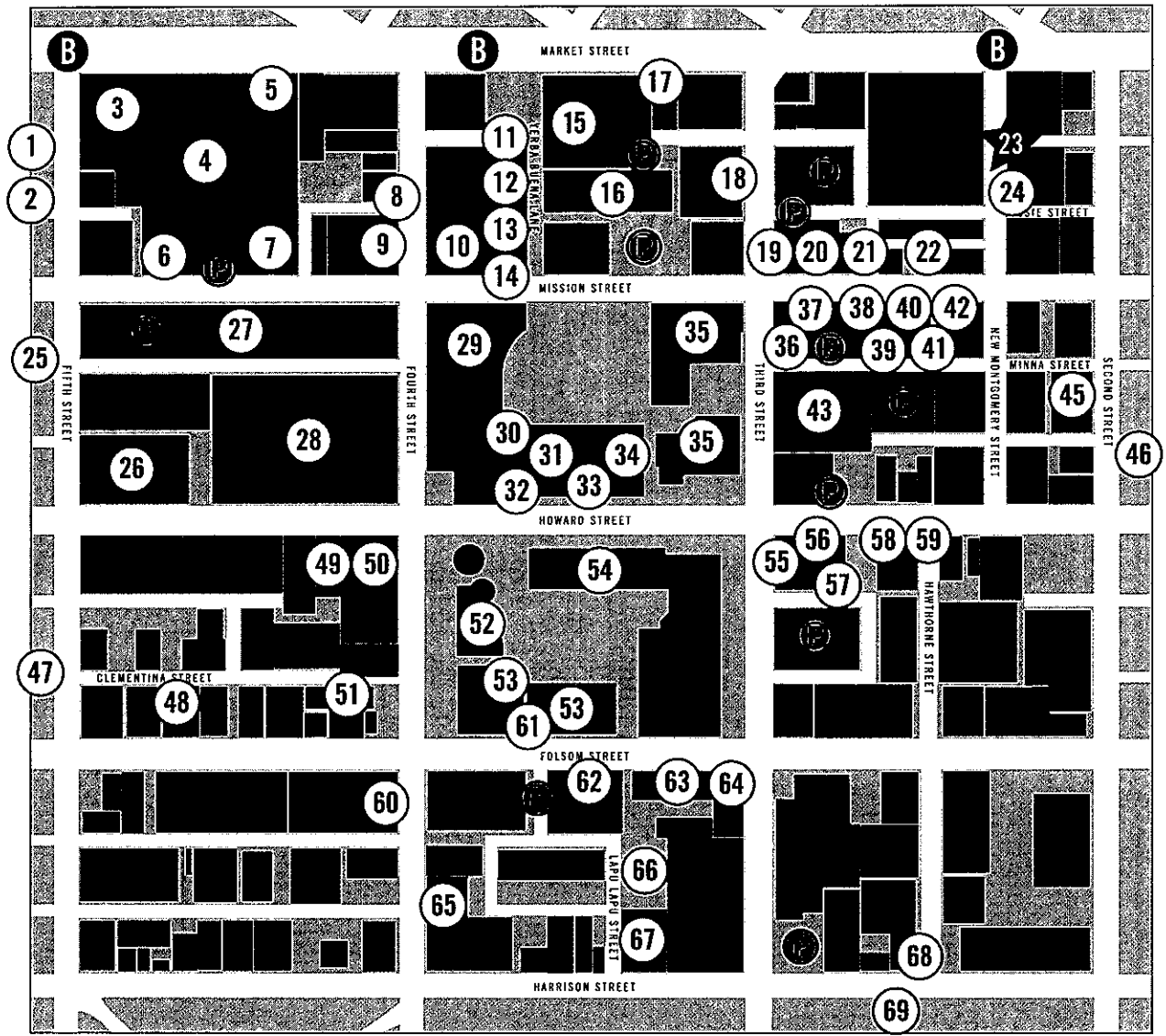
PLAN TO ATTEND AND CELEBRATE WITH YOUR COLLEAGUES



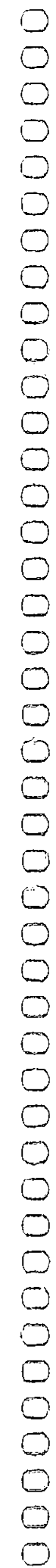
# Getting Around...

The Yerba Buena Neighborhood

GETTING AROUND



- ① Points of Interest
- B** BART/MUNI Access
- Parking
- ★ Yerba Buena Alliance Office



## Colleges and Universities

9. **City College of San Francisco Downtown Campus**  
88 Fourth Street, 415/267-6500,  
www.ccsf.edu
19. **UC Berkeley Extension**  
965 Third Street, 415/284-1081,  
www.unex.berkeley.edu)

## Culture and Entertainment

45. **111 Minna Gallery**  
111 Minna Street, 415/974-1719,  
www.111minnagallery.com
47. **Braunstein/Quay Gallery**  
430 Clementina Street, 415/278-9850,  
www.bquayartgallery.com
21. **California Historical Society**  
678 Mission Street, 415/357-1848,  
www.californiahistoricalsociety.org
42. **Cartoon Art Museum**  
655 Mission Street, 415/227-8666,  
www.cartoonart.org
41. **Catharine Clark Gallery**  
150 Minna Street, 415/399-1439,  
www.cclarkgallery.com
39. **Chandler Fine Art and Framing**  
170 Minna Street, 415/546-1113,  
www.chandlers.com
16. **The Contemporary Jewish Museum**  
Opens June 8, 2008, 415/344-8800,  
www.thebcm.org
58. **Crown Point Press**  
20 Hawthorne Street, 415/974-6273,  
www.crownpoint.com
40. **GLBT Historical Society**  
657 Mission Street, 415/777-5455,  
www.glbthistory.org
37. **Museum of the African Diaspora**  
685 Mission Street, 415/358-7200,  
www.moadsf.org
12. **Museum of Craft and Folk Art**  
51 Yerba Buena Lane, 415/227-4888,  
www.mocfa.org
57. **Sculpturesite Gallery**  
201 Third Street, Suite 102, 415/495-6400,  
www.sculpturesite.com
38. **SF Camerawork**  
657 Mission Street, 415/512-2020,  
www.sfcamerawork.org
43. **SFMOMA**  
151 Third Street, 415/357-4000,  
www.sfmoma.org - PARKING
63. **The Culinary Arts Studio**  
Expected to open summer 2008, 725 Folsom Street,  
415/425-3900,  
www.theculinaryartsstudio.com
60. **The Society of California Pioneers**  
300 Fourth Street, 415/957-1849,  
www.californiapioneers.org
30. **Yerba Buena Arts and Events**  
760 Howard Street, 415/543-1718,  
www.ybgf.org
35. **Yerba Buena Center for the Arts (YBCA)**  
701 Mission Street, 415/978-2700,  
www.ybca.org
53. **Yerba Buena Ice Skating and Bowling Center**  
750 Folsom Street, 415/820-3532,  
www.skatebowl.com
46. **Varnish Fine Art**  
77 Natoma Street, 415/222-6131,  
www.varnishfineart.com
52. **Zeum**  
221 Fourth Street, 415/820-3320,  
www.zeum.org

## Food and Drink

34. **B Restaurant and Bar**  
720 Howard Street/Upper Terrace Yerba Buena  
Gardens, 415/495-9800
14. **Beard Papa**  
99 Yerba Buena Lane, 415/978-9972,  
www.beardpapasf.com
43. **Caffe Museo**  
Inside SFMOMA, 151 Third Street, 415/357-4000,  
www.sfmoma.org
18. **Ducca**  
Inside Westin Hotel, 50 Third Street, 415/977-0271,  
www.duccasf.com
9. **Educated Palate Restaurant**  
Inside City College, 88 Fourth Street, 415/908-7522,  
www.ccsf.edu/downtown/palate

26. **Luce**  
Inside Intercontinental Hotel, 888 Howard Street,  
415/616-6566,  
www.lucewinerestaurant.com)
3. **Nordstrom Cafe Bistro/Espresso Bar**  
Inside Nordstrom, 865 Market Street, 415/243-8500,  
www.nordstrom.com
11. **Press Club**  
20 Yerba Buena Lane, 415/494-2000,  
www.pressclubsf.com
59. **Roe Restaurant**  
651 Howard Street, 415/227-0288,  
www.roerestaurant.com
31. **Samovar Tea Lounge**  
730 Howard Street/Upper Terrace Yerba Buena  
Gardens, 415/227-9400,  
www.samovarteas.com
13. **Schoggi**  
87 Yerba Buena Lane, 415/243-4444,  
www.schoggi.us
69. **Supperclub**  
657 Harrison Street, 415/348-0900,  
www.supperclub.com
36. **Vitrine**  
Inside St. Regis Hotel, 125 Third Street, 415/284-4000,  
www.stregis.com/sanfrancisco
6. **Wichcraft**  
868 Mission Street, 415/593-3895,  
www.wichcraftsf.com

## Hotels

15. **Four Seasons Hotel**  
757 Market Street, 415/633-3000,  
www.fourseasons.com/sanfrancisco - PARKING
26. **InterContinental Hotel**  
888 Howard Street, 888/811-4273,  
www.intercontinentalsanfrancisco.com
10. **San Francisco Marriott**  
12 Fourth Street, 415/896-1600,  
www.marriott.com
36. **St. Regis Hotel**  
125 Third Street, 415/284-4000,  
www.stregis.com/sanfrancisco
44. **W Hotel**  
181 Third Street, 415/777-5300,  
www.whotels.com - PARKING
18. **Westin San Francisco Market Street**  
50 Third Street, 415/974-6400,  
www.westinsf.com

## Residences

14. **Four Seasons Residences**  
757 Market Street, 415/633-3000,  
www.fourseasons.com/sanfrancisco
64. **Museum Parc**  
300 Third Street, 415/495-8547,  
www.museumparc.org
20. **The Paramount**  
680 Mission Street, 415/227-0680,  
www.theparamountsf.com - PARKING
36. **St. Regis Residences**  
125 Third Street 415/284-4000,  
www.stregisresidences.com
51. **TODCO Ceatrice Polite Apartments**  
321 Clementina Street, 415/896-1880,  
www.todco.org
49. **TODCO Eugene Coleman Community House**  
328 Tehama Street, 415/896-1880,  
www.todco.org
62. **TODCO Mendelsohn House**  
737 Folsom Street, 415/896-1880,  
www.todco.org
50. **TODCO Woolf House**  
801 Howard Street, 415/896-1880,  
www.todco.org

## Shopping

7. **Bloomingdale's**  
845 Market Street, 415/856-5300,  
www.bloomingdales.com
8. **Cole Fox Hardware**  
70 Fourth Street, 415/777-4400,  
www.colehardware.com
29. **Metreon**  
101 Fourth Street, 415/369-6000,  
www.westfield.com/metreon
3. **Nordstrom**  
865 Market Street, 415/243-8500,  
www.nordstrom.com

4. **Westfield San Francisco Centre**  
865 Market Street, 415/512-6776,  
www.westfield.com/sanfrancisco - PARKING
65. **Whole Foods—SOMA**  
399 Fourth Street, 415/618-0066,  
www.wholefoodsmarket.com

## Spas

44. **Bliss Spa**  
Inside W Hotel, 181 Third Street, 415/281-0990,  
www.blissworld.com
26. **I-Spa**  
Inside InterContinental Hotel, 888 Howard Street,  
415/616-6597,  
www.intercontinentalsanfrancisco.com
3. **Nordstrom Spa**  
Inside Nordstrom, 865 Market Street, 415/977-5102,  
www.nordstrom.com
36. **Remede Spa**  
Inside St. Regis Hotel, 125 Third Street, 415/284-4060,  
www.remede.com

## Parking

- City Park**  
Various PARKING locations throughout the neighbor-  
hood, 415/495-3909,  
www.cityparksf.com
27. **5th and Mission/Yerba Buena Parking Garage**  
833 Mission Street, 415/982-8522,  
www.fifthandmission.com

## Businesses

24. **Coast Counties Property Management**  
55 New Montgomery Street, 415/974-0880
25. **Cypress Security**  
457 Minna Street, 415/352-1900,  
www.cypress-security.com
56. **Entercom Radio—KDFC 102.1**  
201 Third Street, Suite 1200, 415/764-1021,  
www.kdfc.com
68. **FASTSIGNS International**  
650 Harrison Street, 415/537-6900,  
www.fastsigns.com
5. **Forest City Development**  
835 Market Street, Suite 850, 415/836-5980,  
www.forestcity.net
1. **Microbiz Security Company**  
444 Jessie Street, 415/777-1151,  
www.mbiz.com
17. **Millennium Partners**  
735 Market Street, 415/593-1100,  
www.millenniumptrs.com
32. **MJM Management Group**  
750 Howard Street, 415/820-3550,  
www.mjmanagementgroup.com
48. **Rocket Postcards and Nomad Printing**  
430 Clementina Street, 415/357-1509,  
www.rocketpostcards.com

## Organizations/Insitutions

33. **The Moscone Center (North)**  
415/974-4000,  
www.moscone.com
54. **The Moscone Center (South)**  
747 Howard Street, 415/974-4000,  
www.moscone.com
28. **The Moscone Center (West)**  
800 Howard Street, 415/974-4000,  
www.moscone.com
2. **NRG Energy Center San Francisco**  
410 Jessie Street, 415/777-3415,  
www.nrgthermal.com
55. **San Francisco Convention and Visitor's Bureau**  
201 Third Street, 415/974-6900, www.onlyinsanfran-  
cisco.org
61. **South of Market Child Care Center**  
790 Folsom Street, 415/820-3500,  
www.southofmarketchildcare.org
22. **SPUR**  
654 Mission Street, 415/781-8726,  
www.spur.org
66. **TODCO Community Garden**  
www.todco.org
67. **WestEd**  
730 Harrison Street, 415/565-3000,  
www.wested.org
23. **Yerba Buena Alliance**  
55 New Montgomery Street, Suite 510, 415/541-0312,  
www.yerbabuena.org

# SAVE THE DATE

2013 NOMINATIONS  
OPENS 15 JANUARY

Nominate your colleagues for  
one of AGU's prestigious  
Union Awards, Fellows,  
Prize, or Medals.

