



**SPARC DynVar Workshop 2:  
Modeling the Dynamics and Variability of the  
Stratosphere-Troposphere System**

**November 3 – 5, 2010**

**NOAA Earth System Research Laboratory (ESRL)  
David Skaggs Research Center  
Boulder, Colorado, USA**



## Wednesday, 3 November 2010

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**7:55am Pickup at Millennium hotel**

**8:30 – 9:00am Registration at NOAA**

**9:00 – 10:30am Introduction - Chair: M Giorgetta**

- **9:00** Welcome & Logistics – J Perlwitz
- **9:10** Motivations, objectives, expectations of the workshop – E Manzini
- **9:30** Antarctic and global climate changes: Stratospheric connections – S Solomon

**10:30 – 11:00am Coffee/Tea Break and Poster set up**

**11:00am – 1:00pm Interannual and Shorter Time Scales - Chair: L Gray**

- **11:00** Report from the WCRP Polar Predictability Workshop - J Perlwitz
- **11:30** Seasonal forecasts employing high top/low top versions of CMAM – J Scinocca
- **12:00** Role of the stratospheric ozone on the medium-range weather forecast: A case study of northern winter 2003-2004 – M Deushi and Y Kuroda
- **12:20** The role of linear interference in the Annular Mode response to Tropical forcing – C G Fletcher and P J Kushner
- **12:40** Stratosphere-troposphere Dynamical Coupling Through Blocking Phenomena During Recent Major Stratospheric Sudden Warmings – T Hirooka et al

**1:00- 2:00pm Lunch at NOAA**

**2:00 – 4:00pm Stratosphere – Troposphere coupling - Chair: J Perlwitz**

- **2:00** Diagnosing stratosphere-troposphere coupling in both observations and simulations - M Baldwin
- **2:30** Lessons learnt from CCMVal - D Waugh
- **3:00** Discussion - Moderator: J Perlwitz (Rapporteur: T Shaw)
- Poster Introduction

**4:00-6:00pm Poster Session 1 (with food and drinks)**

**6:15pm Shuttle pick-up from NOAA**

## Thu 4 November 2010

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**7:55am Pickup at Millennium hotel**

**8:30 - 10:30am - Decadal and Centennial Time Scales 1 - Chair: D Waugh**

- **8:30** Climate Change and Stratosphere-Troposphere Interaction - A Scaife
- Status and Plans of CMIP5 runs with High Top Models:
  - **9:00** CMCC, IPSL and MPI – C Cagnazzo et al
  - **9:30** The GFDL CM3 simulations: Results of a climate model including something for everyone – J Austin et al
  - **9:50** MIROC-ESM: CMIP5 runs and QBO analysis – S Watanabe and Y Kawatani
  - **10:10** WACCM – A Smith

**10:30 – 11:00am Coffee/Tea Break**

**11:00 - 12:20am – Decadal and Centennial Time Scales 2 - Chair: M Sigmond**

- Status and Plans of CMIP5 runs with high top models:
  - **11:00** The EC-Earth high-top simulation in CMIP5 – S Yang and B Christiansen

- 11:20 GEOS – S Pawson
- 11:40 METO&UK Universities – S Hardiman
- 12:00 Current status of MRI models for the CMIP5 simulation – K Shibata and S Yukimoto

**12:20am – 1:00pm – Decadal and Centennial Time Scales 3 - Chair: C Cagnazzo**

- 12:20 Role of Ozone Depletion and Recovery on the SH jet and tropospheric climate using WACCM4 simulations – N Calvo et al
- 12:40 Effects of stratospheric ozone depletion and increasing greenhouse gases on the Southern Ocean and Antarctic sea ice trends – M Sigmond et al

**1:00- 2:00pm Lunch at NOAA**

**2:00 – 4:00pm – Discussion - Chair: E Manzini**

- 2:00 Assessment of CMIP5 high top models and runs - Moderator: F Sassi (Rapporteur: N Calvo)
- 3:00 Analysis of stratosphere – troposphere connections in CMIP5 runs - Moderator: E Manzini (Rapporteur: E Gerber)

**4-5:30pm - Poster Session 2 (with coffee and light appetizers)**

**5:45pm Shuttle pickup from NOAA**

**6:30pm Workshop Dinner**

**Fri 5 November 2010**

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**7:55am Pickup at Millennium hotel**

**8:30 - 10:30am: The stratosphere in the Earth System - Chair: T Reichler**

- 8:30 Decadal changes in stratosphere-troposphere downward wave coupling in the Southern Hemisphere and the role of ozone changes – N Harnik et al
- 8:50 Stratospheric impacts on the North Atlantic Ocean circulation – J Kim et al
- 9:10 Abrupt circulation responses of the stratosphere-troposphere coupled system to climate change-like forcing in a relatively simple AGCM - S Wang et al
- 9:30 Impact of Stratospheric Dynamics on Global Tropopause Structure - T Birner
- 9:50 The vertical profile of final warmings in the Northern Hemisphere – S Hardiman et al
- 10:10 Impacts of the convection parameterization scheme on the Stratospheric Equatorial waves simulated by the GCM LMDz - P Maury and F Lott

**10:30 – 11:00am Coffee/Tea Break**

**11:00am – 1:00 pm – Reports and Forward Look - Chair: F Sassi**

- 11:00 Report and discussion on *Diagnostics of S-T coupling*: T Shaw and J Perlwitz
- 11:30 Report and discussion on *Assessment of CMIP5 high top models and runs*: N Calvo and M Giorgetta
- 12:00 Report and discussion on *Analysis of Stratosphere – troposphere connections in CMIP5 runs*: E Gerber and L Polvani
- 12:30 Forward Look: *Plan to establish a SPARC-CLIVAR connection focused on the role of the stratosphere on weather and climate predictability, including future meeting/workshop schedules* - M Baldwin and E Manzini
- Closure

**POSTER PRESENTATIONS:** Poster will be up all time. Presenters are expected to be available at the poster on the specified day.

