

SCIENTIFIC PROGRAM

MONDAY, 28 FEBRUARY

1000h – 1005h **Aloha and Introduction**

**General Circulation: Climate Effects of Parameterized Gravity
Wave Drag**

Presiding: Kaoru Sato
Keoni Auditorium

1005h – 1030h **Rolando R. Garcia** | Gravity wave parameterizations in high-top models:
Successes and problems (INVITED)

Stratospheric Sudden Warmings

Presiding: Tiffany A. Shaw
Keoni Auditorium

1030h – 1050h **Peter Hitchcock** | Gravity wave-driven descent of the stratopause
following sudden warmings

1050h – 1120h Coffee Break

1120h – 1140h **Christoph Zülicke** | Response of the mesosphere to stratospheric warmings

1140h – 1200h **Yvan J. Orsolini** | The roles of gravity and planetary waves during a major
stratospheric sudden warming characterized by an elevated stratopause

1200h – 1220h **Amal Chandran** | The role of planetary waves and gravity waves in SSW &
elevated stratopauses as generated in WACCM

1220h – 1240h **Chihoko Yamashita** | Gravity wave variations during the 2009
stratospheric sudden warming

1240h – 1410h Lunch

Andes and Antarctic Peninsula Region I

Presiding: M. Joan Alexander
Keoni Auditorium

1410h – 1430h **Zhenhua Li** | Gravity wave characteristics in the mesopause over Andes
mountains

1430h – 1450h **Teferi D. Demissie** | Climatology of mesospheric gravity waves and their
sources above Rothera, Antarctica

1450h – 1510h **Steve Eckermann** (for Dave Fritts) | SAANGRIA (Southern Andes ANtarctic GRavity
wave InitiAtive): A program to study gravity wave coupling from the troposphere into
the mesosphere and lower thermosphere

1510h – 1530h **Rene Heise** | How to obtain a large database of measurements on atmospheric gravity Waves

1530h – 1600h Coffee Break

Andes and Antarctic Peninsula Region II

Presiding: Albert Hertzog

Keoni Auditorium

1600h – 1620h **Xinzhao Chu** (for Zhibin Yu) | Long-term variations of gravity waves in the lower atmosphere at McMurdo and the South Pole derived from balloon radiosonde data

1620h – 1640h **Riwal Plougonven** | Non-orographic and orographic sources of gravity waves above Antarctica and the Southern Ocean (INVITED)

1640h – 1700h **Vincent Noel** | Impact of Gravity Wave events on the properties of Polar Stratospheric Clouds over Antarctica from spaceborne lidar observations

1700h – 1720h **Gary R. Swenson** | Observations of High Frequency AGWs observed in mesospheric airglow, and the implication to the AGW imposed zonal stress and the residual circulation

1720h – 1740h **Kaoru Sato** | Program of the Antarctic Syowa MST/IS Radar PANSY (INVITED)

1815h – 2030h **Waikiki Aquarium**

Buses are scheduled to depart for Waikiki Aquarium at 1745h, and will return to the Sheraton Princess Kaiulani Hotel at 2030h

TUESDAY, 1 MARCH

Wave Breaking Dynamics and Momentum Transport I

Presiding: Stephen D. Eckermann

Keoni Auditorium

0900h – 0920h **Erich Becker** | Non-orographic gravity waves in general circulation models (INVITED)

0920h – 0940h **Pascale Lelong** | Mixing efficiency of breaking inertia-gravity waves

0940h – 1000h **Dale Durran** | The Up-Scale Influence of Gravity Wave Breaking

1000h – 1020h **Tiffany A. Shaw** | The application of wave-activity conservation laws to cloud resolving model simulations of multiscale tropical convection (INVITED)

1020h – 1050h Coffee Break

Wave Breaking Dynamics and Momentum Transport II

Presiding: Shuguang Wang
Keoni Auditorium

1050h – 1110h **Oliver Bühler** | Internal waves in the atmosphere and ocean

1110h – 1130h **Bruce R. Sutherland** | Parameterization of finite-amplitude internal waves in climate models

1130h – 1150h **Julie Vanderhoff** | Effect of time-dependent, spatially varying shear on vertical propagation of internal wave energy

1150h – 1210h **Matthew O. Hills** | Momentum fluxes and drag profiles of trapped gravity lee waves, and their impact on the large scale flow