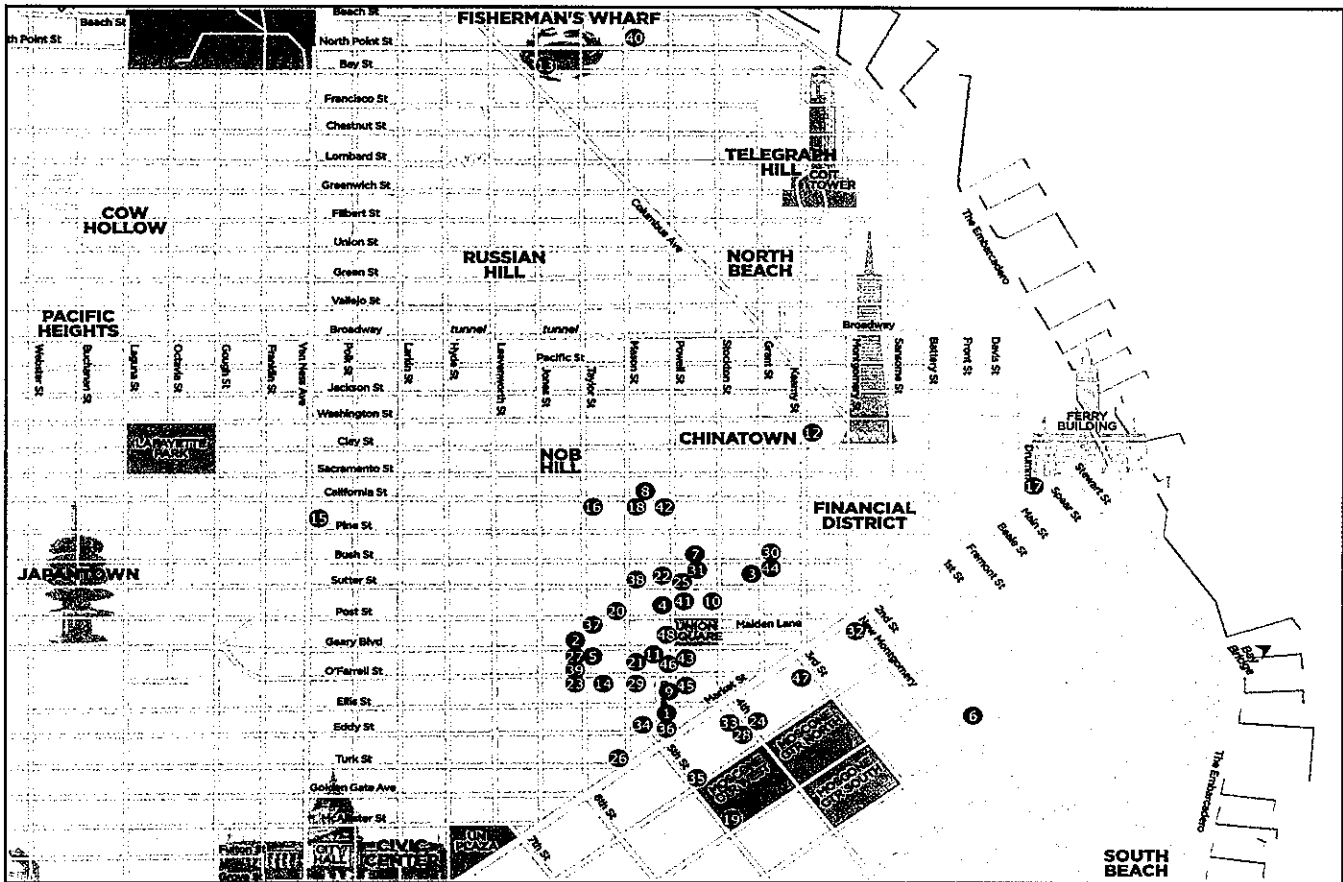
[www.agu.org/honorsprogram](http://www.agu.org/honorsprogram)

AMERICAN GEOPHYSICAL UNION  
HONORS PROGRAM





# HOTEL MAP



- 1) **Hotel Abri**  
127 Ellis Street, *Tel: 415-392-8800*
- 2) **Hotel Adagio**  
550 Geary Street, *Tel: 415-775-5000*
- 3) **Baldwin Hotel**  
321 Grant Avenue, *Tel: 415-781-2220*
- 4) **Chancellor Hotel on Union Square**  
433 Powell Street, *Tel: 415-362-2004*
- 5) **Clift**  
495 Geary Street, *Tel: 415-775-4700*
- 6) **Courtyard by Marriott San Francisco Downtown**  
299 Second Street, *Tel: 415-947-0700*
- 7) **Executive Hotel Vintage Court**  
650 Bush Street, *Tel: 415-392-4666*
- 8) **The Fairmont San Francisco**  
950 Mason Street, *Tel: 415-772-5000*
- 9) **Hotel Fusion**  
140 Ellis Street, *Tel: 415-568-2525*
- 10) **Grand Hyatt San Francisco**  
345 Stockton Street, *Tel: 415-398-1234*
- 11) **Handlery Union Square Hotel**  
351 Geary Street, *Tel: 415-781-7800*
- 12) **Hilton San Francisco Financial District**  
750 Kearny Street, *Tel: 415-433-6600*
- 13) **Hilton San Francisco Fisherman's Wharf**  
2620 Jones Street, *Tel: 415-885-4700*
- 14) **Hilton San Francisco Union Square**  
333 O'Farrell Street, *Tel: 415-771-1400*
- 15) **Holiday Inn Golden Gateway**  
1500 Van Ness Avenue, *Tel: 415-441-4000*
- 16) **The Huntington Hotel & Nob Hill Spa**  
1075 California Street, *Tel: 415-474-5400*

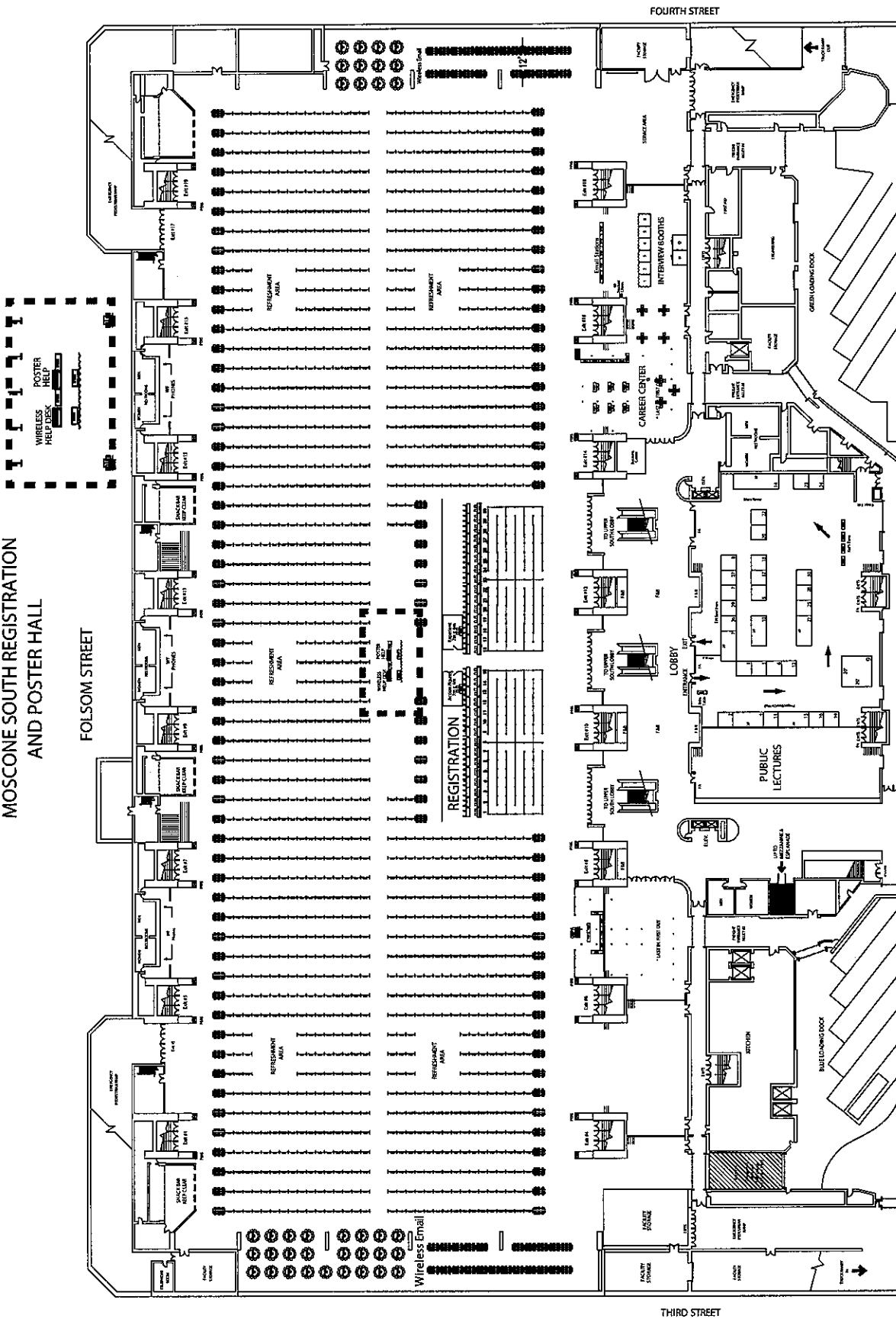
- 17) **Hyatt Regency San Francisco**  
Five Embarcadero Center, *Tel: 415-788-1234*
- 18) **InterContinental Mark Hopkins San Francisco**  
Number One Nob Hill, *Tel: 415-392-3434*
- 19) **InterContinental San Francisco**  
888 Howard Street, *Tel: 415-616-6500*
- 20) **JW Marriott Hotel San Francisco Union Square**  
500 Post Street, *Tel: 415-771-8600*
- 21) **King George Hotel**  
334 Mason Street, *Tel: 415-781-5050*
- 22) **Larkspur Hotel Union Square**  
524 Sutter Street, *Tel: 415-421-2865*
- 23) **Hotel Mark Twain**  
345 Taylor Street, *Tel: 415-673-2332*
- 24) **Marriott Marquis San Francisco**  
55 Fourth Street, *Tel: 415-896-1600*
- 25) **Marriott Union Square - San Francisco**  
480 Sutter Street, *Tel: 415-398-8900*
- 26) **Hotel Metropolis**  
25 Mason Street, *Tel: 415-775-4600*
- 27) **Hotel Monaco**  
501 Geary Street, *Tel: 415-292-0100*
- 28) **The Mosser Hotel**  
54 Fourth Street, *Tel: 415-986-4400*
- 29) **Hotel Nikko San Francisco**  
222 Mason Street, *Tel: 415-394-1111*
- 30) **The Orchard Garden Hotel**  
466 Bush Street, *Tel: 415-399-9807*
- 31) **The Orchard Hotel**  
665 Bush Street, *Tel: 415-362-8878*
- 32) **Palace Hotel, A Luxury Collection Hotel**  
Two New Montgomery Street, *Tel: 415-512-1111*
- 33) **Hotel Palomar**

- 12 Fourth Street, *Tel: 415-348-1111*
- 34) **Parc 55 Wyndham San Francisco-Union Square**  
55 Cyril Magnin Street, *Tel: 415-392-8000*
- 35) **The Pickwick Hotel**  
85 Fifth Street, *Tel: 415-267-3940*
- 36) **The Powell Hotel**  
28 Cyril Magnin Street, *Tel: 415-398-3200*
- 37) **Prescott Hotel**  
545 Post Street, *Tel: 415-563-0303*
- 38) **Hotel Rex, a Joie de Vivre hotel**  
562 Sutter Street, *Tel: 415-433-4434*
- 39) **Serrano, A Kimpton Hotel**  
405 Taylor Street, *Tel: 415-885-2500*
- 40) **Sheraton Fisherman's Wharf**  
2500 Mason Street, *Tel: 415-362-5500*
- 41) **Sir Francis Drake Hotel**  
450 Powell Street, *Tel: 415-392-7755*
- 42) **The Stanford Court, A Renaissance Hotel**  
905 California Street, *Tel: 415-989-3500*
- 43) **Hotel Stratford on the Square**  
242 Powell Street, *Tel: 415-397-7080*
- 44) **Hotel Triton**  
342 Grant Avenue, *Tel: 415-394-0500*
- 45) **Hotel Union Square**  
114 Powell Street, *Tel: 415-397-3000*
- 46) **Villa Florence Hotel**  
225 Powell Street, *Tel: 415-397-7700*
- 47) **The Westin San Francisco Market Street**  
50 Third Street, *Tel: 415-974-6400*
- 48) **The Westin St. Francis San Francisco On Union Square**  
335 Powell Street, *Tel: 415-397-7000*

