



## IGAC/SPARC Chemistry-Climate Model Initiative (CCMI) 2013 Science Workshop

### *Agenda*

**DATES:** May 14-16, 2013

**VENUE:** Center Green, National Center for Atmospheric Research (NCAR), Boulder, USA

**Local Organizing Committee (LOC):** *Andrew Gettelman, Christy Edwards, and Jean-Francois Lamarque (NCAR, US)*

**Scientific Organizing Committee (SOC):** *Veronika Eyring (DLR, Germany), Jean-Francois Lamarque (NCAR, US), Stephan Bojinski (WMO Space Programme, Switzerland), Irene Cionni (ENEA, Italy), Bryan Duncan (NASA, US), Arlene Fiore (LDEO/Columbia University, US), Andrew Gettelman (NCAR, US), Michaela Hegglin (University of Reading, UK), Peter Hess (Cornell University, US), Hong Liao (Chinese Academy of Sciences, China), Gunnar Myhre (CICERO, Norway), Tatsuya Nagashima (NIES; Japan), Keywan Riahi (IIASA, Austria), Tom Ryerson (NOAA, US), Ted Shepherd (University of Reading, UK), Drew Shindell (NASA, US), Darryn Waugh (JHU, US), Paul Young (Lancaster University, UK)*

**Workshop Structure and Format:** The workshop will consist of a combination of invited talks, contributed talks and posters. We aim to provide ample time for discussions to foster further development in research themes and the use of new observations for model evaluation. Transport between the hotels and the meeting venue will be provided. Participants will be provided a catered lunch, and morning and afternoon break refreshments. There will be a catered poster session and reception on Tuesday evening, and a group dinner on Thursday evening. The group dinner is not included in the registration fee.

### **Session overview:**

Session 1: Introduction (Chair: D. Shindell)

Session 2: Observations for model evaluation (Chair: V. Eyring)

Session 3: CCMI Hindcast simulation: observations, modeling & analysis (Chairs: P. Hess/P. Young)

Session 4: Status by modeling groups (Chair: J.-F. Lamarque)

Session 5: VLSL and tropospheric OH (Chair: A. Fiore)

Session 6: Stratosphere-troposphere coupling (Chairs: T. Shepherd/A. Gettelman)

Session 7: Stratospheric chemistry and dynamics (Chair: D. Waugh)

## Tuesday:

**08:00-9:00 Registration**

### Session 1. Opening Session

*Chair: D. Shindell*

09:00-09:15	Welcome	W. Randel
09:15-09:45	Goals of the workshop	JF Lamarque
09:45-10:00	SPARC scientific perspective	J. Alexander / G. Bodeker
10:00-10:15	IGAC scientific perspective	A. Goldstein
10:15-10:30	WMO/UNEP Scientific Ozone Assessment	P. Newman

**10:30-11:00 Coffee Break**

### Session 2. Observations for model evaluation

*Chair: V. Eyring*

11:00-11:15	Overview and Status CCMI Expert Group "Stratospheric Satellite Data for Model Evaluation"	M. Hegglin
11:15-11:30	Overview and Status CCMI "Expert Group Tropospheric Satellite Data for Model Evaluation"	B. Duncan
11:30-11:45	Overview and Status CCMI "Expert Group Aircraft Observations for Model Evaluation"	T. Ryerson
11:45-12:00	HALO aircraft observations from 80°N to 65°S for Earth System Model Validation (ESMVal)	H. Schlager
12:00-12:15	AeroCom/HIPPO: comparison of black carbon vertical concentration profiles	J. Schwartz
12:15-12:30	Model Evaluation with Aircraft Campaign Data: Examples from the POLARCAT Model Intercomparison Project (POLMIP)	L. Emmons

**12:30-13:30 Lunch**

### Session 3. CCMI Hindcast simulation: Forcings, analysis, and diagnostics

*Chair: P. Hess*

13:30-13:45	Overview of REF-C1 and REF-C1SD	P. Hess/ P. Young
13:45-14:00	Access to Emissions Distributions and Related Ancillary Data through the ECCAD database	C. Granier
14:00-14:15	Preparation and evaluation of global biogenic VOC emission inventory using the MEGAN model	K. Zemankova

14:15-14:30	Long term (1960 - 2011) record of stratospheric aerosol: microphysical and radiative properties	F. Arfeuille
14:30-14:45	Timescales for Tropospheric Transport: Observations and Simulations	D. Waugh
14:45-15:00	Chemical accounting in the troposphere: How many reaction fluxes do you need?	A. Archibald

**15:00-15:30 Coffee Break**

#### **Session 4. Status by modeling groups**

*Chair: J.-F. Lamarque*

15:30-16:30	Status by modeling groups	
16:30-17:00	Discussion on REF-C1 and REF-C1SD	

