SPARC Reanalysis Intercomparison Project (S-RIP)
- Introduction -

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SPARC SSG meeting, Boulder, USA, November 2015
Overview of the S-RIP

• The goals of S-RIP are 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 (May 2015 → early 2016), for the basic chapters
• S-RIP “full” Report (May 2018), for all chapters
# Outline Plan for S-RIP Report

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**Chapters 1-4:** Basic chapters  
**Chapters 5-11:** Advanced chapters
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S-RIP: Progress to Date / Schedule

- **June 2011**: Discussion started at 8th SPARC Data Assimilation (DA) workshop, Brussels
- **February 2012**: S-RIP became an *emerging* activity of SPARC
- **Summer 2012**: Scientific Working Group was formed
- **April-May 2013**: S-RIP Planning Meeting (Exeter, UK)
- **January 2014**: S-RIP side meeting; S-RIP Implementation Plan; S-RIP officially endorsed by the SSG as a *full* activity of SPARC
- **September 2014**: S-RIP Workshop (Maryland, USA)
- **October 2015**: S-RIP Workshop (Paris, France)

- **May 2015 → early 2016**:  
  - complete “basic” chapters (Chapters 1-4) → “S-RIP 2015 Report”  
  - complete zero-th order draft for Chapters 5-11 → already done
- **May 2016, May 2017**: Write progress report to SPARC SSG
- **May 2018**:  
  - complete the whole report (Chapters 1-12)  
  - review S-RIP and decide on extension of activity

- S-RIP workshop every year
- Write peer-reviewed papers at any appropriate time
S-RIP 2015 Workshop & 11th SPARC Data Assimilation Workshop
12-16 October 2015, Paris, France
Monthly-mean “common grid” files (Ana4MIPs/CREATE-IP)
- Common horizontal (2.5° x 2.5°), vertical grid (CMIP5+)
- 2 time periods (full, 1979-2013) + 1981-2010 climatology
- u, v, T, Z, O₃, H₂O
- Currently CFSR, ERA-I, JRA-25, JRA-55, and MERRA, Ens. mean
- ftpshare.al.noaa.gov/cgv2; username: srip; password: sparcrip

6-hourly zonal-mean data:
- pressure level, native horiz. Resolution
- u,v,w,t,z, u’v’,v’t’,u’u’,v’v’
- Diagnostics from the zonal-mean momentum equation, TEM equation, EP flux, Simple annular modes
**Goal**: A reference for reanalysis users, esp. SPARC community

- Expect that readers will want to:
  - learn about the structure of a single reanalysis
  - compare / contrast the structures of two or more reanalyses
  - understand more clearly how reanalyses work

Figures courtesy of Jonathon Wright
S-RIP 2016 Report (Ch. 3 – Climatology)

- **Goal**: Assess climatologies of $u$, $v$, $T$
  - In the context of stream/satellite discontinuities
  - “Reanalysis Ensemble Mean” and deviations from it

Figures courtesy of Craig Long
S-RIP 2016 Report (Ch. 4 – H$_2$O & O$_3$)

- **Goal**: Assess climatologies of H$_2$O & O$_3$
  - Document reanalysis treatment of species
  - Compare with independent obs (e.g., SPARC DI, SWOOSH)

Figures courtesy of Michaela Hegglin
Key Outcomes from the S-RIP 2015 Workshop

• New S-RIP co-lead(s)
  – David Tan (ECMWF) stepped down as a co-lead last July
  – We agreed we need to strengthen the "scientific“ aspects of the project toward our 2018 goals
  – Two SPARC senior scientists Gloria Manney and Lesley Gray were recommended (i.e., 3 co-leads in total, including MF)
  – After the WS, MF communicated with all the chapter co-leads and reanalysis-centre contacts via emails to get the consensus.

• S-RIP "2016" interim Report
  – The Chapters 1-4 drafts will be completed by the end of 2015
  – It will take 3-4 months for the reviewing and editing process

• "First draft" for Chapters 5-11 by the next Workshop

• The S-RIP 2016 Workshop
  – At Victoria, Canada (Inn at Laurel Point) during 19-21 October 2016
  – The local organizer is James Anstey now at CCCma
  – Again jointly held with the SPARC Data Assimilation Workshop (17-19 October 2016)
• (Note on the feedback at the SSG meeting)
• It went well. Not too much in the way of feedback, other than that several people voiced support for including the old reanalyses in the intercomparisons.