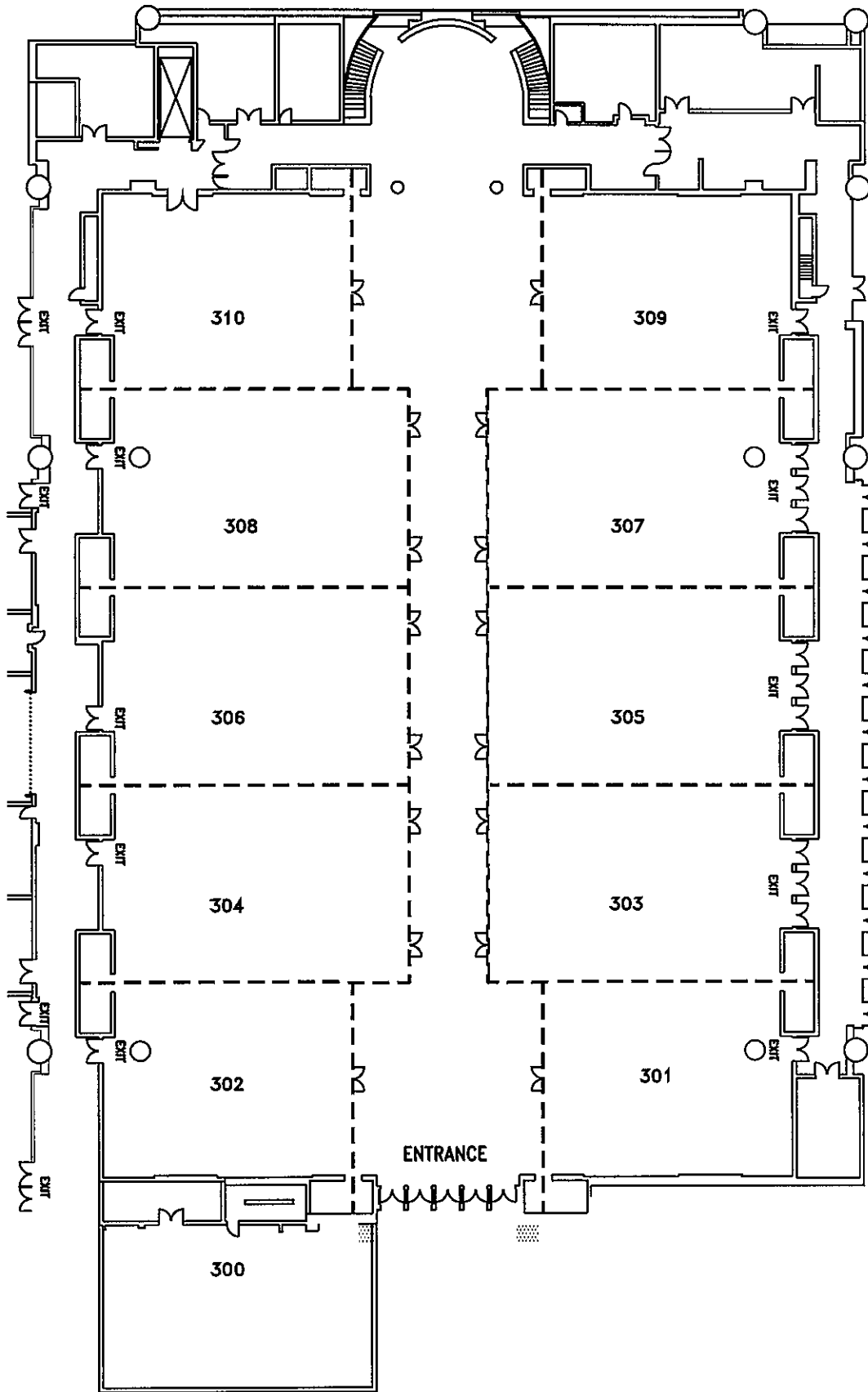
# MOSCONE SOUTH REGISTRATION AND POSTER HALL