**17:00-19:30 Poster session and reception**

**Wednesday:**

#### **Session 3. CCMi Hindcast simulation: Forcings, analysis, and diagnostics continued...**

*Chair: P. Young*

09:00-9:15	Global surface ozone trends, a synthesis of recently published findings	O. Cooper
09:15-9:30	Long-term stratospheric data records from the GOZCARDS project and preliminary comparisons versus models	L. Froidevaux
09:30-9:45	Validation methodology for the MACC reanalysis of atmospheric composition	V. Huijnen
09:45-10:00	CCMI Hindcast simulation: Forcings, analysis, and diagnostics	I. Bouarar
10:00-10:15	Interannual variability and trends in ozone measured by MOZAIC/IAGOS aircraft	H. Clark
10:15-10:30	Using satellite observations and models to understand processes in the composition-climate system: some examples	A. Voulgarakis

**10:30-11:00 Coffee Break**

#### **Session 5: VLSL and tropospheric OH**

*Chair: A. Fiore*

11:00-11:15	VLSL modeling	A. Saiz-Lopez
11:15-11:30	Constraining the hydroxyl interhemispheric gradient	P. Patra
11:30-11:45	Evaluating Tropospheric OH within CCMs	R. Salawitch

11:45-12:00	Implications of CO Bias for Ozone and Methane Lifetime in a CCM	S. Strode
12:00-12:15	Future CH <sub>4</sub> , OH, and uncertainties: climate & emission parameters for future predictions	M. Prather
12:15-12:30	Factors controlling the oxidative capacity of the troposphere since the Last Glacial Maximum	L. Murray

**12:30-13:30 Lunch (includes ECCAD discussion)**

**Session 6: Stratospheric-tropospheric coupling**

*Chair: T. Shepherd*

13:30-13:45	On the control of the residual circulation and stratospheric temperatures in the Arctic by planetary wave reflection	J. Perlwitz
13:45-14:00	The interaction between stratospheric sudden warmings and northern hemisphere extratropical ozone concentrations	S. Hardiman
14:00-14:15	Connections between the Spring Breakup of the Southern Hemisphere Polar Vortex, Stationary Waves, and Air-Sea Roughness	C. Garfinkel
14:15-14:30	Tropospheric Ozone Variations Governed by ENSO-Driven Changes in the Stratospheric Circulation: A Predictor of the Long-Term Response?	J. Neu
14:30-14:45	Long-term trend and interannual variations in the stratospheric ozone influx: Impact on tropospheric ozone	Q. Tang
14:45-15:00	Surface ozone variability and the jet position: Implications for projecting future air quality	E. Barnes

**15:00-15:30 Coffee break**

*Chair: A. Gettelman*

15:30-15:45	Climatology and Variability of Upper Tropospheric/Lower Stratospheric Jets from Reanalyses and Relevance to Climate Model Assessment	G. Manney
15:45-16:00	Analysis of the Formation, Recent Variability and Potential Impacts on Climate for the Tropopause Inversion Layer	W. Wang
16:00-16:15	Contribution of dynamical variability to ozone trends in the upper troposphere/lower stratosphere deduced from reanalysis-driven CMAM simulations	D. Plummer
16:15-16:30	Seasonality in Future Tropical Lower Stratospheric Temperature Trends	L. Wang
16:30-16:45	Atmospheric Composition and Asian Summer Monsoon	L. Pan
16:45-17:00	Convective Transport across the Tropopause and its Impact on Chemistry and Climate	C. Homeyer

**17:00-18:00**      **Poster session**

**18:00**              **Adjourn**

**Thursday:**

**Session 7. Stratospheric chemistry and dynamics**

*Chair: D. Waugh*

09:00-09:15	Lifetimes of Stratospheric Removal Species: CCM Results from SPARC Assessment	M. Chipperfield
09:15-09:30	Stratospheric water vapor in coupled models: implications for feedback processes	R. Portmann
09:30-09:45	Analysis of the stratospheric water vapor feedback in CCMs	A. Dessler
09:45-10:00	Evaluation of Polar Chemical Processes in WACCM	D. Kinnison
10:00-10:15	Improving Antarctic total ozone projections by a process-oriented multiple diagnostic ensemble regression	A. Karpechko
10:15-10:30	Stratospheric and tropospheric effects of solar activity in CCMVal-2 model simulations	K. Tourpali

**10:30-11:00**      **Coffee Break**

**11:00-12:30** Parallel working groups

1. Simulations (protocols/CMOR/additional simulations)
2. Observations for model evaluation and analysis

**12:30-13:30**      **Lunch**

**13:30-15:00** Parallel working groups

1. Process oriented diagnostics: chemistry
2. Process oriented diagnostics: transport and dynamics

**15:00-15:30**      **Coffee Break**

**15:30-17:00** Summary of working groups (10-20 min total) & Final discussion (timeline)

**17:00**              **Adjourn**

**17:30**              **Departure to Conference dinner (Chautauqua Dining Hall)**