1210h – 1400h Lunch

General Circulation II

Presiding: Rolando R. Garcia
Keoni Auditorium

1400h – 1420h **Stephen D. Eckermann** | Gravity-wave Drag Parameterization in a High-Altitude Prototype Global Numerical Weather Prediction System (INVITED)

1420h – 1440h **Fabrizio Sassi** | The effect of temporal correlation on the predictability of the MLT region in a stochastic nonorographic gravity wave drag parameterization

1440h – 1500h **Manfred Ern** (for Peter Preusse) | Effects of oblique gravity-wave propagation on middle atmosphere forcing (INVITED)

1500h – 1520h **Erdal Yigit** | Dynamical and Thermal Effects of Gravity Waves in the terrestrial Thermosphere-Ionosphere

1520h – 1550h Coffee Break

1550h – 1745h Poster Session I

Keoni Auditorium

T-1 **Manuel Pulido** | A Comparison of Gravity Wave Drag Parameterizations using Inverse Techniques

T-3 **Corwin Wright** | HIRDLS gravity wave validation and case studies

T-4 **Manfred Ern** (for Peter Preusse) | The ESA gravity wave study

T-5 **Yvan J. Orsolini** (for V. Limpasuvan) | Mesoscale Simulations of Gravity Waves during the 2009 Major Stratospheric Sudden Warming

- T-6 **Damian J. Murphy** | Using Antarctic observations to improve gravity-wave parameterization in climate models
- T-7 **Simon Alexander** | Wintertime gravity-wave activity in the Antarctic upper stratosphere and lower mesosphere revealed by the Davis (69°S, 78°E) lidar
- T-8 **Simon Alexander** | The effect of orographic waves on Antarctic Polar Stratospheric Cloud (PSC) occurrence and composition
- T-9 **Charles Bardeen** | Effects of Subgrid Scale Temperature Variability Caused by Gravity Waves Upon Simulations of Polar Mesospheric Clouds
- T-10 **Yanping Li** | Observation and theory of the diurnal continental thermal tide
- T-11 **Gerd Baumgarten** | Gravity Wave Observations in the Strato- and Mesosphere by Lidar at 54°N and 69°N
- T-12 **Bifford P. Williams** | Observations of Large Vertical Winds Associated with Short Period Gravity Waves in the Winter Polar Mesopause Region
- T-13 **Ilgin Seker** | The relation between the E-region gravity waves and the Fregion plasma depletions observed with an all-sky imager at Arecibo
- T-14 **Alan Liu** | Wave induced transport of atmospheric constituents and its effect on the mesosphere

WEDNESDAY, 2 MARCH

Brewer-Dobson Circulation

Presiding: Erich Becker
Keoni Auditorium

0900h – 0920h **Kaoru Sato** | On the mechanism of the formation of the Brewer-Dobson circulation and the change in the age of air

0920h – 0940h **Saburo Miyahara** | A three-dimensional wave activity flux applicable to inertio-gravity waves (INVITED)

0940h – 1000h **Neal Butchart** | The response of parameterised gravity wave momentum fluxes in global models to secular changes in climate and ozone and the effects on the general circulation

1000h – 1020h **Edwin P. Gerber** | Probing the interaction between resolved and parameterized waves

1020h – 1040h Group Photo

1040h – 1110h Coffee Break

Quasibiennial Oscillation

Presiding: Takeshi Horinouchi
Keoni Auditorium

1110h – 1130h **Yoshio Kawatani** | The quasi-biennial oscillation in a double CO₂ Climate (INVITED)

1130h – 1150h **Thomas Krismer** | Large scale equatorial waves and the quasi-biennial oscillation in ECHAM

1150h – 1210h **Andrew C. Bushell** | Assessing the impact of gravity waves on the tropical middle atmosphere in a General Circulation Model

1210h – 1400h Lunch

Tropical Waves and Tides

Presiding: Yoshio Kawatani
Keoni Auditorium

1400h – 1420h **Leonhard Pfister** | The Effects of Subgrid Scale Gravity Waves on Water Vapor and Clouds in the Tropical Tropopause Layer

1420h – 1440h **Stephanie Evan** | WRF model studies of tropical inertia-gravity waves with comparisons to observations

