

The logo for S-RIP features the letters 'S' and 'RIP' in a stylized, handwritten font. The 'S' is on the left, followed by a dot, and then 'RIP' on the right. Each letter has a small red dot above it.

SPARC ●
Reanalysis
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Joint Session of S-RIP 2016 Workshop & SPARC DA Workshop - Greetings and S-RIP Introduction -

Masatomo Fujiwara (Hokkaido Univ., Japan),
Gloria Manney (NWRA, USA), Lesley Gray (Oxford Univ., UK),
Quentin Errera (BIRA-IASB, Belgium), and
James Anstey (ECCC, Canada)
Victoria, Canada, 19-21 October 2016

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- S-RIP is a coordinated activity to:
 - Create **a communication platform** between the SPARC community (middle atmosphere, UTLS, etc.) and the reanalysis centres
 - Understand current reanalysis products and to contribute to future reanalysis improvements in the middle atmosphere region (including UTLS, strato-tropo coupling, etc.)
 - Write up the results of the reanalysis intercomparison in **peer reviewed papers** and **two SPARC reports**
- S-RIP “interim” Report (2016), for the basic chapters
- S-RIP “full” Report (2018), for all chapters

Chapters of the S-RIP Report

	Chapter Title	Chapter Co-leads
1	Introduction	Masatomo Fujiwara, Gloria Manney, Lesley Gray
2	Description of the Reanalysis Systems	Jonathon Wright, Masatomo Fujiwara, Craig Long
3	Climatology and Interannual Variability of Dynamical Variables	Craig Long, Masatomo Fujiwara
4	Climatology and Interannual Variability of Ozone and Water Vapour	Michaela Hegglin, Sean Davis
5	Brewer-Dobson Circulation	Thomas Birner, Beatriz Monge-Sanz
6	Stratosphere-Troposphere Coupling	Edwin Gerber, Patrick Martineau
7	Extratropical UTLS	Cameron Homeyer, Gloria Manney
8	Tropical Tropopause Layer	Susann Tegtmeier, Kirstin Krüger
9	QBO and Tropical Variability	James Anstey, Lesley Gray
10	Polar Processes	Michelle Santee, Alyn Lambert, Gloria Manney
11	Upper Strato. Lower Mesosphere	Lynn Harvey, John Knox
12	Synthesis Summary	Fujiwara, Manney, Gray

Chapters 1-4: Basic chapters

Chapters 5-11: Advanced chapters

Global Atmospheric Reanalysis Data Sets

Reanalysis Centre	Products	Contacts for S-RIP
ECMWF	ERA-40, ERA-Interim, ERA-20C, [ERA5]	Rossana Dragani
JMA (& CRIEPI)	JRA-25/JCDAS, JRA-55	Yayoi Harada & Kazutoshi Onogi
NASA	MERRA, MERRA-2	Krzysztof Wargan
NOAA NCEP	NCEP/NCAR (R-1), NCEP/DOE (R-2), NCEP-CFSR	Craig Long & Wesley Ebisuzaki
NOAA & Univ. Colorado	20CR	Gilbert Compo & Jeffrey S. Whitaker

- Focus primarily on newer reanalysis systems that assimilate upper-air measurements
 - ERA-Interim, JRA-55, MERRA, MERRA-2, and CFSR (ERA5 when available)
- Where appropriate, include other reanalyses:
 - long-term, surface-input reanalyses (e.g. NOAA-CIRES 20CR and ERA-20C)
 - older reanalyses (NCEP-NCAR R1, NCEP-DOE R2, ERA-40, and JRA-25/JCDAS)
- The intercomparison period common to all chapters:
 - 1979–2012
 - (Some chapters will also consider the pre-satellite era before 1979 and/or include results for more recent years.)

