

The background features a large, light blue circular logo for the Scientific Panel on Air Quality and Regional Climate (SPARC). The logo contains a globe and the text 'SPARC' at the top and 'W C R' at the bottom.

The SPARC Data Assimilation Working Group (DAWG)

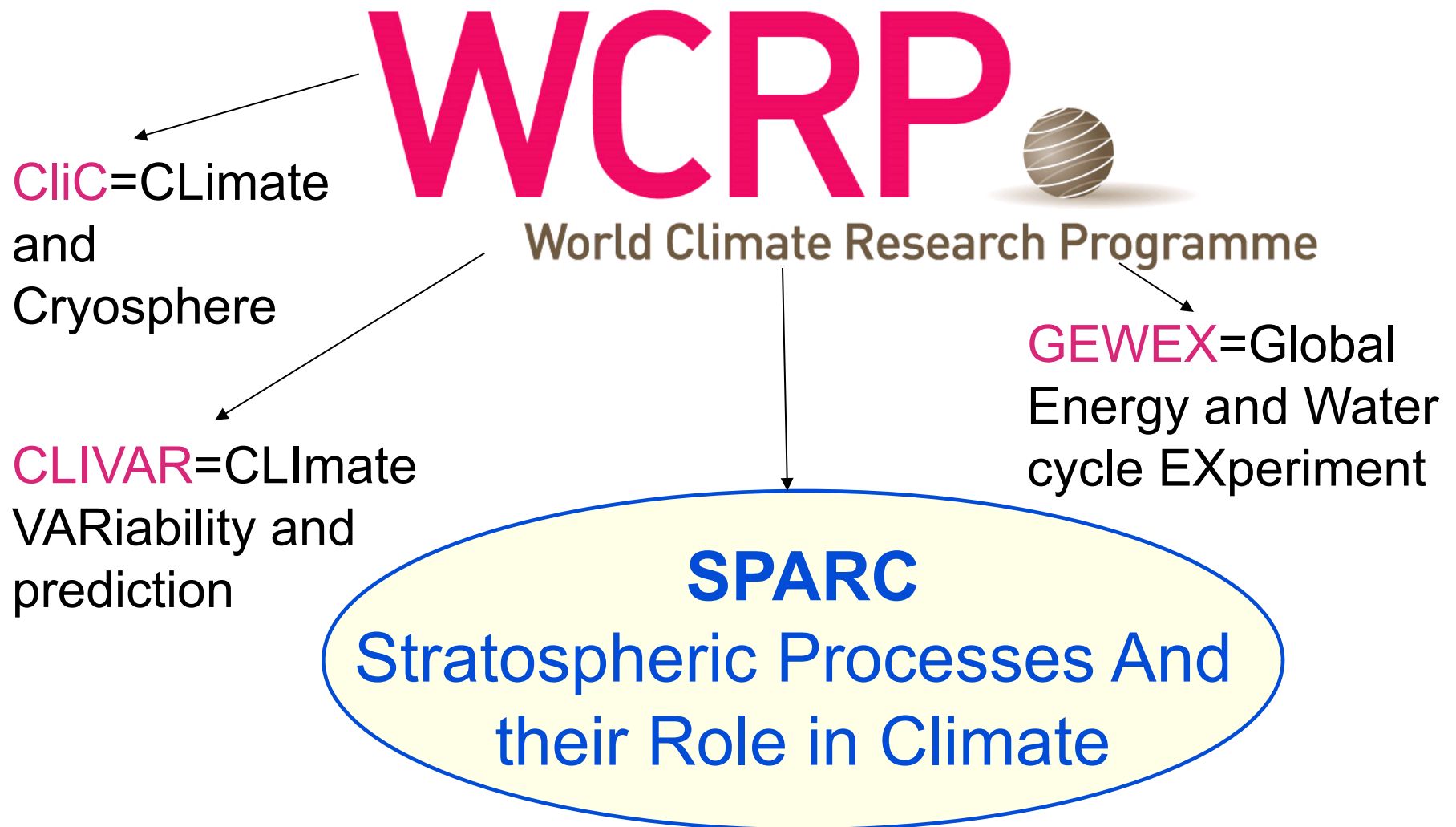
Saroja Polavarapu, Environment Canada

David Jackson, Met Office

SPARC-DA workshop, Brussels, 20 June 2011

The two overarching objectives of the WCRP are:

- *to determine the predictability of climate*
- *to determine the effect of human activities on climate*



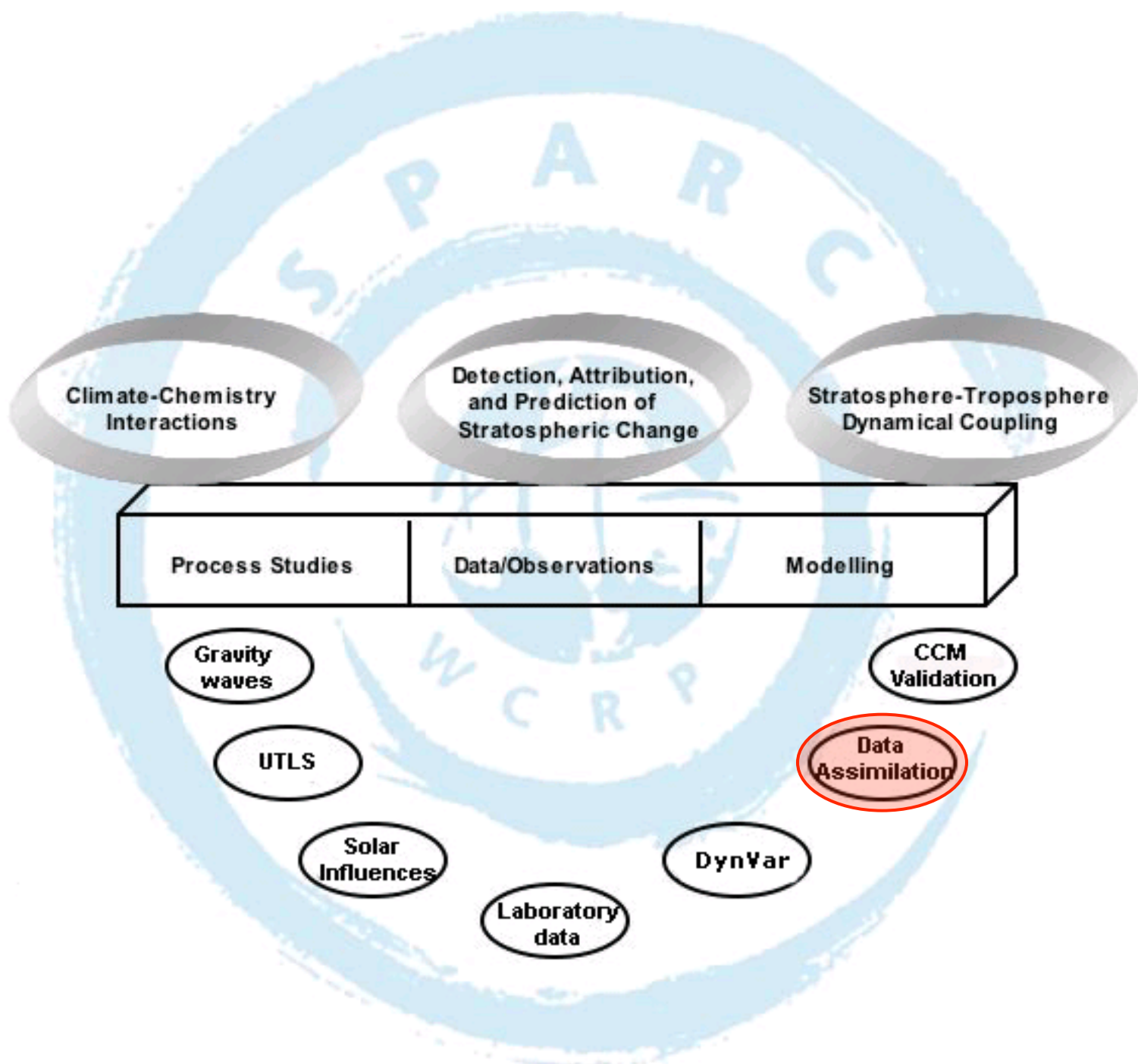
SPARC

Stratospheric Processes And their Role in Climate

<http://www.atmosp.physics.utoronto.ca/SPARC/>

- is a project of the WCRP
- Is led by a Scientific Steering Group, augmented by theme and project leaders
- does not conduct research, or provide any funding
- facilitates research through focused activities with clear outcomes
 - The activity should not duplicate an existing activity
 - The activity can benefit from international coordination
 - Explicitly bringing together different research communities to work on a specific problem is particularly encouraged
- Vehicles: SPARC General Assembly, Workshops, Newsletter, Data Center
- Products: SPARC reports (e.g. water vapour assessment) and review articles





Why is SPARC interested in DA?