1440h – 1500h **Nedjeljka Zagar** | Lagre-Scale Equatorial Waves in the Middle Atmosphere Based on Multiyear ECMWF analyses

1500h – 1520h **David Ortland** | On the interaction of the migrating diurnal tide with inertia gravity waves generated by tropical heating

1520h – 1540h **Xian Lu** | Momentum budget analysis on the seasonal variation of the diurnal tide by using the Whole Atmosphere Community Climate Model (WACCM4) and its comparison with the meteor radar and satellite observations

1540h – 1600h Coffee Break

1600h – 1745h **Poster Session II**
Keoni Auditorium

W-1 **Masakazu Taguchi** | Connection of the Stratospheric Quasi-Biennial Oscillation with El Niño–Southern Oscillation

W-2 **Kiyotaka Shibata** | Gravity wave drag effects on the future quasi-biennial oscillation in the tropical stratosphere under greenhouse gas increase up to year 2100: Simulations with a chemistry-climate model

- W-3 **Yoshio Kawatani** | The roles of equatorial trapped waves and internal inertia-gravity waves in driving the quasi-biennial oscillation
- W-4 **Ji-Eun Kim** | Space-Time Variability in Precipitation at Scales Relevant to Gravity Waves from Observations and Model Results
- W-5 **Fuqing Zhang** (for Todd Lane) | Coupling between gravity waves and tropical convection at mesoscales
- W-7 **Ying-Wen Chen** | Excitation Sources of Ultra-Fast Kelvin waves Simulated by the Kyushu-GCM
- W-10 **Tai-Yin Huang** | Gravity Wave-induced Variations in Exothermic Heating in the MLT region
- W-11 **Viswanathan L. Narayanan** | Case study of a mesospheric wall wave event
- W-12 **Som Kumar Sharma** | Atmospheric Gravity Wave Activity over a Subtropical and Tropical Indian Locations
- W-13 **Riwal Plougonven** | Gravity waves emitted from jets: lessons from idealized simulations
- W-14 **Stephen D. Eckermann** | Momentum Fluxes of Gravity Waves Generated by Variable Froude Number Flow over Idealized and Realistic Three-Dimensional Orography
- W-15 **Alexander S. Medvedev** | Influence of Vertically Propagating Gravity Waves on the Atmosphere of Mars

THURSDAY, 3 MARCH

Observations: Momentum Flux & Parameterization Constraints

Presiding: Robert A. Vincent

Keoni Auditorium

0900h – 0920h **Manfred Ern** | Global Distributions of Gravity Wave Momentum Flux Measured by Satellites: Some Implications for the Dynamics of the Stratosphere and Mesosphere (INVITED)

0920h – 0940h **Manuel Pulido** | Estimation of Optimal Gravity Wave Parameters for Climate Models using a Hybrid Genetic-Variational Technique (INVITED)

0940h – 1000h **Albert Hertzog** | Balloon-Borne Observations of Gravity-Wave Momentum Fluxes over Antarctica and Surrounding Areas (INVITED)

1000h – 1020h **M. Joan Alexander** | Mountain Wave Momentum Fluxes in the Southern Hemisphere from Satellite Measurements

1020h – 1050h Coffee Break

Satellite Observations: GPS Occultation

Presiding: Manfred Ern
Keoni Auditorium

- 1050h – 1110h **Takeshi Horinouchi** | Analysis of spatial structure of gravity waves using GPS occultation data (INVITED)
- 1110h – 1130h **Antonia Haser** | Detailed Analysis of Horizontal Wave Parameters using Radio Occultation Data
- 1130h – 1150h **Pablo Llamedo Soria** | Long-term global GW activity in lower and middle atmosphere from CHAMP, GRACE and COSMIC radio occultation data between 2001 and 2010
- 1150h – 1210h **Simon Alexander** | Global observations of stratospheric gravity waves made with COSMIC GPS-RO and comparisons with an atmospheric general circulation model
- 1210h – 1400h Lunch

