



SPARC Regional Workshop on the "Role of the stratosphere in climate variability and prediction"

Palacio de la Madraza, Granada, Spain

Scientific Program

Monday, 12 January 2015

08:30 – 09:00 Registration

09:00 – 09:15 Welcome

Session 1: Climate-chemistry interactions (*Chair: Bernd Funke*)

09:15 – 09:45 **Chemistry-Climate interactions: How much model complexity do we need to understand observed signals? (Invited)** Hauke Schmidt.

09:45 – 10:15 **Impact of GHGs on Stratospheric Ozone Recovery over Antarctica, (Invited)** Natalia Calvo, D. Kinnison, R. R. Garcia, and D.R. Marsh.

10:15 – 10:30 **Modelling stratospheric injection of biogenic very short-lived bromocarbons and their breakdown products**, Alfonso Saiz-López, Xavier Rodríguez, Carlos A. Cuevas, Rafael P. Fernández, María Navarro, Elliot Atlas, Douglas E. Kinnison and Jean-Francois Lamarque.

10:30 – 10:45 **Polar Stratospheric Clouds observations over the Antarctic Belgrano II station based on Polarized-Micro Pulse Lidar (P-MPL) measurements**, Carmen Córdoba-Jabonero, Juan Luis Guerrero-Rascado, Margarita Yela, María Parrondo, Manuel Gil-Ojeda and Héctor Ochoa.

10:45 – 11:15 Coffee Break (Bistró Granada "Café" at Plaza Bib-Rambla)

Session 2: Observed and modeled changes of the middle atmosphere (*Chair: Manuel Gil-Ojeda*)

11:15 – 11:45 **Investigating the impact of pollution on the composition of the upper troposphere / lower stratosphere using 10 years of Aura Microwave Limb Sounder measurements (Invited)** Michelle L. Santee, G.L. Manney, N.J. Livesey, J.L. Neu, M.J. Schwartz, and W.G. Read.

11:45 – 12:15 **Long-term Monitoring of Atmospheric Trace Gases by using ground-based FTIR spectrometry at the Izaña Atmospheric Observatory (Invited)**, Omaira E. García, M. Schneider, F. Hase, T. Blumenstock, E. Sepúlveda, S. Dohe, S. Barthlott, E. Cuevas, A. Redondas, A. Gómez-Peláez, and Y. González.

- 12:15 – 12:30 **Evolution of the Brewer-Dobson circulation for 1979-2012 in three reanalyses**, Marta Abalos, Bernard Legras, Félix Ploeger, and William J. Randel.
- 12:30 – 12:45 **Changes in the characteristics of the stratospheric vortex during stratospheric sudden warmings**, Laura de la Torre, J.A. Añel, and L. Gimeno.
- 12:45 – 13:00 **Stratospheric NOy: Global budget and variability in 2002-2012 from MIPAS observations**, Bernd Funke, M. López-Puertas, G. Stiller, T. von Clarmann and R. García.
- 13:00 – 13:15 **IMK/IAA water vapor global distributions in the middle atmosphere from MIPAS**, Maya García-Comas, López-Puertas, M.; Funke, B.; Stiller, G.; Lossow, S.; Kiefer, M.; von Clarmann, T.
- 13:15 – 13:30 **Solar cycle and seasonal variability of CO and CO₂ in the middle atmosphere**, Manuel López-Puertas, B. Funke, A. Jurado-Navarro, R. R. Garcia, D. R. Marsh, D. E. Kinnison, A. K. Smith, and C. D. Boone.

13:30 – 15:00 Lunch (at restaurant "Pilar del Toro" at Plaza Nueva)

Session 3: Stratosphere-troposphere coupling (Chair: Manuel López-Puertas)

- 15:00 – 15:30 **A Conceptual Framework for Stratosphere-Troposphere Coupling, (invited)** Mark Baldwin.
- 15:30 – 15:45 **Onset of circulation anomalies during stratospheric vortex weakening events: the role of planetary-scale waves**, Seok-Woo Son, and Patrick Martineau.
- 15:45 – 16:00 **A Study on the Structure of Barotropic/Baroclinic Instability in the Mesosphere Using a Gravity-wave Resolving General Circulation Model**, Kaoru Sato and Akihiro Masuda.
- 16:00 – 16:15 **Intraseasonal variability of the wave activity associated with polar vortex extremes in the boreal stratosphere**, Encarnación Serrano Mendoza and Adelaida Díaz Durán.

16:15 – 16:45 Coffee Break (Bistró Granada "Cafe" at Plaza Bib-Rambla)

16:45 – 18:30 Poster Session

18:30 – 19:00 Short guided visit to Palacio de La Madraza

20:30 Conference dinner (Hotel Palacio Santa Paula, c) Gran Vía de Colón, 31)

Tuesday, 13 January 2015

Session 3: Stratosphere-troposphere coupling (cont.) (*Chair: Rolando García*)

- 09:00 – 09:30 **The energetics of the polar vortex variability (Invited)**, José M. Castanheira, and Marques C. A. F.
- 09:30 – 09:45 **On the relationship between ENSO, Stratospheric Sudden Warmings and Blocking**, David Barriopedro and Natalia Calvo.
- 09:45 – 10:00 **Stratospheric sudden warming role on Central Pacific El Niño stratospheric response**, Maddalen Iza and Natalia Calvo.
- 10:00 – 10:15 **Momentum flux intermittency in a stochastic parameterization of non-orographic gravity waves**, Álvaro de la Cámara, François Lott, and Albert Hertzog.
- 10:15 – 10:30 **Comparing Sudden Stratospheric Warming Definitions in Reanalysis Data**, Froila M. Palmeiro, D. Barriopedro, N. Calvo, and R. García-Herrera.
- 10:30 – 10:45 **Tropical widening from isentropic and potential vorticity fields**, Juan A. Añel, Andrew Gettelman, José M. Castanheira, Laura de la Torre.
- 10:45 – 11:15 **Coffee Break** (Bistró Granada "Cafe" at Plaza Bib-Rambla)