## FLOOR PLANS

MOSCONE SOUTH REGISTRATION AND POSTER HALL

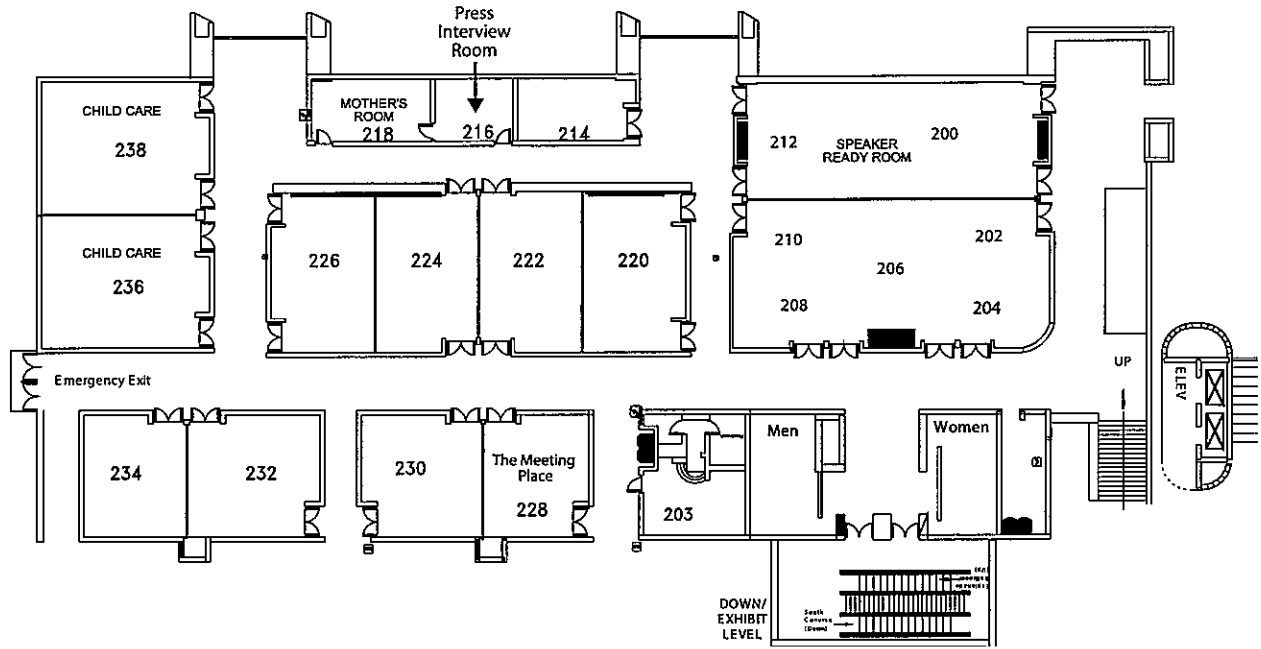


# MOSCONE SOUTH ESPLANADE



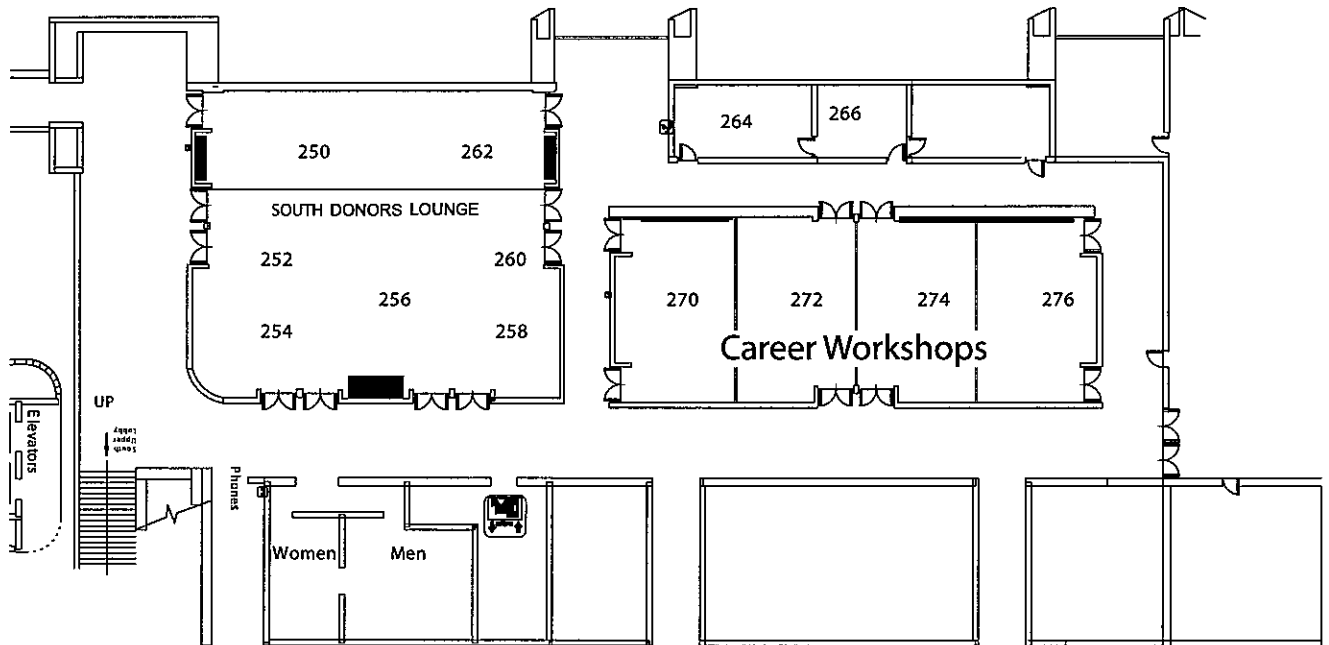
FLOOR PLANS

# MOSCONE SOUTHEAST MEZZANINE

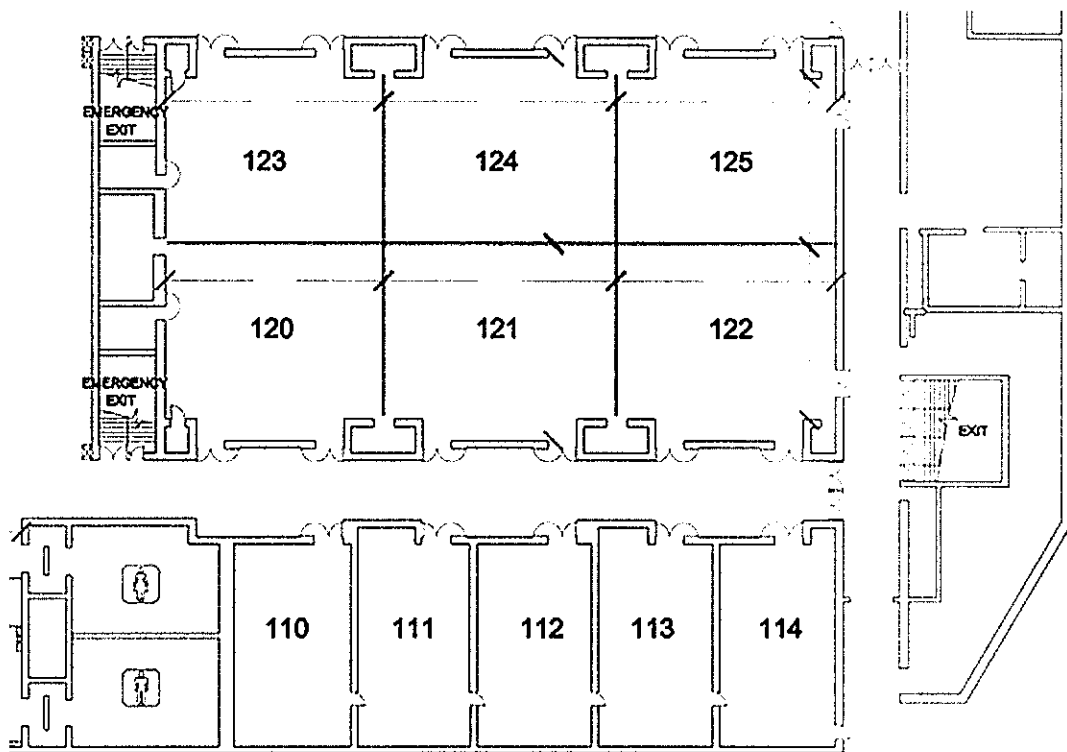


FLOOR PLANS

# MOSCONE SOUTHWEST MEZZANINE

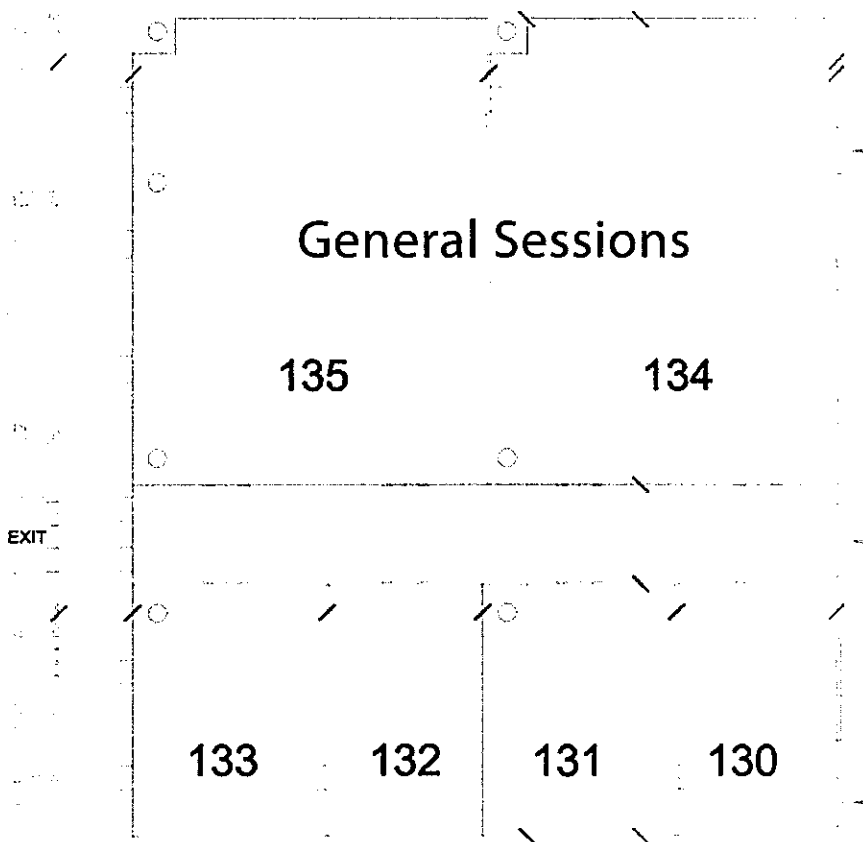


# MOSCONE NORTH



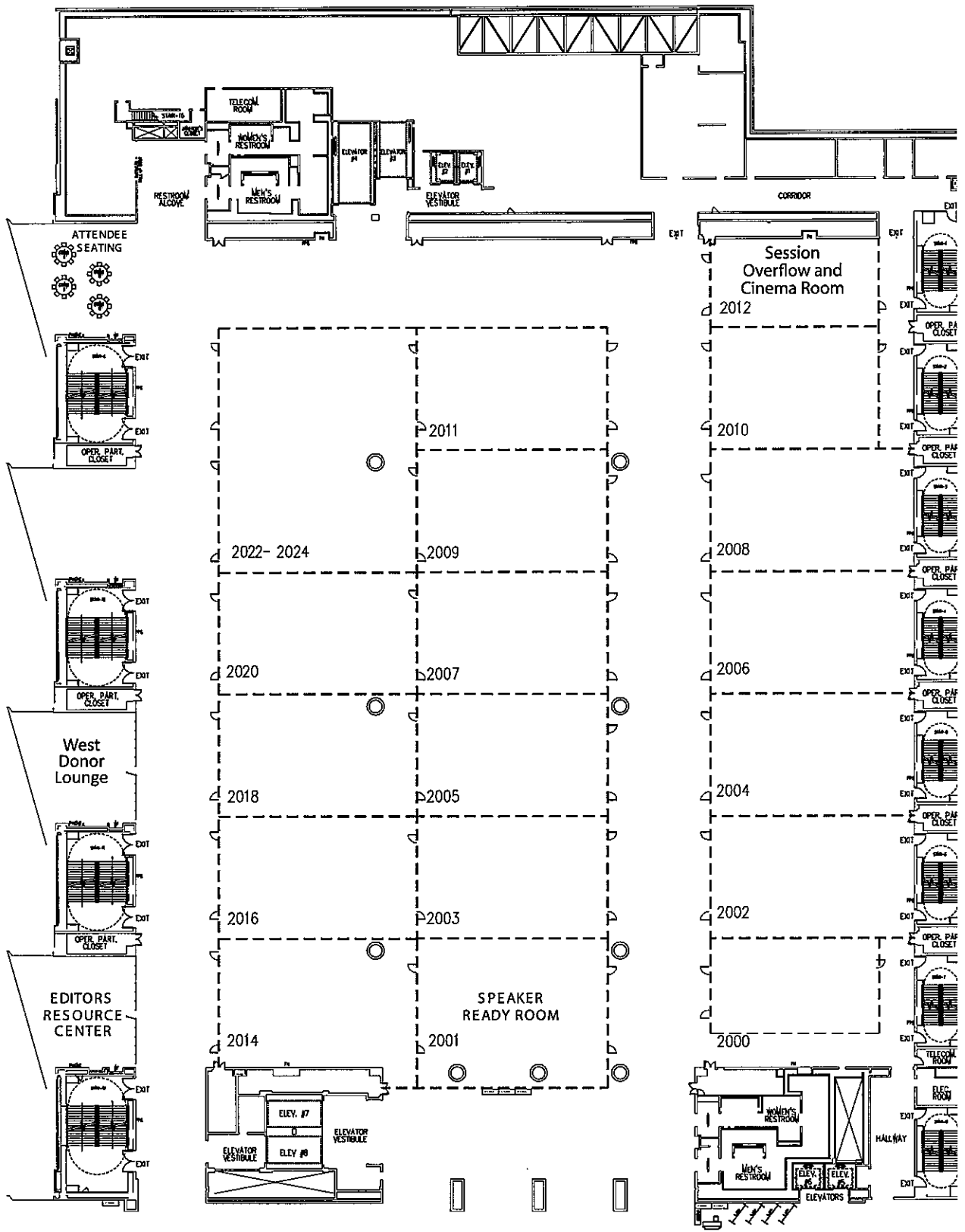
FLOOR PLANS

## HALL E



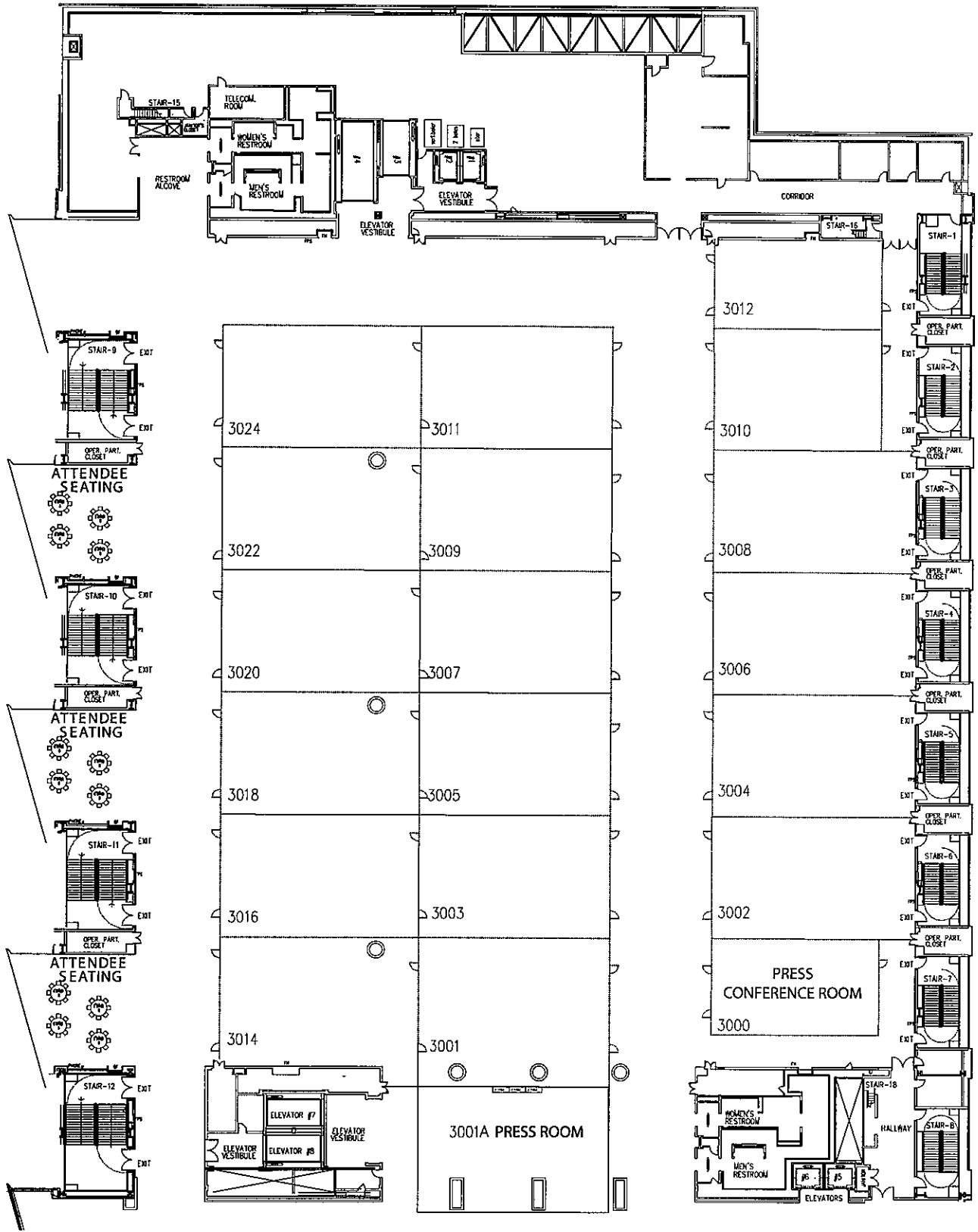