Satellite and Other Observations

Presiding: Madineni Venkat Ratnam
Keoni Auditorium

- 1400h – 1420h **Jie Gong** | Gravity wave signatures in AIRS radiances: Can AIRS observe wave scales shorter than its weighting function thickness?
- 1420h – 1440h **Amitava Guharay** | Rayleigh lidar observations of gravity wave seasonal variability over a tropical site
- 1440h – 1500h **Sherine R. John** | Investigations On Gravity Wave Potential Energy Seen By Different Satellites And Ground Based Techniques
- 1500h – 1520h **Viswanathan L. Narayanan** | Characteristics of high frequency gravity waves in the upper mesosphere observed in OH nightglow over low latitude Indian sector during 2007
- 1540h – 1610h Coffee Break

High-Resolution Global Models

Presiding: Manuel Pulido
Keoni Auditorium

- 1610h – 1630h **Kevin P. Hamilton** | Topographic Drag in Ultra-Fine Resolution Global Simulations
- 1630h – 1650h **Shingo Watanabe** | Brief History of Ultra-High Resolution Global Model Studies and Future Plans (INVITED)

1650h – 1710h **Chikara Tsuchiya** | Universal frequency spectra of the short period fluctuations

1710h – 1730h **Kazuyuki Miyazaki** | Transport and mixing in the extratropical tropopause region in a high vertical resolution GCM

1830h – 2100h **Conference Dinner Moana Surfrider**

Moana Surfrider, Westin Spa & Resort
2365 Kalakaua Avenue

The Moana Surfrider is located approximately 1 block down from the Princess Sheraton Kaiulani Hotel.

FRIDAY, 4 MARCH

Jet/Imbalance Sources

Presiding: Riwal Plougonven
Keoni Auditorium

0900h – 0920h **Shuguang Wang** | Gravity Wave Sources in Tropospheric Weather Systems (INVITED)

0920h – 0940h **Junhong Wei** | Aircraft Measurements And Numerical Simulations Of Gravity Waves In The Extratropical UTLS Region During The START08 Field Campaign

0940h – 1000h **Norihiko Sugimoto** | Spontaneous gravity wave radiation from unsteady rotational flows in a rotating shallow water system

1000h – 1020h **Paul D. Williams** | Gravity Waves in the Laboratory: Mechanisms, Properties, and Impacts

1020h – 1040h **Fuqing Zhang** | Dynamics and Impacts of Gravity Waves in the Baroclinic Jet-Front Systems with Moist Convection (INVITED)

1040h – 1110h Coffee Break

Waves from Convection: Observations

Presiding: Hye-Yeong Chun
Keoni Auditorium

1110h – 1130h **Alison W. Grimsdell** | Model study of waves generated by convection with direct validation via satellite

1130h – 1150h **Robert A. Vincent** | Gravity Wave Generation by Tropical Convection and Middle Atmosphere Response (INVITED)

1150h – 1210h **Jia Yue** | Concentric gravity waves generated by deep convections in the Great Plain and observed by all-sky airglow imager in the mesopause

1210h – 1230h **Debashis Nath** | Characterization of the sources of Gravity Waves over the Tropical Region, using High Resolution Measurements

1230h – 1400h Lunch

Waves from Convection: Parameterization Issues and Constraints

Presiding: Manfred Ern
Keoni Auditorium

1400h – 1420h **Hye-Yeong Chun** | Convective Gravity Waves and Their Parameterization: Current Status and Issues (INVITED)

1420h – 1440h **Michael J. Reeder** | Nonlinear Processes and Their Role in the Generation of Gravity Waves by Convective Cloud

1440h – 1500h **Peter T. Love** | Observational Constraints on the Spectrum of Gravity Waves Generated by Tropical Convection

1500h – 1520h **Hyun-Joo Choi** | Momentum Flux Spectrum of Convective Gravity Waves: Impacts of an Updated Parameterization in a GCM

1520h – 1540h **Young-Ha Kim** | Effects of the Convective Gravity-Wave Drag Parameterization in the Global Forecast System of the Met Office Unified Model in Korea

1540h – 1610h Coffee Break

Waves from Convective Sources

Presiding: Fuqing Zhang
Keoni Auditorium

1610h – 1630h **Madineni Venkat Ratnam** | Gravity wave forcing and its effects in entire middle atmosphere: Study under Atmospheric Forcing and Responses (SAFAR), a major NARL campaign (INVITED)

1630h – 1650h **Jie Gong** (for Dong Wu) | Gravity waves and cloud structures: AIRS observations

1650h – 1710h **So-Young Kim** | Influence of gravity waves generated by typhoon on the typhoon development