- Long term, global data sets for the troposphere and stratosphere, free of artificial trends.
- Guidance for reanalysis efforts e.g. analyses should come with diabatic heating rates from the model
- 3-D velocity fields with reduced data assimilation “noise” (giving spurious transport)
- Improved parameterizations, e.g. gravity-wave drag
- Ozone, tracers and aerosols.
- Improved understanding of UT/LS region.
- Polar processes



SPARC Data Assimilation Working Group: goals

Created in 2002 to coordinate and promote
data assimilation work relevant to SPARC

- Collect information on stratospheric data sets on meteorology and chemistry (quality, availability, software...).
- Process-focused quality assessments.
- Collect and document information in data assimilation systems.
- Liaise with space and other agencies (e.g. GCOS) on SPARC data needs.



How can we achieve these goals?

- Workshops with a theme
 - Invite experts in related areas who normally don't attend SPARC-DA workshops. Connect with user community.
 - Dedicated workshops, special sessions of EGU, etc.
- Preparation of report or review article
 - For SPARC newsletter
 - For general audience, i.e. BAMS
- Intercomparison, or collaborative projects
 - Ozone, e.g. ASSET
 - Transport (age of air, trajectory calc'ns)
 - Water vapour
 - GW body force
 - SPARC-IPY (International Polar Year)
 - GEOSS and GMES projects (PROMOTE II, GEMS, .



What has happened?

- Data Assimilation Working Group meeting – UMBC, USA, **June 2002**
- ASSET/SPARC workshop – Florence, **June 2003**
- ECMWF/SPARC workshop – ECMWF, **June 2003**
- Joint DA/winds workshop – Banff, **Sept. 2005**
- DA workshop – Noordwijk, **Sept. 2006**
- Joint DA/IPY workshop – Toronto, **Sept. 2007**
- No separate workshop in **Sept. 2008** due to SPARC General Assembly in Bologna
- MOCA-09: M01 (Middle Atmosphere), J21 (Data Assimilation) and this session **July 2009**
- Workshop - Exeter **June 2010**
- **Workshop - Brussels June 2011**



Format of SPARC DA Workshop

- Invited speakers in SPARC science to invigorate and broaden discussion and to keep physical perspective
- Long talks with room for discussion
- Scheduled discussions to focus on SPARC science and DA interactions
- Meeting report to identify accomplishments and new goals



This year's themes

- Reanalyses
- Chemical-Dynamical Interaction
- Tropics and observing system needs
- Chemical DA Systems
- Ozone assimilation methodology

Plus discussions on

- Improving SPARC / NWP linkages
- Stratospheric diagnostics
- Future directions of SPARC-DAWG



Reanalyses

- New developments in reanalyses, including those relevant to stratospheric DA
- Evaluation / intercomparison of reanalyses in the stratosphere
- Are users needs being met by the reanalysis providers?



Tropics and observing system needs

- How well are tropical wave activity and tides represented in reanalyses?
- What is the impact of selected observing systems on the representation of the tropics in the reanalyses?
- Assessing the impact of new observing systems – OSSEs and Concordiasi



GOALS of Improving SPARC / NWP Links Discussion

- Stratospheric DA increasingly relevant to NWP
- SPARC wants SPARC DAWG to be a link to the NWP community. Make more of this than currently?
- Proposed joint WGNE-SPARC initiative on examining the impact of the stratosphere on the troposphere in operational NWP. Starting point?



GOALS of Stratosphere Diagnostics Discussion

- to be added?



GOALS of Future Directions of SPARC-DAWG Discussion

- Is SPARC-DA still relevant? If so, how? Is SPARC DAWG currently serving SPARC needs?
- What trends, themes do we see coming out of this workshop, or in general?
- Should there be more focus on links with NWP?
- Where does the mesosphere and chemical DA fit in with this?
- Consider how to interact with and influence the rest of the WCRP programme (eg WGNE) and thereby the space agencies.
- Location, date of next workshop



End