# MOSCONE WEST LEVEL TWO

## FLOOR PLANS



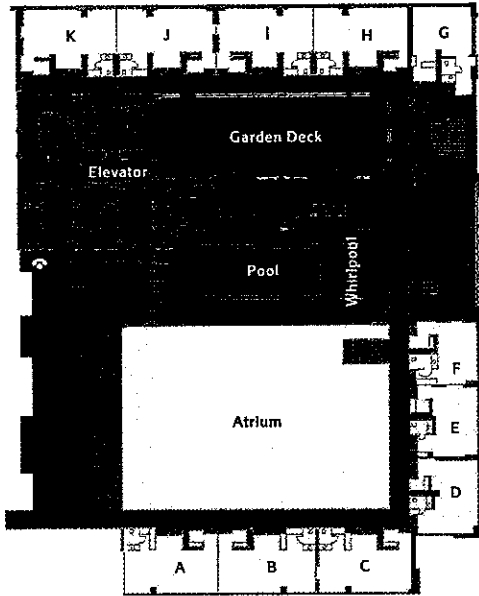
# MOSCONE WEST LEVEL THREE

FLOOR PLANS

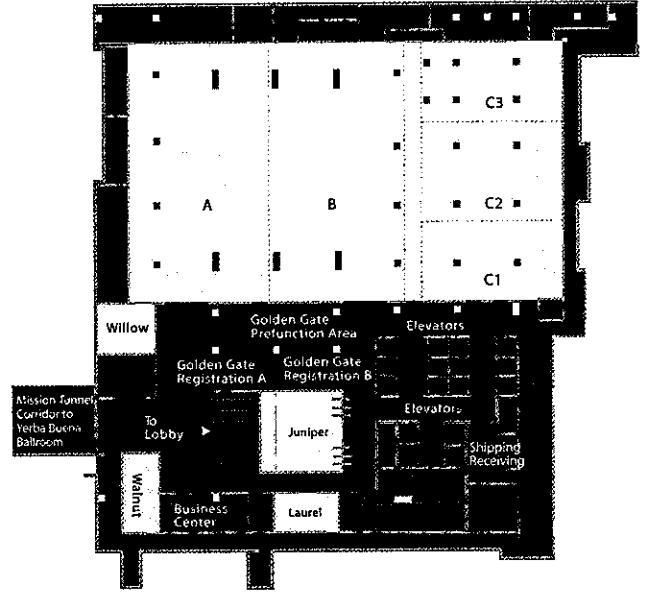


# SAN FRANCISCO MARRIOTT MARQUIS

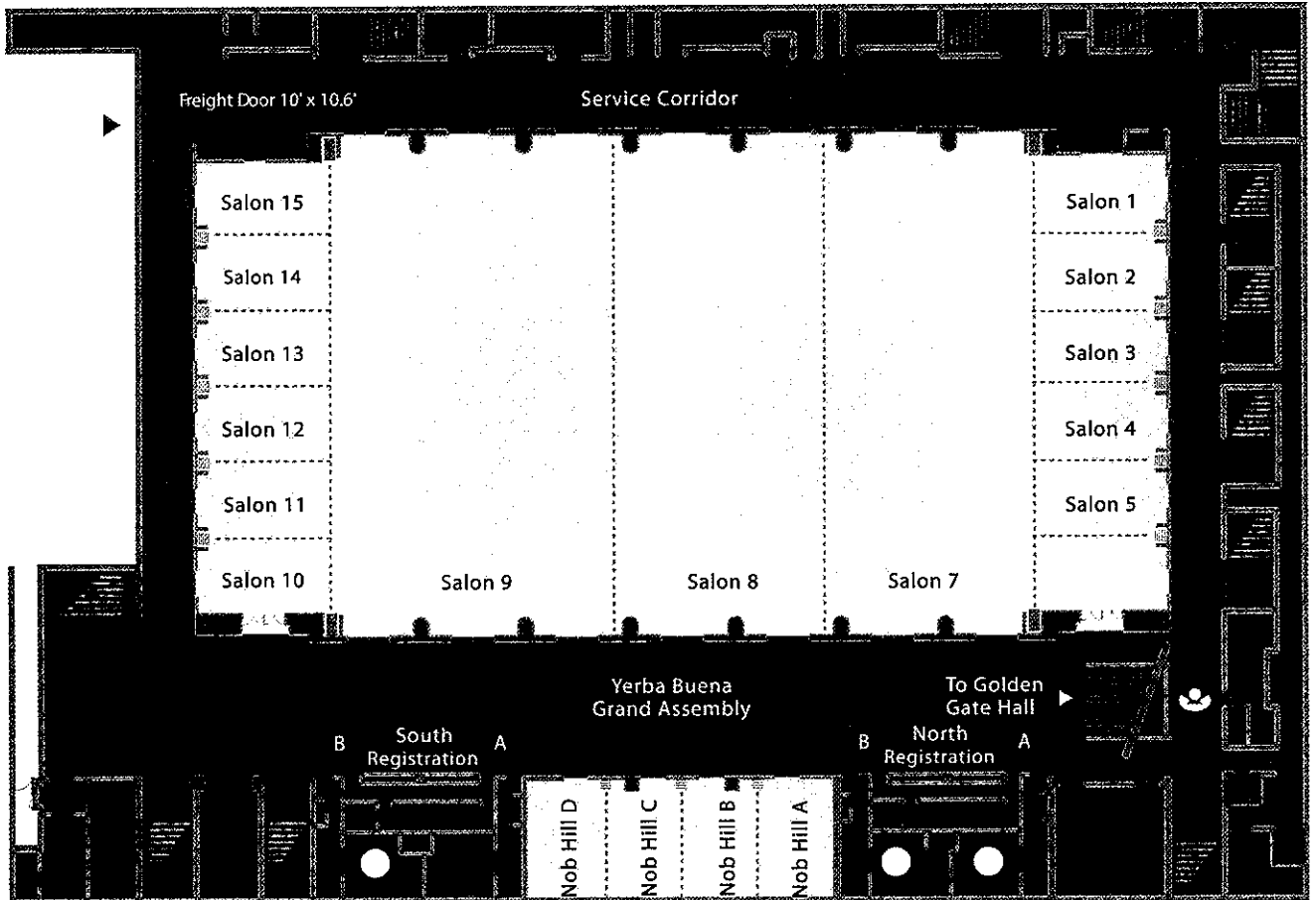
FLOOR PLANS



**SIERRA (LEVEL 5)**



**GOLDEN GATE HALL (B2 LEVEL)**



**YERBA BUENA BALLROOM**

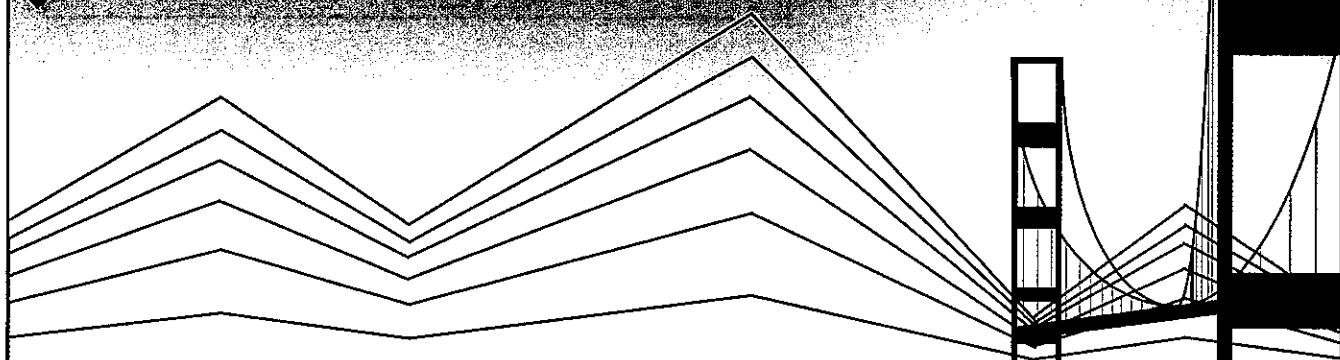


W

2013

FALL

MEETING



Monday

9

Tuesday

10

Wednesday

11

Thursday

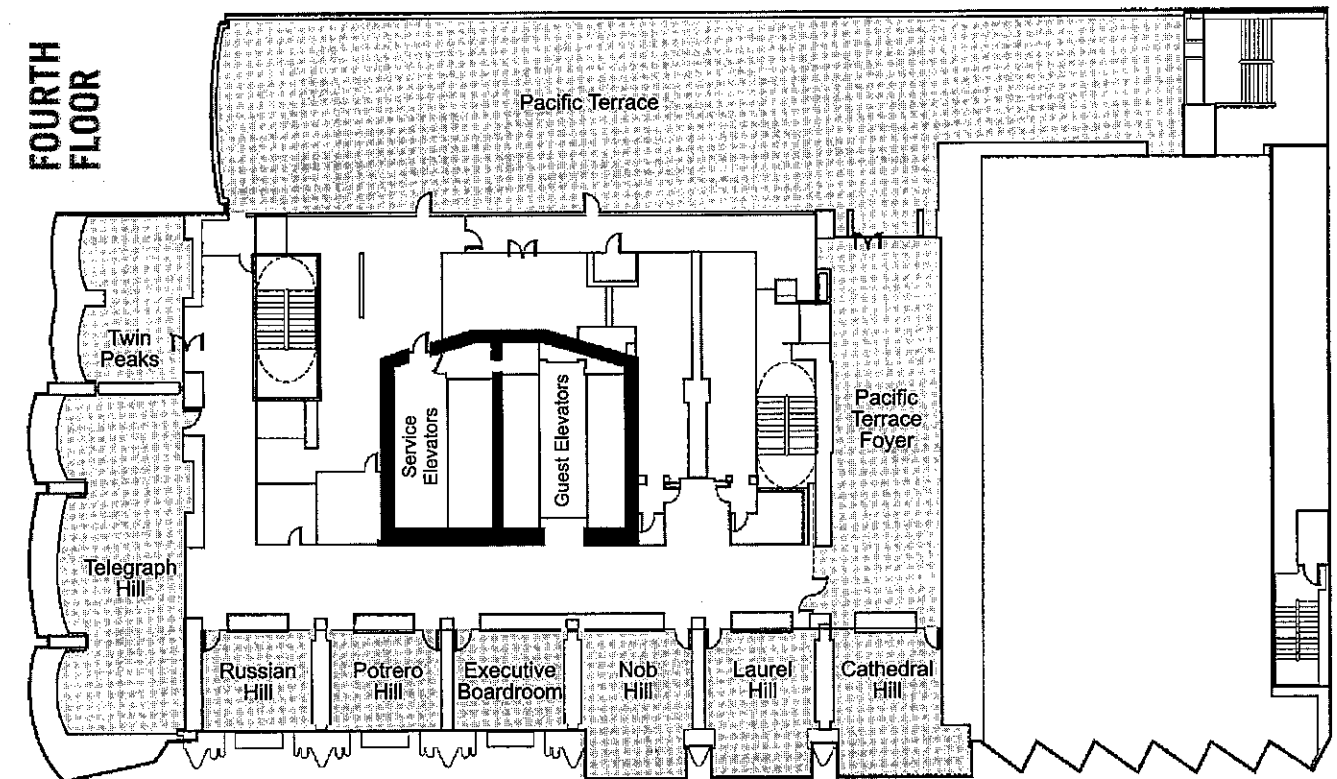
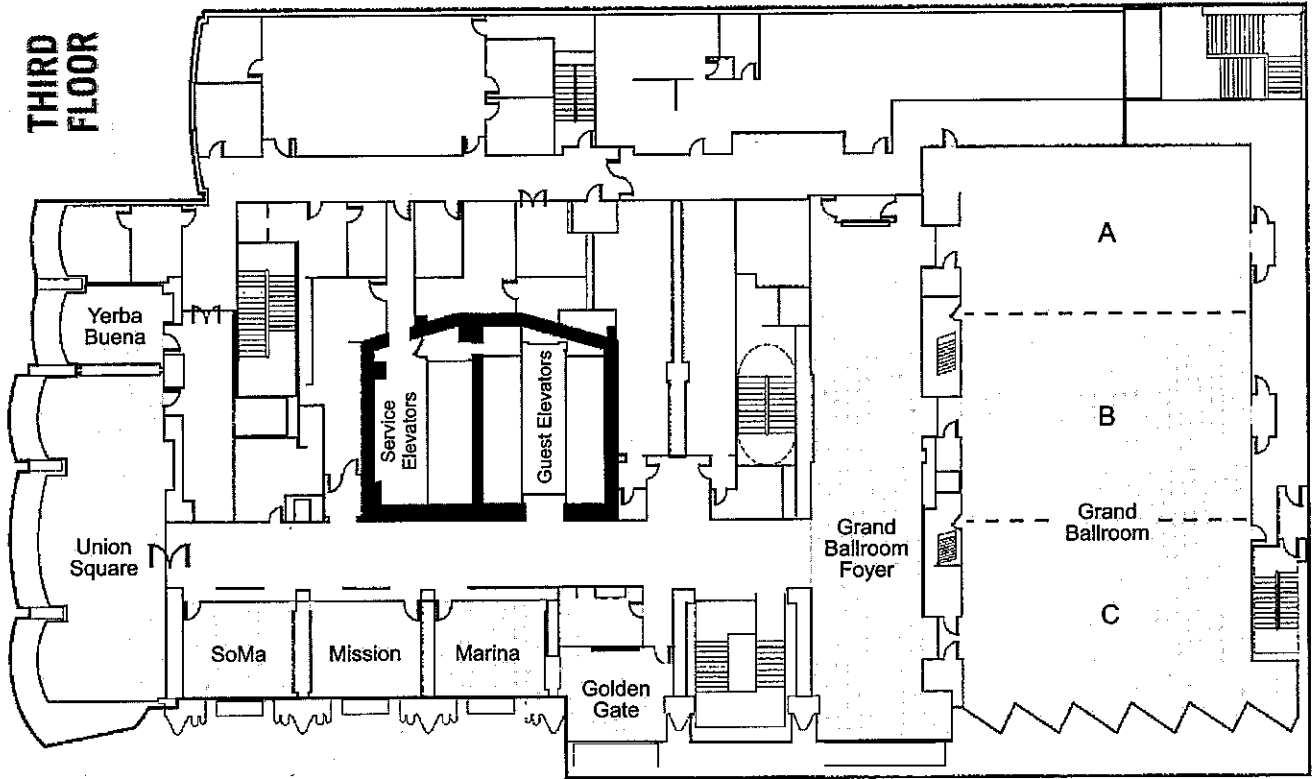
12

