

**SPARC Data Assimilation (DA) Workshop
and
SPARC Reanalysis Intercomparison Project (S-RIP) Workshop-**

*October 17-21, 2016
Victoria, BC, Canada*

Monday, October 17, 2016: SPARC DA workshop

0830-0900 **Arrival, registration, coffee and muffins**

0900-0920 James Anstey and Quentin Errera: Greetings and Introduction

Theme - Representation of the stratosphere-mesosphere in models and analyses

Chair: Simon Chabrillat and TBD

0920-1005 David Kuhl (**invited**): Middle Atmosphere Operational Data Assimilation with the Use of Ensembles

1005-1035 John McCormack: Analysis and Validation of Winds from High Altitude Meteorological Analyses during Northern Hemisphere winters of 2009-2010 and 2012-2013

1035-1105 **BREAK**

1105-1135 Steven Eckermann: Modification and Application of the Navy Global Environmental Model (NAVGEM) to Generate High-Altitude (0-100 km) Global Atmospheric Reanalyses of the 2014 Austral Winter for the Deep Propagating Gravity Wave Experiment (DEEPWAVE)

1135-1205 Quentin Errera: Evaluation of the BASCOE CTM using data assimilation

1205-1235 Yvan Orsolini: Energetic Particle Precipitation In The Mesosphere-Lower Thermosphere In WACCM

1235-1345 **LUNCH**

1345-1430 Martin Charron (**invited** & remotely): Recent developments on the Canadian GEM weather prediction model: grid, transport, and interactive ozone

1430-1450 All: Discussion around the theme (led by Simon Chabrillat)

Theme - Future directions (instruments, modelling, DA methods)

Chair: John McCormack

1450-1535 Nick Pedatella (**invited**): Ensemble Data Assimilation in the Whole Atmosphere Community Climate Model

1535-1605 **BREAK**

1605-1650 Emmanuel Dekemper (**invited**): The ALTIUS mission: status and expected performance of O₃, NO₂ and aerosols limb measurements

1650-1720 Moudi Igri: Main weather associated with ITCZ position as simulated by WRF-3DVar data assimilation system over West and Central Africa

1720-1740 All: Discussion around the theme (led by John McCormack)

1740 **Adjourn**

Tuesday, October 18, 2016: SPARC DA workshop

0830-0900 **Arrival, registration, coffee and muffins**

Theme - Harmonization of long-term data record and bias correction in data assimilation

Chair: Kris Wargan

0900-0945 David Plummer (**invited**): The use of re-analysis datasets to constrain the atmospheric dynamics in long-term chemistry-climate simulations

0945-1015 Gloria Manney: The MUSTARD project

1015-1045 Gabi Stiller (**invited**): The SPARC WATER Vapour ASsessment (WAVAS) activity, phase II: Overview and status

1045-1115 **BREAK**

1115-1200 Thomas von Clarmann (**invited**): The TUNER project (Towards Unified Error Propagation)

1200-1220 All: Discussion around the theme (led by Kris Wargan)

1220-1240 Quentin Errera: Discussion on future directions of SPARC DAWG, next year's workshop, etc.

1240 **Adjourn**

1530-1830 Group activity (whale watching tour)

Wednesday, October 19, 2016: SPARC DA/S-RIP joint session

0830-0900 **Arrival, registration, coffee and muffins**

0900-0905 James Anstey: Welcome, Local Info

Chair: Quentin Errera

0905-0920 Masatomo Fujiwara: Greetings and S-RIP Introduction

0920-0950 Jonathon Wright (**invited**): Chapter 2 + ACP special issue + S-RIP 2016 Report Status

0950-1020 Craig Long (**invited**): Chapter 3 summary

1020-1030 All: Chapter 3 Discussion (led by Craig Long)

1030-1115 **POSTERS**

Chair: Masatomo Fujiwara

1115-1145 Sean Davis (**invited**): Chapter 4 summary

1145-1155 All: Chapter 4 Discussion (led by Sean Davis)

1155-1220 Kris Wargan (**invited**): NASA updates

1220-1245 Rosana Dragani (**invited**): ECMWF updates

1245-1415 **LUNCH**

Chair: Gloria Manney

1415-1440 Craig Long (**invited**): NOAA updates

1440-1505 Yayoi Harada (**invited**): JRA updates

1505-1525 Toshiki Iwasaki: Impacts of low-level polar cold air outbreaks on Brewer-Dobson circulations

1525-1555 Paul Konopka (**invited**): How robust are stratospheric H₂O trends derived from different re-analysis products?

1555-1625 **BREAK**

Chair: Lesley Grey

1625-1645 Thomas von Clarmann: Another Approach to the Brewer-Dobson Circulation: The Direct Inversion of the Continuity Equation

1645-1705 Tianbao Zhao: Evaluation of atmospheric precipitable water from reanalysis products using homogenized radiosonde observations over China

1705-1735 Tao Wang (**invited**): Lagrangian cold point temperatures and transit time inferred from a forward trajectory model

1735-1805 Peter Hitchcock (**invited**): Evaluating reanalyses prior to 1979 for studies of stratosphere-troposphere coupling

18:05 **Adjourn & Workshop Dinner**

Thursday, October 20, 2016: S-RIP workshop

0830-0900 **Arrival, registration, coffee and muffins**

Chapter 9: Thomas Birner (Chair); Luis Millan Valle and Tao Wang (Rapporteurs).