Progress to Date / Near-future Plan

- June 2011: Discussion started at 8th SPARC Data Assimilation (DA) workshop (Brussels, Belgium)
- February 2012: S-RIP became an *emerging* activity of SPARC
- June 2012: An S-RIP session at 9th SPARC DA workshop (Socorro, NM, USA)

- April-May 2013: S-RIP Planning Meeting (Exeter, UK)
- January 2014: S-RIP officially endorsed by the SSG as a *full* activity of SPARC
- Sep. 2014: S-RIP Workshop with DA WS (College Park, MD, USA)
- Oct. 2015: S-RIP Workshop with DA WS (Paris, France)
- Oct. 2016: S-RIP Workshop with DA WS (Victoria, Canada)

- 2016 (→ early 2017):
 - complete “basic” chapters (Chapters 1-4) → “S-RIP interim Report”
- 2018:
 - complete the whole report (Chapters 1-12)
 - review S-RIP and decide on extension of activity

Progress since Oct. 2015

- New co-leads of the project:
 - Gloria Manney and Lesley Gray (with MF)
- Special Issue in the Atmospheric Chemistry and Physics (ACP):
 - “The SPARC Reanalysis Intercomparison Project (S-RIP)”
 - Editors: Peter Haynes, Gabi Stiller, and William Lahoz
 - 6 (published/discussion) papers
 - Fujiwara, Wright et al. S-RIP introductory paper, with the reanalysis-system description → See Jonathon’s talk
- S-RIP interim Report (Ch. 1-4) → See Jonathon’s talk for the status
- New co-lead of Chapter 11: John Knox (with Lynn Harvey)
- New point of contact for NASA reanalyses: Krzysztof Wargan
- S-RIP related workshops/sessions
 - The reanalysis session at 2015 AGU Fall Meeting
 - SPARC DynVar Workshop and S-RIP Chapters 5 and 6 Meeting (Helsinki, June 2016)
 - SPARC QBO Workshop (Oxford, Sep. 2016)

Agenda for this week

- (Monday & Tuesday: SPARC DA Workshop)
- Wednesday (today): Joint S-RIP – SPARC DA Workshop
 - Presentations on Chapters 1-4 (basic chapters) & Posters
 - Group photo
 - Reanalysis activities updates (NASA, ECMWF, NOAA, JMA)
 - 5 scientific talks
 - Joint workshop dinner
- Thursday: S-RIP 2016 Workshop
 - Presentations on Chapters 9, 10, 11, 5 & related talks
 - General discussion
- Friday: S-RIP 2016 Workshop
 - Presentations on Chapters 8, 7, 6, & related talks
 - General discussion

Requests for Chapter Leads, Rapporteurs, & all colleagues

- **For this workshop, the final chapter review on Friday afternoon will be made by chapter co-leads (not rapporteurs)**
- For chapter co-leads:
 - After meeting with your rapporteurs, please prepare a one-page summary slide for the chapter, which will be used during the chapter review on Friday afternoon.
- For Rapporteurs:
 - Please make notes on the chapter overview, talks, and, especially, discussion
 - **Special notes:**
 - Chapter 5 rapporteurs (Harvey and Orsolini): Please also take notes on Paul Konopka's talk on Wed afternoon.
 - Chapter 6 rapporteurs (Lawrence and Wright): Please also take notes on Peter Hitchcock's talk on Wed afternoon.
 - Chapter 8 rapporteurs (Harada and Wargan): Please take notes on Tao Wang's talk on Wed afternoon, Chapter 8 overview and discussion, and Jonathon Wright's talk.
 - Chapter 7 rapporteurs (Kobayashi and Stiller): Please take notes on Chapter 7 overview and discussion, and Luis Millan Valle's, Alex Boothe's and Gloria Manney's talks.
- More details can be found in “Requests for Chapter Leads, Rapporteurs, & all colleagues (PDF)” at the meeting website, <http://s-rip.ees.hokudai.ac.jp/events/meeting2016/>

Items for *General Discussion*

- Schedule for basic and advanced chapters
- S-RIP 2017 Workshop: Location and time
- Others
 - Requests for the reanalysis centres?
 - Archiving data used in reports
 - Supplementary online information external to chapter

 - Any planned chapter meetings?
 - Chapter 12 (Synthesis summary) contents?

 - Use of REM (Reanalysis Ensemble Mean) vs. selected reanalysis for comparison standard
- Any other items?