**Poster Session 1: We 3 November 2010**

- 1. Pathways for Communicating Changes in Stratospheric Ozone to the Arctic Polar Vortex: Role of Zonally Asymmetric Ozone** - Albers, John R. and Terrence R. Nathan
- 2. An intercomparison of observations and global models to assess gravity wave effects on circulation** - Alexander, M. J., J. Bacmeister, S. Eckermann, M. Ern, M. Geller, A. Hertzog, T. Horinouchi, P. Love, E. Manzini, P. Preusse, K. Sato, A. Scaife, B. Vincent, C. Wright
- 3. Quasi-biennial oscillations in an atmospheric general circulation model** - Anstey, James, John Scinocca, and Martin Keller
- 4. Stratospheric communication of ENSO teleconnection in European winter** - Bell, Chris J. and Lesley J. Gray
- 5. The Northern Annular Mode and large volcanic eruptions: a tropospheric/stratospheric mechanism?** - Bozzo, A., S.F.B. Tett, and G. Hegerl
- 6. The Brewer-Dobson Circulation in a changing climate** - Bunzel, Felix
- 7. Evaluation of the Stratosphere in the Climate Forecast System (CFS)** - Butler, Amy H., Craig Long, and Judith Perlwitz
- 8. Solar signal propagation: The role of gravity waves and stratospheric sudden warmings** - Cnossen, I., H. Lu, C.J. Bell, L.J. Gray and M.M. Joshi
- 9. Radiative heating/cooling variations due to solar activity changes of spectral irradiance** - Fontenla, J. and G. Anderson
- 10. Impact of changes in transport on future Antarctic ozone** - Garny, H., M. Dameris, V. Grewe and G. E. Bodeker
- 11. Tropospheric vs. Stratospheric Control of the Brewer Dobson Circulation** - Gerber, Edwin P.
- 12. Radiative-Photochemical Damping of Equatorial Waves in the Middle Atmosphere** - Grogan, Dustin, Terrence Nathan, Eugene Cordero and Robert Echols
- 13. The dynamical origin of long time scales in the Arctic lower stratosphere** - Hitchcock, Peter, Theodore Shepherd, Shigeo Yoden, Shunsuke Noguchi and Masakazu Taguchi
- 14. Can the GEOS CCM Simulate the Temperature Response to Warm Pool El Niño Events in the Antarctic Stratosphere?** - Hurwitz, M.M., I.-S. Song, L.D. Oman, P.A. Newman, A.M. Molod, S.M. Frith and J.E. Nielsen
- 15. Stratospheric circulation in seasonal forecasting models: implications for seasonal prediction** - Maycock, Amanda C., Sarah P.E. Keeley, Andrew J. Charlton-Perez and Francisco Doblas-Reyes

**Poster Session 2: Th 4 November 2010**

- 16. Predictability of the stratospheric sudden warming and its impact on the tropospheric climate in January 2009 - Comparison with the warmings of 2004 and 2006** - Kuroda, Yuhji
- 17. Could changes in stratospheric water vapour influence regional surface climate?** - Maycock, Amanda C., Manoj M. Joshi, Keith P. Shine and Adam A. Scaife
- 18. Sources of Annular Mode timescales** - Mudryk and Kushner
- 19. When chaos rules: evidence against a stochastic description of Northern Annular Mode high frequency variability** - Osprey, Scott and Maarten Ambaum
- 20. Diagnosis of stratospheric contribution to Northern Hemisphere wintertime variability using nudging AGCM experiments** - Ouzeau, G., H. Douville and D. Saint- Martin
- 21. A dynamical mechanism for recent Southern Hemisphere Climate Change** - Orr, Andrew, Tom Bracegirdle, Scott Hoskings, Thomas Jung, Joanna Haigh, and Tony Phillips
- 22. On the relationship between stratospheric resolution, annular mode persistence, and tropospheric climate change** - Reichler, Thomas, Paul Staten, and Junsu Kim
- 23. Evaluation of downward wave coupling in the GEOS CCM Version I** - Shaw, Tiffany A, Judith Perlwitz and Nili Harnik
- 24. Projection of future behavior of the quasi-biennial oscillation in the tropical stratosphere under the greenhouse gas increase** - Shibata, Kiyotaka and Makoto Deushi
- 25. The response of the tropical lower stratosphere to ENSO** - Simpson, Isla, R., Theodore G. Shepherd and Michael Sigmond
- 26. The role of transient tropospheric forcing in stochastic low-order models of sudden stratospheric warmings** - Sjoberg, Jeremiah P. and Thomas Birner
- 27. Why can't climate models capture the observed connection between seasonal snow cover and the Northern Annular Mode?** - Smith, Karen L., Paul J. Kushner, Judah Cohen, Christopher G. Fletcher
- 28. Mesosphere-Stratosphere-Troposphere transport during and after a Major Stratospheric Sudden Warming in WACCM** - Stordal, Frode, Ole-Kristian Kvissel, Yvan J. Orsolini, Varavut Limpasuvan, and Jadwiga Richter
- 29. Observed connection of the stratospheric quasi-biennial oscillation with El Niño-Southern Oscillation in radiosonde data** - Taguchi, Masakazu
- 30. Controls by the Zonal Mean Circulation on the Stationary Wave Response to Climate Change** - Wang, Lei and Paul J. Kushner