

Current Implementation Plan for SPARC Data Assimilation Working Group (DAWG)

Overarching goal: Use state-of-the-art data assimilation and reanalyses to address climate issues on a range of timescales.

Near-term objectives: Identify research themes that address this overarching goal and clearly demonstrate how they support current SPARC activities. Develop a 3-year work plan that focuses on delivering concrete results (i.e., peer-reviewed publications, review articles, etc).

Theme 1: Chemical data assimilation (Leader: Sean Davis)

Based on the SRIP successful framework, the idea is to evaluate and inter-compare chemical reanalysis, with representation from other related SPARC activities. Issues that could be addressed include: (1) use chemical reanalysis to estimate drifts in instruments or between instruments; (2) new homogenization/bias correction methodologies for different datasets .

Theme 2: Dynamical reanalyses (Leader: John McCormack)

This theme would most likely act as a follow-on to SRIP, which would tackle aspects not treated by SRIP. Issues that could be addressed include: (1) evaluation of reanalysis in the upper stratosphere/lower mesosphere against observations, which was missing in S-RIP; (2) A evaluation of trends in dynamical variables (temperature, winds, higher order diagnostics such as PV or the residual circulation/BDC); (3) addressing the uncertainties in reanalysis.

Theme 3: Advocate for future limb sounder missions (Leader: Quentin Errera).

Have DAWG serve as a forum within SPARC to promote the use of new limb sounders in SPARC science. Issues that could be addressed: (1) identify the scientific questions that would need a limb sounder; (2) address these questions using data assimilation techniques.