Chapter 1: Introduction

- The latest version: Aug. 2016, ready for review
- Based on the S-RIP Implementation Plan (February 2014), with updated information
- Authors:
 - S-RIP co-leads
 - Chapter co-leads
 - All other WG members (incl. some of the past members)

Chapter 1: Introduction

- Contents:
 - 1.1 MOTIVATION AND GOALS
 - 1.2 SCOPE
 - 1.3 OUTLINE PLAN FOR S-RIP REPORTS
 - 1.4 DEVELOPMENT OF THE S-RIP TEAM
 - 1.5 MANAGEMENT AND COMMUNICATION
 - 1.6 LINKS TO OTHER PROJECTS
 - 1.7 PROSPECTS FOR THE FUTURE

 - ACKNOWLEDGMENTS
 - REFERENCES
 - APPENDIX A: LIST OF ACRONYMS (Will be combined)

Available at the S-RIP wiki (S-RIP website → “INTERNAL” → Chapter 1)

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Poster presentations

- 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

mesosphere

11 *USLM*

QBO & tropical variability

Brewer–Dobson circulation

3 *T & winds*

4 *O₃ & H₂O*

stratosphere

10
Polar processes

7 *ExUTLS*

8 *TTL*

troposphere

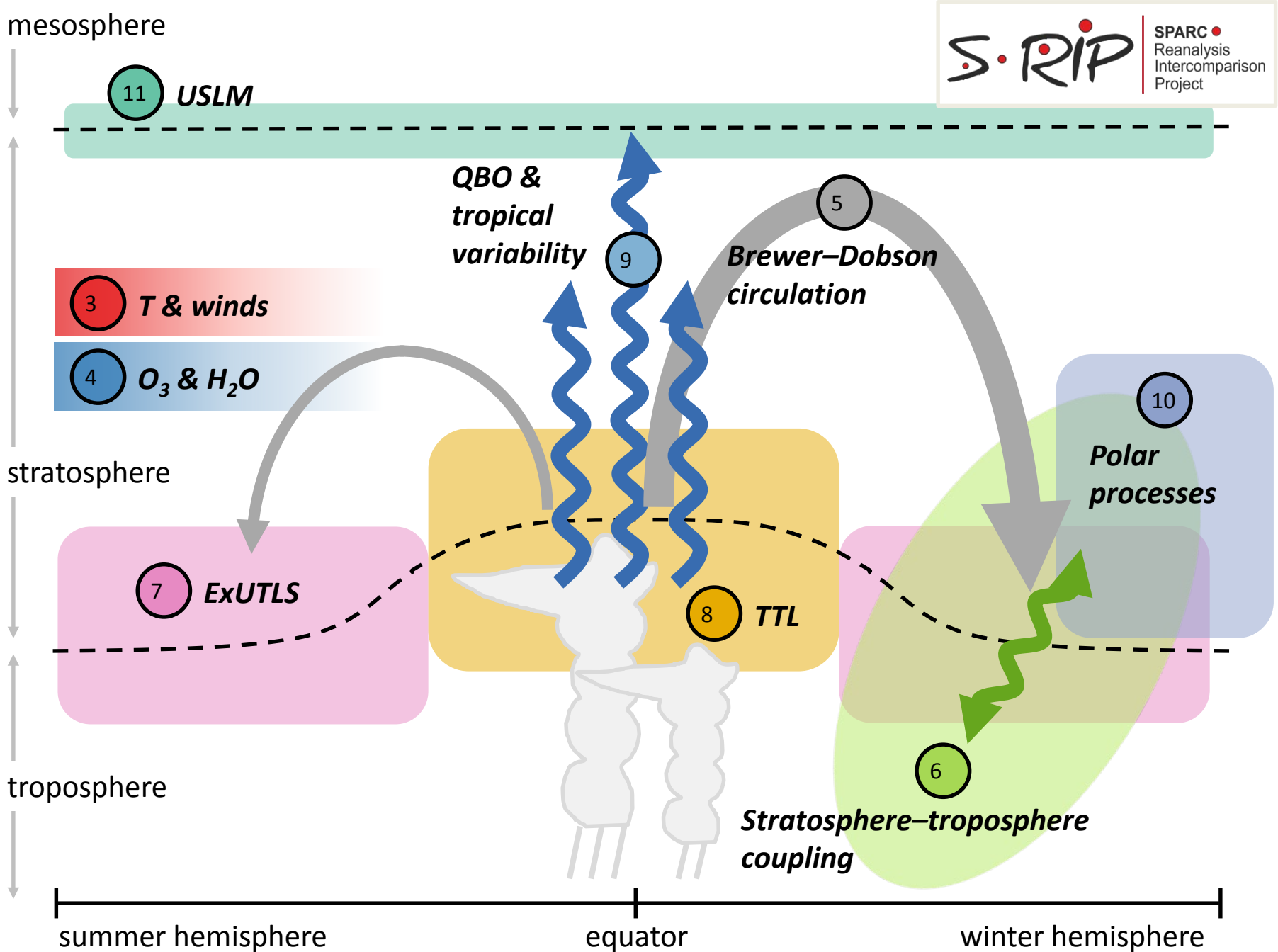
Stratosphere–troposphere coupling

6

summer hemisphere

equator

winter hemisphere



Requests for Chapter Leads, Rapporteurs, & all colleagues

1. For chapter co-leads:
 - Please fill in chapter specific information on the next slide (Key points for discussion), and present at the beginning of the chapter discussion period following each chapter 's presentations, to guide the discussion and help assess which goals have been achieved.
 - After meeting with your rapporteurs, please prepare a one-page summary slide for the chapter, which will be used during the final chapter review discussion on Friday afternoon.
2. For Chapter co-leads and for Oral speakers:
 - Please provide presentation materials to Masatomo at the end of the meeting, and let us know whether they can be posted online (or posted following approval from your institution).
3. For Rapporteurs:
 - Please make notes on the chapter overview, talks, and, especially, discussion for your chapter**.
 - Meet with the Chapter lead(s) from your chapter to provide them with notes on the discussion to put together the chapter summary slide. (Rapporteurs/co-leads from the chapters presenting on Friday can meet during the long afternoon break after chapter presentations are finished.)
 - With your co-rapporteur, produce a single summary of your notes and provide this to the S-RIP co-leads at the end of the Workshop (or immediately following it, ie, within a few days) -- this, along with the presentations materials from the overview talks, will help us write the summary report and SPARC Newsletter article.
 - **Chapter 5 rapporteurs (Harvey and Orsolini): Please also take notes on Paul Konopka's talk on Wed afternoon.
 - **Chapter 6 rapporteurs (Lawrence and Plummer): Please also take notes on Peter Hitchcock's talk on Wed afternoon.