Friday

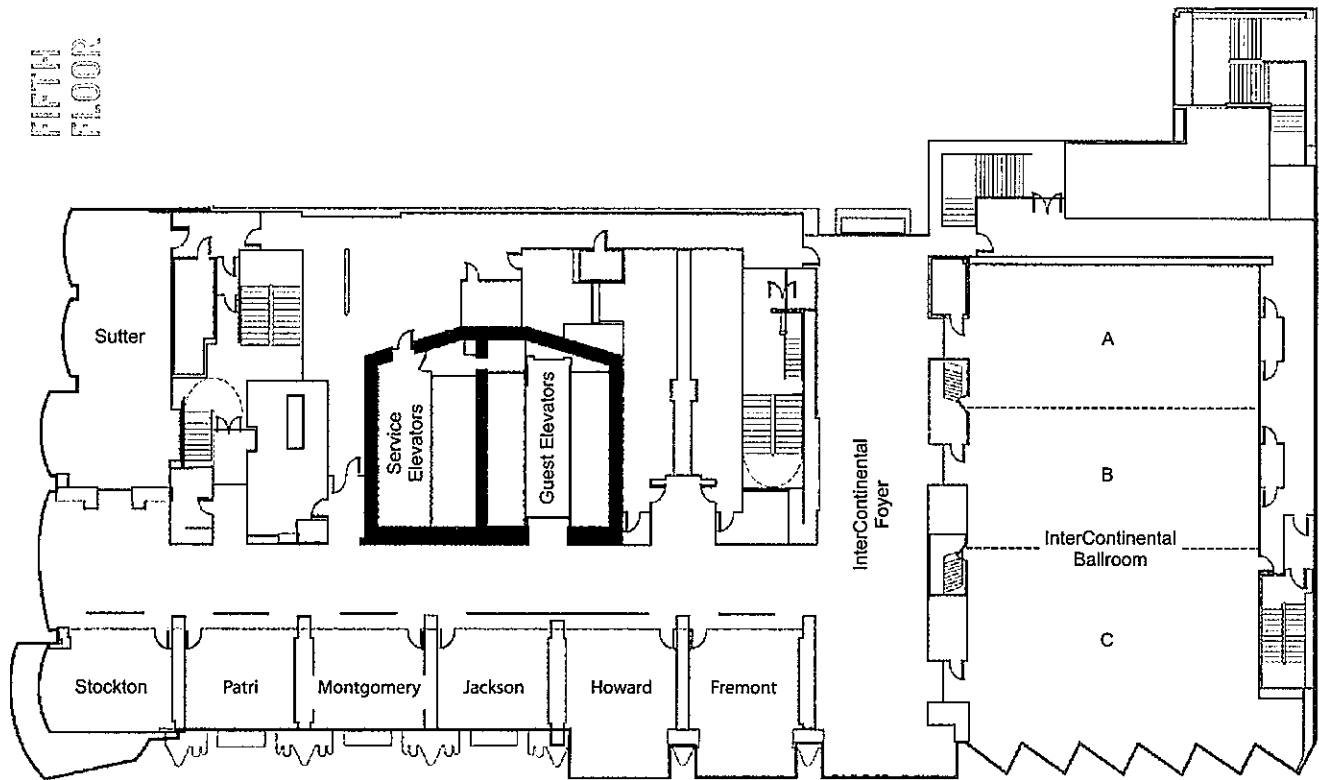
13

# INTERCONTINENTAL HOTEL SAN FRANCISCO

## FLOOR PLANS



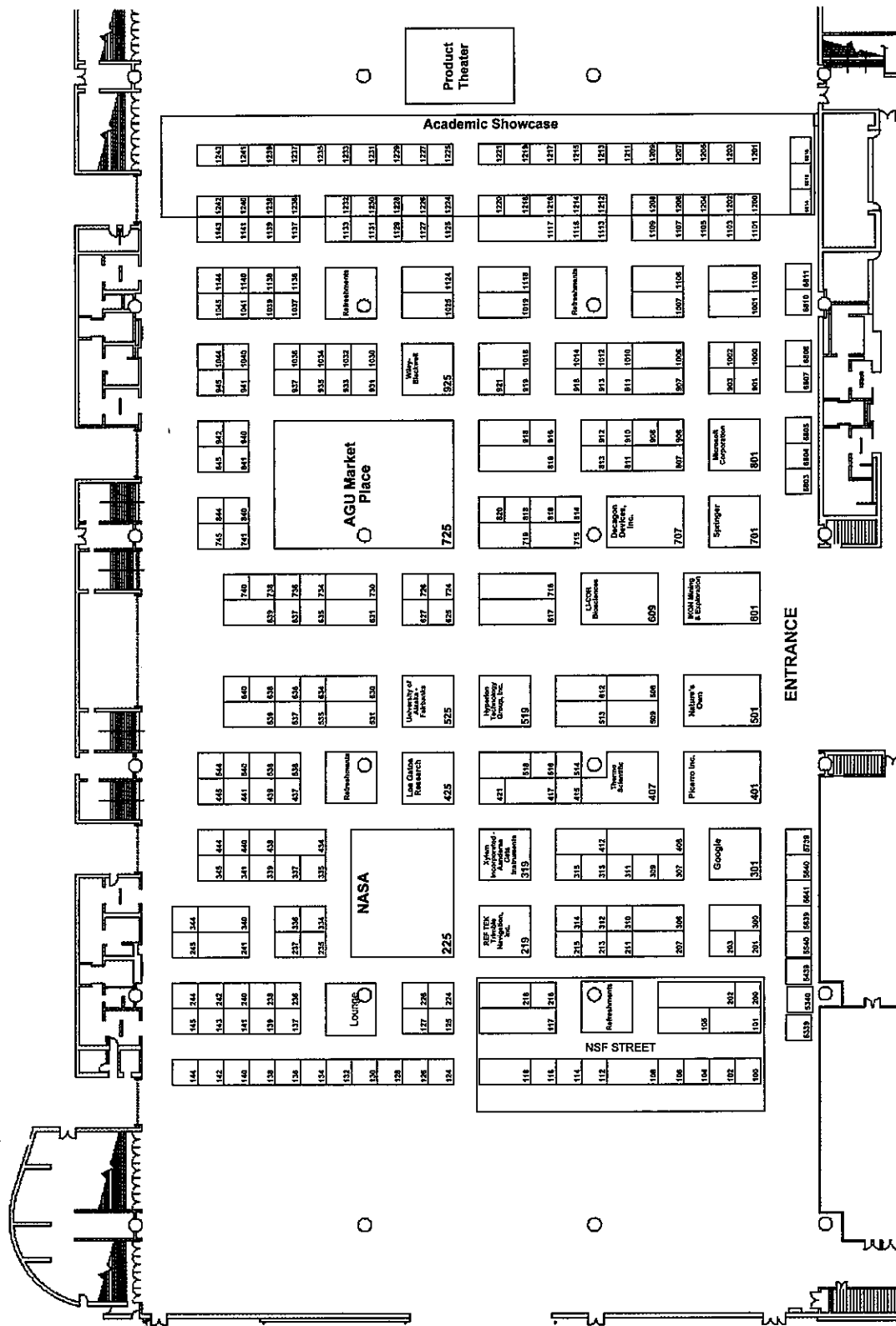
FIFTH FLOOR



FLOOR PLANS

# MOSCONE NORTH EXHIBITORS AND ACADEMIC SHOWCASE FLOORPLAN

## EXHIBITOR LISTING



# EXHIBITOR LISTING

## **2G Enterprises**

### **Booth 734**

1245 Space Pkwy., Suite B  
Mountain View, CA 94043 USA  
Attn: Trudy Lugo  
Phone: 650-965-0500  
Fax: 650-965-0404  
Email: trudy@appliedphysics.com

2G Enterprises manufactures high-performance superconducting rock magnetometer systems and accessory equipment. The system is helium free using a pulse tube cryocooler to efficiently reach superconducting temperature. No helium refills are required. AF degaussing systems, autosample handlers, ARM, IRM, fluxgate magnetometer systems, and equipment shielding are also available.

## **AAAS Science and Technology Policy Fellowship**

### **Booth 5540**

1200 New York Ave., NW,  
Washington, DC 20005 USA  
Attn: Barry Williams  
Phone: 202-326-6700  
Fax: n/a  
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## **ACS Publications**

### **Booth 6803**

1155 16th St., NW,  
Washington, DC 20036 USA  
Attn: Shayla Jackson  
Phone: 202-872-4600  
Fax: 202-872-4615  
Email: s\_jackson@acs.org

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## **Advanced Geosciences, Inc.**

### **Booth 339**

2121 Geoscience Dr.,  
Austin, TX 78726 USA  
Attn: Brad Carr, Ph.D.  
Phone: 512-335-3338  
Fax: 512-258-9958  
Email: sales@agiusa.com

Advanced Geosciences, Inc., the manufacturer of the SuperSting geophysical resistivity imaging system, is based in Austin, Texas, and has been active in the geophysical field since 1989. Our state-of-the-art products include the SuperSting memory Earth resistivity/IP meter with automatic electrodes and the EarthImager 1-D, 2-D, 3-D and 4-D inversion software.

## **Aerodyne Research, Inc.**

### **Booth 544**

6 Harris Dr.,  
Billerica, MA 01821 USA  
Attn: Cameron Martin  
Phone: 978-932-0207  
Fax: n/a  
Email: cmartin@aerodyne.com

ARI manufactures and sells high-sensitivity, fast time response instrumentation for environmental air quality monitoring and atmospheric research. These instruments include aerosol mass spectrometers, quantum cascade laser trace gas detectors, aerosol chemical speciation monitors, particle optical extinction monitors, and ultrasensitive nitrogen dioxide monitors.

## **Agilent Technologies**

### **Booth 421**

2850 Centerville Rd.,  
Wilmington, DE 19808 USA  
Attn: Rick Beringer  
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Fax: 302-239-4810  
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Agilent manufactures and distributes a complete line of instrumentation serving the clinical, analytical, biotech, environmental, pharmaceutical, forensic science, food and flavor, academia, and all other laboratory markets that have needs for the best in quality, performance, and serviceability in the instruments they purchase.

## **AGU Marketplace**

### **Booth 725**

2000 Florida Ave., NW,  
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Phone: 202-777-7494  
Fax: 202-328-0566  
Email: jltreby@agu.org

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Phone: 516-576-2279  
Fax: 516-249-9704  
Email: mgross@aip.org

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Booth 138**

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Phone: 857-445-0045  
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Email: kim.patten@azgs.az.gov

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Booth 311**

6001 Bollinger Canyon Rd., Building D  
San Ramon, CA 94526 USA  
Attn: Angela Hessler  
Phone: 925-842-0563  
Fax: n/a  
Email: angelahessler@chevron.com

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Booth 105**

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Phone: 43-1-26030 6522  
Fax: 43-26030-5874  
Email: [jerry.carter@CTBTO.org](mailto:jerry.carter@CTBTO.org)

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Fax: 612-624-0066  
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Fax: 918-497-5552  
Email: wemerick@seg.org

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The Southern California Earthquake Center (SCEC) is a community of over 600 scientists, students, and others at over 60 institutions worldwide, headquartered at the University of Southern California. SCEC is funded by the NSF and USGS to develop a comprehensive understanding of earthquakes and to communicate knowledge for reducing earthquake risk.

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Fax: 460-816-4848  
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Attn: Dr. Alexander Cherkinsky  
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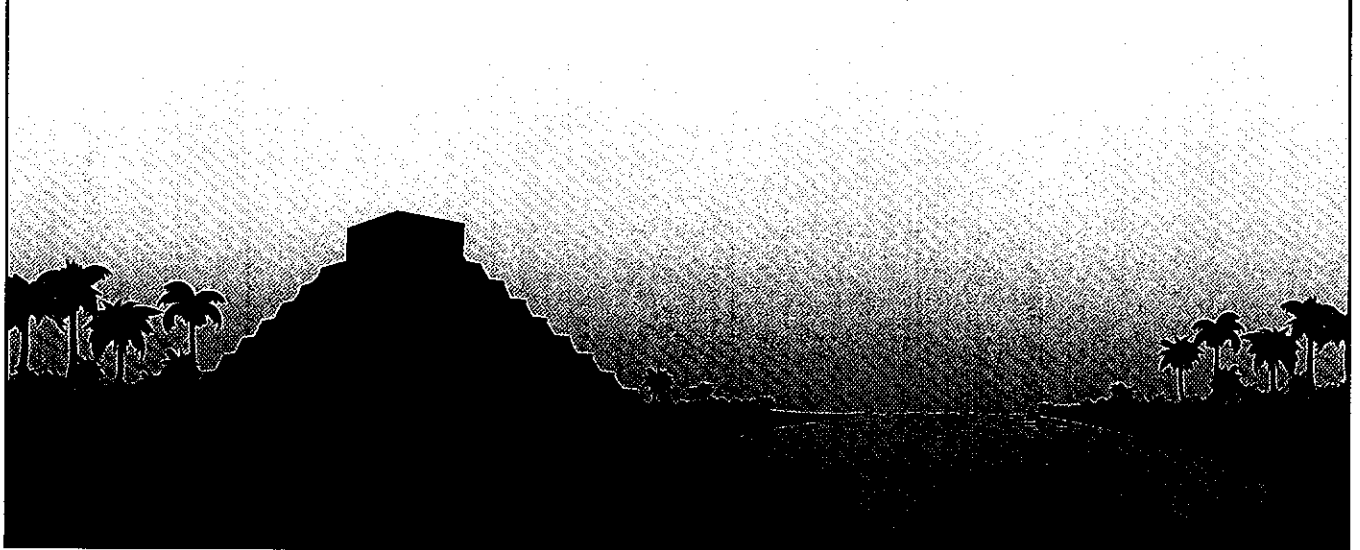
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**Dalhousie University Department  
of Oceanography  
Booth 1218**

1355 Oxford St., PO Box 15000  
Halifax, NS B3H 4R2 Canada  
Attn: Tamara Cantrill  
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1164 Bishop St.,  
Honolulu, HI 96825 USA  
Attn: Todd Simmons  
Phone: 808-544-1112  
Fax: 808-544-9323  
Email: tsimmons@hpu.edu

Hawai'i Pacific is Hawaii's largest private, not-for-profit university, with strengths in marine science, biology, biotechnology, and environmental science. Undergraduate and graduate students and faculty conduct research at our affiliate, The Oceanic Institute, located on 56 acres on O'ahu's windward coast with a focus on marine aquaculture and the land-sea interface.

**Institut de Physique du Globe de Paris  
Booth 1237**

1 rue Jussieu,  
Paris, 75005 France  
Attn: James Badro  
Phone: 33-672778830  
Fax: n/a  
Email: badro@ipgp.fr

IPGP is the leading French higher-education institution in Earth sciences. Our main activities are research in Earth, environmental, and planetary science, teaching/training through highly selective international Master's and Ph.D. programs, worldwide network of observatories in seismology and Earth's magnetic field, and monitoring/study of the three active French volcanoes.

**Institute for the Study of Earth, Oceans,  
and Space, University of New Hampshire  
Booth 1224**

8 College Rd., Morse Hall  
Durham, NH 03824 USA  
Attn: Karen Burnett-Kurie  
Phone: 603-862-1044  
Fax: 603-862-1915  
Email: karen.burnett-kurie@unh.edu

The Institute for the Study of Earth, Oceans, and Space (EOS) at University of New Hampshire examines the forces shaping the universe and life on Earth through interdisciplinary research and teaching. Graduate students work alongside internationally recognized scientists and are given exciting opportunities for study and research. EOS's Earth Systems Science research focuses on the Earth as an integrated system and the unique role humans play as agents of change. EOS's Space Science Center scientists work on mission design, instrument construction, and data analysis for a wide range of spacecraft.

**Institute of Geophysics, Huazhong  
University of Science and Technology  
Booth 1209**

1037 Luoyu Rd.,  
Wuhan, Hubei 430074 China  
Attn: Haijiang Wang  
Phone: 86-013971661006  
Fax: 86-27-87542391  
Email: hjwang@mail.hust.edu.cn

The School of Physics at Huazhong University of Science and Technology has a strong research team engaging in gravitational experiments. Based on the effort in the past 30 years, we aim at building one of the international leading groups in the field of precision gravity measurement and related applications. The Institute of Geophysics is providing promising positions for doing research in geophysics.

**Iowa State University**  
**Booth 1239**  
Department of Geological and  
Atmospheric Sciences, 235 Science I  
Ames, IA 50011 USA  
Attn: Neal Roger Iverson  
Phone: 515-294-1837  
Fax: n/a  
Email: niverson@iastate.edu

The Iowa State University Department of Geological and Atmospheric Sciences has 17 faculty members, ~45 graduate students, and ~180 undergraduates in two programs: geology and meteorology. Research opportunities for students are diverse, with emphases on weather, climate, paleoclimate, water resources, surface processes, energy and mineral resources, and geoscience education.

**Johns Hopkins University -**  
**Earth and Planetary Sciences**  
**Booth 1232**  
3400 N. Charles St., Olin 301  
Balto, MD 21218 USA  
Attn: Kristen Gaines  
Phone: 410-516-7034  
Fax: 410-516-7933  
Email: kgaines@jhu.edu

Profile not available at press time.

**Michigan Tech University**  
**Booth 1228**  
1400 Townsend Dr.,  
Houghton, MI 49931 USA  
Attn: Amie Ledgewood  
Phone: 906-487-2531  
Fax: 906-487-3371  
Email: asledger@mtu.edu

Our graduates learn technical, interdisciplinary skills and adapt these toward projects that merge the human and natural environments and address key societal needs. In addition to traditional degrees, we also offer an international dual-degree MS (INVOGE) and an integrated Peace Corps MS. For more information, see [www.atmos-sci.mtu.edu](http://www.atmos-sci.mtu.edu) and [www.geo.mtu.edu](http://www.geo.mtu.edu).

**New Mexico Highlands University**  
**Booth 1229**  
PO Box 9000, Ivan Hilton Science  
Technology Building  
Las Vegas, NM 87701 USA  
Attn: Michael Petronis  
Phone: 505-454-3513  
Fax: n/a  
Email: mspetro@nmhu.edu

New Mexico Highlands University is a wise choice for your college plans. Our students and alumni consistently rate Highlands University very high in terms of satisfaction. The reason? Excellent programs, small class sizes led by professors who know you by name, and the most affordable 4-year tuition in the western United States.

**Purdue University**  
**Booth 1220**  
Earth, Atmospheric, and Planetary Sciences,  
550 Stadium Mall Dr.  
West Lafayette, IN 47907 USA  
Attn: Suzanne M Zurn-Birkhimer  
Phone: 765-494-4753  
Fax: 765-496-1210  
Email: zurnbirk@purdue.edu

Join Earth, Atmospheric, and Planetary Sciences at Purdue University to unravel mysteries of the past, present, and future states of the Earth and other planets. MS and PhD research areas are Atmosphere-Surface Interactions; Clouds, Climate and Extreme Weather; Geology and Geophysics; and Planetary Science. Our graduates find excellent careers in academia, government, and industry.

**Rensselaer Polytechnic Institute**  
**Booth 1214**  
110 8th St., Winslow Building  
Troy, NY 12180 USA  
Attn: Peter Fox  
Phone: 518-276-4384  
Fax: n/a  
Email: pfox@cs.rpi.edu

The Tetherless World Constellation explores the research and engineering principles that underlie the Web and applies them to science. The Department of Earth and Environmental Science studies Earth's component materials, structures and surface features, processes over time, and origin, discovery, and protection of its resources.