Session 4: Seasonal and decadal variability/predictions (*Chair: Natalia Calvo*)

- 11:15 – 11:45 **The Role of the Stratosphere in Monthly to Decadal Prediction, (Invited)**. Adam A. Scaife.
- 11:45 – 12:15 **The SPECS project: Climate prediction for climate services, (Invited)** Francisco J. Doblas-Reyes.
- 12:15 – 12:30 **Regional Influence of Solar Variability on European Climate**, Katja Matthes, Rémi Thieblémont, Nour-Eddine Omrani, Kunihiro Kadera, and Felicitas Hansen.
- 12:30 – 12:45 **Simulation of secular temperature trends in the stratosphere, mesosphere and lower thermosphere**, Rolando García, and D. R. Marsh.
- 12:45 **End of Workshop**

Posters session: Monday, 12 January 2015 (16:45-18:30)

Session 1: Climate-chemistry interactions

- P1.1 DOAS and ozonesondes observations for Antarctic Stratospheric Monitoring,**
Yela M., Deferrari, G., Gil M., Parrondo, C., Iglesias, J., Navarro M., and Ochoa, H.

Session 2: Observed and modeled changes of the middle atmosphere

- P2.1 The SAGE III's mission aboard the International Space Station,** L. Thomason, J. Zawodny, and D. Flittner.
- P2.2 Composition changes at northern high latitudes as observed by MIPAS and MLS in February 2009,** A. Damiani, B. Funke, M. López Puertas, A. Gardini, T. von Clarmann, M. L. Santee, L. Froidevaux, and R. R. Cordero.
- P2.3 Ground-based lidar stratospheric aerosols measurements: Rescuing and maintaining an important complement of space-borne measurements,** J. C. Antuña, R. Estevan, and J. L. Guerrero-Rascado.
- P2.4 Aerosol particles in the UT-LS from the summer 2011 Nabro's eruption over Spain and Portugal,** J.L. Guerrero-Rascado, C. Córdoba-Jabonero, J.A. Bravo-Aranda, M. Granados-Muñoz, F. Wagner, F. Molero, D. Lange, J. Preißler, M. Gil-Ojeda, A.J. Fernández, M. Sicard, F. Navas-Guzmán, E. Cuevas, A.M. Silva, M. Pujadas, A. Comerón, S. Pereira, F. Rocadenbosch, P. Ortiz-Amezcu, J. A. Casquero, and L. Alados-Arboledas.
- P2.5 First detection of stratospheric particles by lidar at the LALINET Medellín Colombia station,** J.L. Guerrero-Rascado, D. J. Nisperuza, A. E. Bedoya, D. L. Alegria, M. Múnera, A.E. Bastidas, and L. Alados-Arboledas.
- P2.6 Variability of the Brewer-Dobson circulation during Stratospheric Sudden Warmings,** V. M. Chávez-Pérez, L. de la Torre, J. A. Añel, and L. Gimeno.
- P2.7 Non-LTE retrievals of CO₂ collisional rates and VMRs using limb emission high resolution spectra from MIPAS/ENVISAT,** A. Jurado-Navarro, M. López-Puertas, B. Funke, M. García-Comas, A. Gardini, G. Stiller, T. von Clarmann, U. Grabowski and N. Glatthor.
- P2.8 TEMPERA, a new ground-based microwave radiometer to provide continuous stratospheric temperature profiles,** F. Navas-Guzmán, and N. Kämpfer.

Session 3: Stratosphere-troposphere coupling

- P3.1 Linking parameterized gravity waves in the LMDz-GCM to their frontal Sources,** Álvaro de la Cámara and François Lott.
- P3.2 Sensitivity study of the definition parameters of the Mixing Layer,** G. Sáenz, D. Barriopedro, and J.A. García.

- P3.3 **Weakening of the stratospheric polar vortex by Arctic sea-ice loss**, Baek-Min Kim, Seok-Woo Son, Seung-Ki Min, Jee-Hoon Jeong, Seong-Joong Kim, Xiangdong Zhang, Taehyoun Shim, and Jin-Ho Yoon.
- P3.4 **Analysis of the tropospheric wave-activity injection into the stratosphere preceding polar vortex extremes in the Northern Hemisphere**, Adelaida Díaz Durán and Encarnación Serrano Mendoza.
- P3.5 **The future summer NAO trend in CMIP5 and CCMVAL2 models**, Ileana Blade.

Session 4: Seasonal and decadal variability/predictions

- P4.1 **Total ozone trends over the Iberian Peninsula for the period 1979-2012**, M. Antón, D. Mateos, D. Bortoli, and M.J. Costa.
- P4.2 **Dynamical characterization of total ozone column in the Iberian Peninsula emphasizing the double tropopause events**, D. Mateos, M. Antón, G. Sáenz, M. Bañón, J. M. Vilaplana, J. A. García.
- P4.3 **Hemispheric distributions and solar-induced variability of NO_y produced by Energetic Particle Precipitation in 2002-2012 as measured by MIPAS**, B. Funke, M. López-Puertas, T. von Clarmann, G. Stiller, L. Holt, and C. E. Randall.