 - **Chapter 8 rapporteurs (Harada and Wargan): Please take notes on Tao Wang's talk on Wed afternoon, Chapter 8 overview and discussion, and Jonathon Wright's talk.
 - **Chapter 7 rapporteurs (Kobayashi and Stiller): Please take notes on Chapter 7 overview and discussion, and Luis Millan Valle's, Alex Boothe's and Gloria Manney's talks.
 - (Chap. 7 & 8 rapporteurs: Your duties are thus somewhat divided, since we have interwoven some material in these two closely linked chapters.)
4. A few items for general discussion are listed on page 3
5. Please send additional ideas to the S-RIP co-leads before the workshop.

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 - **There are special notes for Chapters 5, 6, 7, and 8 rapporteurs
- More details can be found in “Requests for Chapter Leads, Rapporteurs, & all colleagues (PDF)” at the meeting website, <http://s-rip.ees.hokudai.ac.jp/events/meeting2016/>

Key points for discussion

(for chapter co-leads to prepare)

- Updated chapter contributors list
- Structure / Content:
 - Diagnostics list (completed, planned, or in progress) and for each diagnostic:
 - responsible persons
 - status -- e.g., "mature", in progress, in planning (for Chap. 3 & 4, any plans to add diagnostics for 2018 report)
 - are comparisons with observations feasible? If so, what comparisons are being done?
 - coordination with other chapters on areas of potential overlap
- Schedule:
 - Chaps. 1-4: For reviewing updates (Proposal: Review updates in ~6 months; updated draft “nearly complete” by the 2017 workshop, i.e., all diagnostics included, either completed or in progress)
 - Chaps.5-11: Milestones toward goal (Proposal: nearly complete draft by the 2017 workshop)
- Your inputs for Chapter 12 (Synthesis Summary):
 - Key findings; common patterns across the chapters; recommendations for future research and reanalysis development, etc.
- Any Chapter Specific issues:
 - e.g., data gathering/downloading/archiving issues, organization issues, website, BADC workspace, etc.

Items for *General Discussion*

- Archiving data used in reports (many funding agencies increasing requirements for making data public)
- Supplementary online information external to chapter (eg, for a diagnostic that might be calculated at levels throughout the stratosphere, where only one or two could be shown in report, could/should a full set of plots be posted online somewhere?)
- Any planned chapter meetings?
- S-RIP 2017 Workshop: ... (UK?)
- Chapter 12 contents:
 - Key finding for each chapter; common findings across chapters; recommendations for usage, for future research, and for reanalysis development
- Use of REM vs selected reanalysis for comparison standard (different methods may make sense for different diagnostics/chapters)