**School for Marine Science and Technology-  
University of Massachusetts Dartmouth**  
**Booth 1202**  
706 S. Rodney French Blvd.,  
New Bedford, MA 02744 USA  
Attn: Louis Goodman  
Phone: 508-910-6375  
Fax: n/a  
Email: lgoodman@umassd.edu

The School for Marine Science and Technology (SMAST) of the University of Massachusetts Dartmouth has programs in fisheries science and management and estuarine and ocean science and technology. Teaching assistantships and fellowships are available. See the SMAST website: <http://www.smast.umassd.edu> and Student Application website: <http://www.umassmarine.net/>.

**Scripps Institution of Oceanography-UC San Diego Booths 915, 1212**

9500 Gilman Dr., MC0210  
La Jolla, CA 92093-0210 USA  
Attn: Donna Marie Stout  
Phone: 858-534-5604  
Fax: 858-822-2718  
Email: dstout@ucsd.edu

For more than 109 years, Scripps Institution of Oceanography at UC San Diego has been the world leader in ocean, Earth, and climate sciences. Today, Scripps has hundreds of research projects covering a wide range of scientific areas under way in more than 60 nations, on every continent, and in every ocean.

**South Dakota School of Mines and Technology Booth 1240**

501 E. St Joseph St.,  
Rapid City, SD 57701 USA  
Attn: Nuri Uzunlar  
Phone: 605-394-2494  
Fax: 605-394-6703  
Email: nuri.uzunlar@sdsmt.edu

Department of Geology and Geological Engineering at South Dakota School of Mines and Technology offers B.S., M.S., and Ph.D. degrees both in geology and geological engineering and offers the only M.S. in paleontology.

**South Dakota School of Mines and Technology - Black Hills Natural Sciences Field Station Booth 1242**

501 E. St Joseph St.,  
Rapid City, SD 57701 USA  
Attn: Nuri Uzunlar  
Phone: 605-394-2494  
Fax: 605-394-2494  
Email: nuri.uzunlar@sdsmt.edu

The Black Hills Natural Sciences Field Station offers summer field camps in the USA, Turkey, India, and Iceland.

**Stanford University, School of Earth Sciences Booth 1215**

397 Panama Mall,  
Stanford, CA 94305 USA  
Attn: Roni Holeton  
Phone: 650-721-3383  
Fax: 650-725-6566  
Email: roni@stanford.edu

The School of Earth Sciences at Stanford University includes the departments of Geophysics, Geological and Environmental Sciences, Environmental Earth System Sciences, Energy Resources Engineering, and the Emmett Interdisciplinary Graduate Program in Environment and Resources. The School of Earth Sciences is a world leader in Earth and environmental sciences and engineering. Our mission is to transform our fundamental understanding of Earth processes and to use that knowledge to help provide energy, water, and a safe and sustainable planet.

**SUNY College of Environmental Science and Forestry Booth 6815**

Office of Instruction and Graduate Studies,  
227 Bray Hall, 1 Forestry Dr.  
Syracuse, NY 13210 USA  
Attn: S. Scott Shannon  
Phone: 315-470-6599  
Fax: 315-470-6978  
Email: esfgrad@esf.edu

SUNY College of Environmental Science and Forestry is the only college in the United States that is dedicated solely to the study of our environment in all its complexity. Our programs range from B.S. to Ph.D. and focus on every facet of the Earth's biosphere, from pristine wildland ecosystems to the most contaminated of urban brownfields.

**Texas Tech University Booth 1233**

Department of Geosciences, MS 1053,  
Science Building  
Lubbock, TX 79409 USA  
Attn: Calvin Barnes  
Phone: 806-742-3102  
Fax: n/a  
Email: cal.barnes@ttu.edu

The Department of Geosciences at Texas Tech offers M.S. and Ph.D. degrees with concentrations in atmospheric sciences, geology, geophysics, geochemistry, and geography. We offer a graduate certificate in Geospatial Technology. The department houses modern laboratory equipment and a wide range of sensors (radar, sticknet, etc.) for atmospheric observations.

**The University of Texas - Jackson School of Geosciences Booth 1200**

1 University Station, C1100  
Austin, TX 78712 USA  
Attn: Philip A. Guerrero  
Phone: 512-471-6098  
Fax: 512-471-5585  
Email: philipp@mail.utexas.edu

The Jackson School of Geosciences at The University of Texas is one of the world's most highly regarded and largest academic geoscience communities, with faculty and research leaders in all disciplines. The school unites one of the oldest Earth science departments with two world-renowned research units, the Institute for Geophysics and the Bureau of Economic Geology.

**UC Davis - CCWAS  
Booth 1208**

Department of Evolution and Ecology,  
One Shields Ave.  
Davis, CA 95616 USA  
Attn: Carole Horn  
Phone: 530-754-9733  
Fax: n/a  
Email: clhorn@ucdavis.edu

Climate change and related water problems pose challenges to science and society. The IGERT in Climate Change, Water and Society at UC Davis provides students with the disciplinary depth and multidisciplinary breadth to address effects of climate change on water resources, unification of hydrologic and climate science, and better translation of science into action.

**UC Davis Geology Department  
Booth 1217**

UC Davis Geology, 1 Shields Ave.  
Davis, CA 95616 USA  
Attn: Janice Fong  
Phone: 530-752-6775  
Fax: 530-752-0951  
Email: jcfong@ucdavis.edu

Information on the geology graduate program and research opportunities available at the UC Davis Geology Department.

**University of Houston  
Booth 1204**

312 Science & Research Building 1,  
Houston, TX 77054 USA  
Attn: Tram Nguyen  
Phone: 713-743-3402  
Fax: n/a  
Email: tnguye36@mail.uh.edu

Profile not available at press time.

**University of Houston -  
Graduate Student Interviews  
Booth 1206**

312 Science & Research Building 1,  
Houston, TX 77054 USA  
Attn: Tram Ngyuen  
Phone: 713-743-3402  
Fax: n/a  
Email: tnguye36@mail.uh.edu

Profile not available at press time.

**University of Michigan -  
Atmospheric, Oceanic and Space Sciences  
Booth 1203**

1521B Space Research Building, 2455 Hayward St.  
Ann Arbor, MI 48109-2143 USA  
Attn: Mary Nehls-Frumkin  
Phone: 734-763-7305  
Fax: n/a  
Email: maryln@umich.edu

AOSS is a leading science and engineering center for climate and space sciences. The rich, interdisciplinary history of the department in climate studies, planetary science, remote sensing, instrumentation, and large-scale modeling has resulted in one of the largest research programs of its kind. AOSS is where science and engineering merge. <http://aoss.engin.umich.edu>.

**University of Michigan,  
Earth and Environmental Sciences  
Booth 1201**

2534 C C Little Building, 1100 North University Ave.  
Ann Arbor, MI 48109-1005 USA  
Attn: Anne Hudon  
Phone: 734-615-3034  
Fax: n/a  
Email: ahudon@umich.edu

The #1 geology graduate program. The University of Michigan Department of Earth and Environmental Sciences is the top-ranked geology graduate program in the country, according to U.S. News & World Report. The U-M geochemistry and paleontology graduate programs also received top 5 rankings nationally. [MichiganEarth@umich.edu](mailto:MichiganEarth@umich.edu)

**University of Nevada Reno/ Desert  
Research Institute Graduate Program  
of Hydrologic Sciences  
Booth 1219**

2215 Raggio Pkwy.,  
Reno, NV 89512 USA  
Attn: Rina Schumer  
Phone: 775-673-7414  
Fax: 775-673-7363  
Email: rina@dri.edu

Among the largest and top-ranked hydrology programs in the U.S., we provide fundamental and advanced training to students in hydro(geo)logy. Over 70 faculty conduct research in contaminant transport, ecohydrology, aqueous geochemistry, climate change, groundwater hydraulics, vadose zone, surface water hydrology, and water resources engineering.

**University of Nevada, Las Vegas**

**Booth 1236**

4505 Maryland Pkwy., LFG 104, Box 4010  
Las Vegas, NV 89154 USA  
Attn: Maria Figueroa  
Phone: 702-895-3262  
Fax: 702-895-4064  
Email: maria.figueroa@unlv.edu

Profile not available at press time.

**University of South Carolina**

**Booth 1213**

701 Sumter St., EWS 617  
Columbia, SC 29208 USA  
Attn: Erin Burnette  
Phone: 803-777-7170  
Fax: n/a  
Email: eburnette@geol.sc.edu

The School of the Earth, Ocean, and Environment at the University of South Carolina offers graduate degrees in three dynamic disciplines: Geological Sciences (Masters and PhD), Marine Science (Masters and PhD), and Earth and Environmental Resource Management (Masters).

**University of South Florida**

**Booth 1243**

Department of Geology, 4202 E. Fowler Ave.  
Tampa, FL 33620 USA  
Attn: Ping Wang  
Phone: 813-974-9170  
Fax: 813-974-2654  
Email: pwang@usf.edu

University of South Florida Department of Geology provides students with an outstanding education that will prepare them to address major questions about our environment. Our students participate in a variety of cutting edge research in hydrogeology, paleo-environmental science, karst studies, geochemistry, coastal studies, geophysics, volcanology, and tectonics. We offer BA, BS, MS, and PhD degrees.

**University of Southern California,**

**Department of Earth Sciences**

**Booth 1211**

3651 Trousdale Pkwy., ZHS 117  
Los Angeles, CA 90089-0740 USA  
Attn: Karen Young  
Phone: 213-821-3933  
Fax: n/a  
Email: kayoung@usc.edu

Located in midtown Los Angeles, USC has a rich tradition as a university with strong research interests in local and global science. Our faculty emphasize hands-on geological experiences and field work. We presently support 55 graduate students, whose projects cross disciplines and take advantage of state-of-the-art analytical instrumentation and high-powered computing.

**Virginia Tech Department of Geosciences**

**Booth 1221**

4044 Derring Hall,  
Blacksburg, VA 24061 USA  
Attn: Nancy L Ross  
Phone: 540-231-8824  
Fax: 540-231-3386  
Email: clowe@vt.edu

We are focused upon research and education dealing with the nature of the Earth. Our interests encompass problems in the basic and applied sciences at length scales from atomic to planetary. We encourage interdisciplinary approaches using theoretical, experimental, and field methods.

**Woods Hole Oceanographic Institution**

**Booth 1205**

Carriage House, MS #49, 266 Woods Hole Rd.  
Woods Hole, MA 02543 USA  
Attn: Janet A. Fields  
Phone: 508-289-2950  
Fax: 508-457-2115  
Email: jfields@whoi.edu

Woods Hole Oceanographic Institution is a private research and educational organization dedicated to understanding the oceans' role in Earth's biosphere and climate. WHOI promotes a variety of interdisciplinary research, integrating basic sciences and innovative engineering with studies of marine policy, sustainability, climate change, and human health. <http://www.whoi.edu>

**Working to INcrease Diversity  
in Ocean Higher Education (WINDOHE)**

**Booth 1207**

266 Woods Hole Rd., MS# 49  
Woods Hole, MA 02543-1050 USA  
Attn: Christine Charette  
Phone: 508-289-2950  
Fax: n/a  
Email: jyoder@whoi.edu

WHOI is hosting an ocean community booth on behalf of a partnership that includes faculty from minority-serving institutions and programs, as well as administrators who oversee graduate programs in the ocean sciences. The goal of the partnership is to increase applications and attendees of underrepresented minority students in ocean science graduate programs.

# Meeting Summary Chart Examples

- Session & Sponsors**
- U Union
  - A Atmospheric Sciences
  - AE Atmospheric and Space Electricity
  - B Biogeosciences
  - C Cryosphere
  - ED Education and Human Resources
  - EP Earth and Planetary Surface Processes
  - SH SPA-Solar and Heliospheric Physics
  - SM SPA-Magnetospheric Physics
  - DI Study of the Earth's Deep Interior
  - MR Mineral and Rock Physics
  - S Seismology
  - T Tectonophysics
  - V Volcanology, Geochemistry, and Petrology

- NS Near-Surface Geophysics
- OS Ocean Sciences
- P Planetary Sciences
- PA Public Affairs
- PP Paleoclimatology and Paleoclimatology
- SI Societal Impacts and Policy Sciences
- SA SPA-Aeronomy

- G Geodesy
- GC Global Environmental Change
- GP Geomagnetism and Paleomagnetism
- H Hydrology
- IN Earth and Space Science Informatics
- NG Nonlinear Geophysics
- NH Natural Hazards

## Discipline Session Start Time

Discipline	Session Start Time	A	AE	B	C	ED	EP	G	GC	GP	H	IN	NG	HN	NS	OS	P	PA	PP	SI	SH	SM	DI	MR	S	T	V
<b>Monday A.M.</b>																											
PP14B	Taking the Temperature of the Quaternary I																										
	4:00 PM																										
	Moscone West: 2010																										
<b>SPA-Aeronomy</b>																											
SA14A	Medium- and Fine-Scale Structure in the Ionosphere																										
	4:00 PM																										
	Moscone West: 2011																										
<b>SPA-Solar and Heliospheric Physics</b>																											
SH14A	Interaction of Coronal Mass Ejections With Coronal and Heliospheric Structures I (Video On-Demand)																										
	4:00 PM																										
	Moscone West: 2022-2024																										
SH14B	Physical Processes in the Vicinity of the Helioopause																										
	4:00 PM																										
	Moscone West: 2009																										

**Swirl Session**

**P 13 C**

Discipline Day Time Session

Example: P13C = Planetary Sciences, Monday, A.M., concurrent session C

Day	Time	Concurrent Session
1 = Monday	1 = AM	A
2 = Tuesday	2 = AM	B
3 = Wednesday	3 = PM	C
4 = Thursday	4 = PM	D
5 = Friday	5 = Evening	

Session Number. A session number designates the section, or other sponsoring group, and chronology of the presentation.