0900-0920 James Anstey, Lesley Gray: Chapter 9 Overview

0920-0945 Young-Ha Kim: Tropical stratospheric wave activity and forcing of the QBO in reanalyses

0945-1010 Kevin Hamilton: Representation of the Tropical Stratospheric Zonal Wind in Global Atmospheric Reanalyses

1010-1025 Anstey / Gray / All: Chapter 9 Discussion

1025-1110 **POSTERS**

Chapter 10: Thomas Birner (Chair); Alex Boothe and Peter Hitchcock (Rapporteurs).

1110-1130 Michelle Santee: Chapter 10 Overview

1130-1155 Zachary Lawrence: An Update on Reanalysis Intercomparisons of Polar Processing Diagnostics

1155-1220 Alyn Lambert (presented by Michelle Santee): Investigation of reanalysis temperatures associated with Polar Stratospheric Cloud (PSC) formation: Can the thermodynamics of supercooled ternary solutions and the ice frost point be used to provide an absolute temperature reference for reanalysis data in the polar regions?

1220-1235 Santee / All: Chapter 10 Discussion

1235-1405 **LUNCH**

Chapter 11: Thomas von Clarmann (Chair); Patrick Martineau and Shunsuke Noguchi (Rapporteurs).

1405-1425 Lynn Harvey: Chapter 11 Overview

1425-1450 Takatoshi Sakazaki: Intercomparison of atmospheric tides in the stratosphere and lower mesosphere

1450-1515 Toshihiko Hirooka: Climatology and interannual variability of the equatorial semiannual oscillation

1515-1530 Harvey / All: Chapter 11 Discussion

1530-1600 **BREAK**

Chapter 5: Thomas von Clarmann (Chair); Lynn Harvey and Yvan Orsolini (Rapporteurs).

1600-1620 Thomas Birner and Beatriz Monge-Sanz: Chapter 5 Overview

1620-1645 Gabi Stiller: Decadal changes in age of air and trace gases and their link to stratospheric circulation changes

1645-1710 Simon Chabrillat: Comparing the mean age of air in 4 modern reanalyses through offline modelling of SF6 transport

1710-1725 Birner / Monge-Sanz / All: Chapter 5 Discussion

1725-1755 General S-RIP Discussion (raise pre-planned general topics; additional topics arising during Workshop)

17:55 **Adjourn**

Friday, October 21, 2016: S-RIP workshop

0830-0900 **Arrival, registration, coffee and muffins**

Chapter 8: Paul Konopka (Chair); Yayoi Harada and Kris Wargan (Rapporteurs).

0900-0920 Susann Tegtmeier: Chapter 8 Overview

0920-0945 Jonathon Wright: An evaluation and intercomparison of tropical high clouds in reanalyses

Chapter 7: Paul Konopka (Chair); Chiaki Kobayashi and Gabi Stiller (Rapporteurs).

0945-1005 Gloria Manney: Chapter 7 Overview

1005-1050 **POSTERS**

1050-1115 Luis Millan Valle: Low ozone events in satellite data and reanalyses

Joint Chapter 7 & 8 Talks: Paul Konopka (Chair); Chiaki Kobayashi and Gabi Stiller (Rapporteurs).

1115-1140 Alex Boothe: Global large-scale stratosphere-troposphere exchange in modern reanalyses

1140-1205 Gloria Manney: Trends and Variability in Upper Tropospheric Jets in Reanalyses

1205-1220 Tegtmeier / All: Chapter 8 Discussion

1220-1235 Manney / All: Chapter 7 Discussion

1235-1405 **LUNCH**

Chapter 6: Michelle Santee (Chair); Zachary Lawrence and David Plummer (Rapporteurs).

1405-1425 Patrick Martineau: Chapter 6 Overview

1425-1450 Patrick Martineau: A comparison of the momentum budget in reanalysis datasets during sudden stratospheric warming events

1450-1505 Martineau / All: Chapter 6 Discussion

1505-1550 **BREAK**

1550-1635 S-RIP Chapter Summary Discussion (Brief review by chapter co-leads, with input from rapporteurs; summarize outstanding issues, status)

1635-1735 General Discussion (continued from Thurs if needed; summarize discussion results, outstanding issues)

17:35 **Adjourn**

Posters

Poster boards will be available during the whole week and we invite participants to display their poster during their stay.

The poster session will be held on Wednesday during the morning break.

Sean Davis: The Stratospheric Water and Ozone Satellite Homogenized (SWOOSH) database: A long-term database for climate studies

Chiaki Kobayashi: Changes in the Brewer-Dobson Circulation in JRA-55

Zachary Lawrence: Using CAVE-ART to characterize and track the evolution of stratospheric polar vortices

Shunsuke Noguchi: On the Reproducibility of the September 2002 Vortex Splitting Event in the Antarctic Stratosphere Achieved by Conventional Observations Only

Kazutoshi Sagi (presented by Yvan Orsolini): Two mechanisms of stratospheric ozone loss in the Northern hemisphere, studied using data assimilation of Odin/SMR atmospheric observations

Takatoshi Sakazaki: Radiative inconsistency in the extra-tropical upper troposphere and lower stratosphere due to water vapor seen in chemistry climate models

Chunxiang Shi: CMA 40-year Reanalysis (CRA-40) Plan & Progress

Jingwei Liu: Verification and evaluation of the preliminary experimental Chinese reanalysis products

Yvan Orsolini: Duration and decay of extreme vortex events in the polar stratosphere: comparison of the ECMWF seasonal forecast model with re-analyses