Location

Oral Session

Poster Session

MEETING SUMMARY CHART

# MEETING SUMMARY CHART

- Session**  
 U Union  
 A Atmospheric Sciences  
 AE Atmospheric and Space Electricity  
 B Biogeosciences  
 C Cryosphere  
 ED Education and Human Resources  
 EP Earth and Planetary Surface Processes
- Sponsors & Cosponsors**  
 O Oral Session  
 P Poster Session  
 S Swirl Session
- G Geology**  
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 NG Nonlinear Geophysics  
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 PA Public Affairs  
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 SI Societal Impacts and Policy Sciences  
 SA SPA-Aeronomy
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 SM SPA-Magnetospheric Physics  
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 S Seismology  
 T Tectonophysics  
 V Volcanology, Geochemistry, and Petrology

		A	AE	B	C	ED	EP	G	GC	GP	H	IN	NG	NH	NS	OS	PA	PP	SI	SM	SH	DI	MR	S	T	V
<b>Monday A.M.</b>																										
<b>Union</b>																										
U11A	Climate and Biogeochemistry of the Neoproterozoic																									
<b>Atmospheric Sciences</b>																										
A11A	Atmospheric Sciences General Contributions: Atmospheric Chemistry Posters																									
A11B	Atmospheric Sciences General Contributions: Understanding the Atmosphere Using Observations Posters																									
A11C	Atmospheric Snow Particle Modeling for Microwave Remote Sensing Applications Posters																									
A11D	Convective Cloud Life Cycle During the Mid-latitude Continental Convective Clouds Experiment (MC3E) Posters																									
A11E	Data Assimilation in Geosciences I Posters																									
A11F	Emissions Understanding, Constraints, and Changes I Posters																									
A11G	Emissions Understanding, Constraints, and Changes II Posters																									
A11H	Emissions Understanding, Constraints, and Changes III Posters																									
A11I	Estimation of Solar Radiation From Satellite Images																									
A11J	Extratropical Stratospheric Variability and Its Surface Impacts I Posters																									
A11K	Radiative Processes over Sea Ice Posters																									
A11L	Application of Satellite Data to Serve Air Quality Management Needs I																									
A11M	Atmospheric and Oceanic Variability Associated With the MJO in the Tropical Indian and Western Pacific Oceans I																									
A11N	Data Assimilation in Geosciences II (Video On-Demand)																									
A11O	Extratropical Stratospheric Variability and Its Surface Impacts II																									
A11P	Ice Nucleation and Properties of Cold Clouds I																									
<b>Atmospheric and Space Electricity</b>																										
AE11A	Lightning and Atmospheric Electricity in Thunderstorms I																									







# Monday A.M.

			A	AE	B	C	ED	EP	G	GC	GP	H	IN	NG	HN	NS	OS	P	PA	PP	SI	SA	SH	SM	DI	MR	S	T	V		
H11M	Microorganisms, Colloids, Engineered Nanoparticles, and Emerging Contaminants in the Environment I	8:00 AM																													
H11N	Remote Sensing Applications in Hydrology I	8:00 AM	○																												
H11O	Shallow and Deep Geothermal Systems: Characterization, Integration, Stimulation, Simulation, and Induced Seismicity I (Video On-Demand)	8:00 AM																									○				
<b>Earth and Space Science Informatics</b>																															
IN11A	Earth System Data Records, Essential Uncertainty Information, and Its Representation Metadata and Standards I Posters	8:00 AM	●	●	●	●			●			●					●														
IN11B	Informatics in Hydrological Modeling and Information Communication Posters	8:00 AM	●									●																			
IN11C	Multidisciplinary, Multiscale Model Coupling Posters	8:00 AM																													
IN11D	Open Source Technologies and Architectures Facilitating Science Data Center Collaboration and Management I Posters	8:00 AM	●	●	●	●	●			●		●			●			●					●								
IN11E	Standard Service Based Approaches to Hydrological Modeling and Workflows Posters	8:00 AM										●																			
IN11F	Open Source Technologies and Architectures Facilitating Science Data Center Collaboration and Management II	8:00 AM	○	○	○	○	○			○		○			○			○					○								
<b>Natural Hazards</b>																															
NH11A	Asia-Pacific Region Global Earthquake and Volcanic Eruption Risk Management (G-EVER) I Posters	8:00 AM	●																												
NH11B	Assessing the Vulnerability of Buildings to Tsunamis and Implications for Evacuation Planning Posters	8:00 AM															●														
NH11C	Geohazards and Disaster Risks in the North Pacific Region Posters I	8:00 AM							●																		●	●	●	●	
NH11D	Advances in Landslide Hazard Research: Assessment, Monitoring, and Forecasting I	8:00 AM						○																							
<b>Ocean Sciences</b>																															
OS11A	Low-Frequency Variability of Atlantic Sea Surface Temperatures: The Roles of Atmospheric Forcing and Ocean Dynamics Posters	8:00 AM	●																												
OS11B	Model-Coupling Approaches to Multiscale Coastal Ocean Processes: Methods and Applications Posters	8:00 AM																													
OS11C	Ocean Sciences General Contributions: Physical Oceanography Posters	8:00 AM																													
OS11D	Severe Weather and Estuarine/Coastal Ocean Dynamics Posters	8:00 AM													●																
OS11E	InterRidge Session on: Fast Moving Research at Slow Spreading Ridges I	8:00 AM			○																								○	○	
OS11F	Marine Microbes: What's New? I	8:00 AM			○																										



# MEETING SUMMARY CHART

- Session**  
 U Union  
 A Atmospheric Sciences  
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 ● Swirl Session
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 IN Earth and Space Science Informatics  
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 NH Natural Hazards
- Near-Surface Geophysics**  
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 SA SPA-Aeronomy
- SPA-Solar and Heliospheric Physics**  
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 S Seismology  
 T Tectonophysics  
 V Volcanology, Geochemistry, and Petrology

	A	AE	B	C	ED	EP	G	GC	GP	H	IN	GN	HN	SN	SO	d	pd	SI	VS	HS	SM	DI	MR	S	L	A	
<b>Monday A.M.</b>																											
OS11G																											
OS11H																											
<b>Planetary Sciences</b>																											
P11A																											
P11B																											
P11C																											
P11D																											
P11E																											
P11F																											
P11G																											
<b>Public Affairs</b>																											
PA11A																											
<b>Paleoceanography and Paleoclimatology</b>																											
PP11A																											
PP11B																											
PP11C																											
PP11D																											
PP11E																											
PP11F																											
<b>SPA-Aeronomy</b>																											
SA11A																											



# Monday A.M.

		8:00 AM	Moscone West: 2011	A	AE	B	C	ED	EP	G	GC	GP	H	IN	NG	HN	NS	OS	d	PA	PP	SI	SA	SH	SM	DI	MR	S	T	V		
SA11B	Exploring Geoscience Frontiers With Low-Cost Access to Space I	8:00 AM	Moscone West: 2011	○	○			○		○			○																			
<b>SPA-Solar and Heliospheric Physics</b>																																
SH11A	Physical Processes in the Vicinity of the Heliosphere I Posters	8:00 AM	Moscone South: Hall A-C																													
SH11B	The Global Structure of the Heliosphere I Posters	8:00 AM	Moscone South: Hall A-C																													
SH11C	SPA-Solar and Heliospheric Physics General Contributions: Solar Wind and Solar	8:00 AM	Moscone West: 2009																													
<b>SPA-Magnetospheric Physics</b>																																
SM11A	Large-Scale Ionospheric Dynamics and M-I Coupling at Midlatitudes I Posters	8:00 AM	Moscone South: Hall A-C																													
SM11B	Studies Using Ground Magnetometer Arrays: Specifying Current Systems in the Ionosphere and Magnetosphere I Posters	8:00 AM	Moscone South: Hall A-C									●																				
SM11C	System Aspects of the Solar-Wind-Driven Magnetosphere I Posters	8:00 AM	Moscone South: Hall A-C																													
SM11D	The Effect of Transient Solar Wind Features on the Magnetosphere and the Ionosphere I Posters	8:00 AM	Moscone South: Hall A-C																													
SM11E	Bow Shock, Magnetosheath, and Magnetopause Processes I	8:00 AM	Moscone West: 2018																													
SM11F	Space Plasma Processes and Dynamics From Multi-point Measurements and Simulations I	8:00 AM	Moscone West: 2016																													
<b>Study of Earth's Deep Interior</b>																																
DI11A	The Mantle Transition Zone and Its Role in Thermochemical Convection I Posters	8:00 AM	Moscone South: Hall A-C																													
DI11C	Planetary Core-Mantle Interactions I	8:00 AM	Moscone South: 305									○																				
DI11B	Advances in Earth's Core Dynamics I	9:00 AM	Moscone South: 305									○																				
<b>Mineral and Rock Physics</b>																																
MR11A	All About Olivine I Posters	8:00 AM	Moscone South: Hall A-C																													
MR11B	High-Pressure Melting, Phase Diagrams, and Planetary Cores I Posters	8:00 AM	Moscone South: Hall A-C																													
MR11C	Melts and Fluids in Earth and Planetary Interiors I Posters	8:00 AM	Moscone South: Hall A-C																													
<b>Seismology</b>																																
S11A	Seismic Rupture and Fault Zone Properties I	8:00 AM	Moscone South: 307																													
<b>Tectonophysics</b>																																
T11A	Before and after Subduction: Downgoing Plate to Inboard Strike-Slip Faulting Posters	8:00 AM	Moscone South: Hall A-C																													
T11B	Crustal Growth and the Geodynamics of Unstable Lithosphere I Posters	8:00 AM	Moscone South: Hall A-C																													



# MEETING SUMMARY CHART

- Session Sponsors & Cosponsors**
- U Union
  - A Atmospheric Sciences
  - AE Atmospheric and Space Electricity
  - B Biogeosciences
  - C Cryosphere
  - ED Education and Human Resources
  - EP Earth and Planetary Surface Processes
  - G Geodesy
  - GC Global Environmental Change
  - GP Geomagnetism and Paleomagnetism
  - H Hydrology
  - IN Earth and Space Science Informatics
  - NG Nonlinear Geophysics
  - NH Natural Hazards
  - NS Near-Surface Geophysics
  - OS Ocean Sciences
  - P Planetary Sciences
  - PA Public Affairs
  - PP Paleoceanography and Paleoclimatology
  - SI Societal Impacts and Policy Sciences
  - SA SPA-Aeronomy
  - SH SPA-Solar and Heliospheric Physics
  - SM SPA-Magnetospheric Physics
  - DI Study of the Earth's Deep Interior
  - MIR Mineral and Rock Physics
  - S Seismology
  - T Tectonophysics
  - V Volcanology, Geochemistry, and Petrology

## Monday A.M.

	A	AE	B	C	ED	EP	G	GP	H	HN	NS	SO	PA	DI	MR	S	T	V
T11C	Cities on Subduction Thrusts I (Video On-Demand)																	
T11D	Evolution of the Continental Lithosphere I																	
T11E	Faults, Fractures, and Fluid Flow in Georesources: Physical, Chemical, and Transport Processes and Models I																	
T11F	Melt Extraction Through the Lithosphere: Interactions Among Melt Evolution, Deformation, and Migration I																	
<b>Volcanology, Geochemistry, and Petrology</b>																		
V11A	Assessing the Role of Crystallization and Degassing on the Evolution of Magmatic-Hydrothermal Systems: Cosponsored by MSA I Posters																	
V11B	Experimental Modeling of Volcanic and Magmatic Processes I Posters: Cosponsored by EGU-GMPV																	
V11C	Linking Magma Rheology and Textural Cargo of Volcanic Rocks: Insights From Field Studies, Experiments, and Modeling I Posters																	
V11D	Volcanology, Geochemistry, and Petrology General Contributions Posters																	
V11E	Geodynamics of the Yellowstone Hotspot and Its Track, the Snake River Plain Volcanic Field I																	
V11F	Innovations in Isotope Mass Spectrometry and Isotope Metrology in Geosciences I																	
<b>Union</b>																		
U12A	Following the CFC-Ozone-Depletion Link From the Laboratory to Verification to Policy to Successful Mitigation: What Were the Key Turning Points?																	
<b>Atmospheric Sciences</b>																		
A12A	Aerosols and Air Quality in South Asia: Observations, Modeling, Impacts I																	
A12B	Application of Satellite Data to Serve Air Quality Management Needs II																	
A12C	Atmospheric and Oceanic Variability Associated With the MJO in the Tropical Indian and Western Pacific Oceans II																	
A12D	Atmospheric Boundary Layer Processes and Turbulence I																	
A12E	Dynamics and Chemistry of the Coupled Troposphere/Stratosphere System: Extratropical UTLS/Results from DC3																	









# MEETING SUMMARY CHART

## Session Sponsors & Cosponsors

- U Union
- A Atmospheric Sciences
- AE Atmospheric and Space Electricity
- B Biogeosciences
- C Cryosphere
- ED Education and Human Resources
- EP Earth and Planetary Surface Processes
- Oral Session
- Poster Session
- ⊙ Swirl Session

- G Geodesy
- GC Global Environmental Change
- GP Geomagnetism and Paleomagnetism
- H Hydrology
- IN Earth and Space Science Informatics
- NG Nonlinear Geophysics
- NH Natural Hazards

- NS Near-Surface Geophysics
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- SM SPA-Magnetospheric Physics
- DI Study of the Earth's Deep Interior
- MR Mineral and Rock Physics
- S Seismology
- T Tectonophysics
- V Volcanology, Geochemistry, and Petrology

## Monday P.M.

### Atmospheric Sciences

	A	AE	B	C	ED	EP	G	GC	H	IN	GN	HN	NS	OS	d	PA	PP	SI	SA	SH	SM	DI	MR	S	L	A	
A13A																											
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