SPARC-IPY Overview

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June 5, 2007
First International POLARCAT Science Planning Meeting,
Paris, France

SPARC-IPY proposal

- The Structure and Evolution of the Polar Stratosphere & Mesosphere and Links to the Troposphere during IPY
- Lead Authors: Norm McFarlane, SPARC-IPO, Mark Baldwin, USA
- Co-Is: 17 from Canada, USA, UK, Germany, Argentina, Japan
- Full proposal submitted on September 30 & available at http://www.ipy.org/development/eoi/proposal-details.php?id=217

SPARC-IPY project overview

Officially endorsed by IPY in Sept. 2005

- Goal - document dynamics, chemistry and microphysical processes within the polar vortices during the IPY
- Focus - on coupling of strat-trop and strat-meso
- Deliverables - a well organized data set of
  - measurements
  - analyses of the polar stratosphere during IPY
- Output - SPARC reports, SPARC newsletter articles and peer reviewed research publications
- It will use SPARC Data Center and SPARC International Project Office facilities

SPARC-IPY Activities

1. Arctic measurement programme
   - Ground based and satellite systems, centered on four lidar systems in Arctic
2. Antarctic measurements
   - Instruments already in operation at Antarctica and S. America
3. Analysis of the dynamics and chemistry associated with Stratospheric Sudden Warmings in the Arctic
   - Use CMAM to analyse SSWs during the IPY using a 3D-Var with a focus on coupling of stratosphere and mesosphere
4. SPARC-DAWG contribution
   - Archive assimilation products from many centers and research groups for the 2007-8 period

DA participants

Met Office	U.K.	Dyn, O3
NCEP	U.S.A.	Dyn, O3
GMAO	U.S.A.	Dyn, O3
KNMI	Netherlands	O3
BADC	U.K.	HIRDLS - O3, H2O, CH4, N2O
ECMWF	Europe	Dyn, …
GEM-Strato	Canada	Dyn, O3,…
CMAM-DAS	Canada	Dyn, O3,…
DARC	U.K.	Dyn, O3,…
More?		

Funding

- NSERC (Cdn funding agency) funding successful
  - McFarlane, Shepherd, Polavarapu
  - Collaborators: Baldwin, Dunkerton, Manney, McConnell, O'Neill
  - 1/4 Research Associate (Diane Pendlebury of SPARC IPO)
  - 1-2 Post-Docs or short-term visitors to Toronto
- Data sets will be available through SPARC Data Center
- SPARC community will analyse the collected data sets!

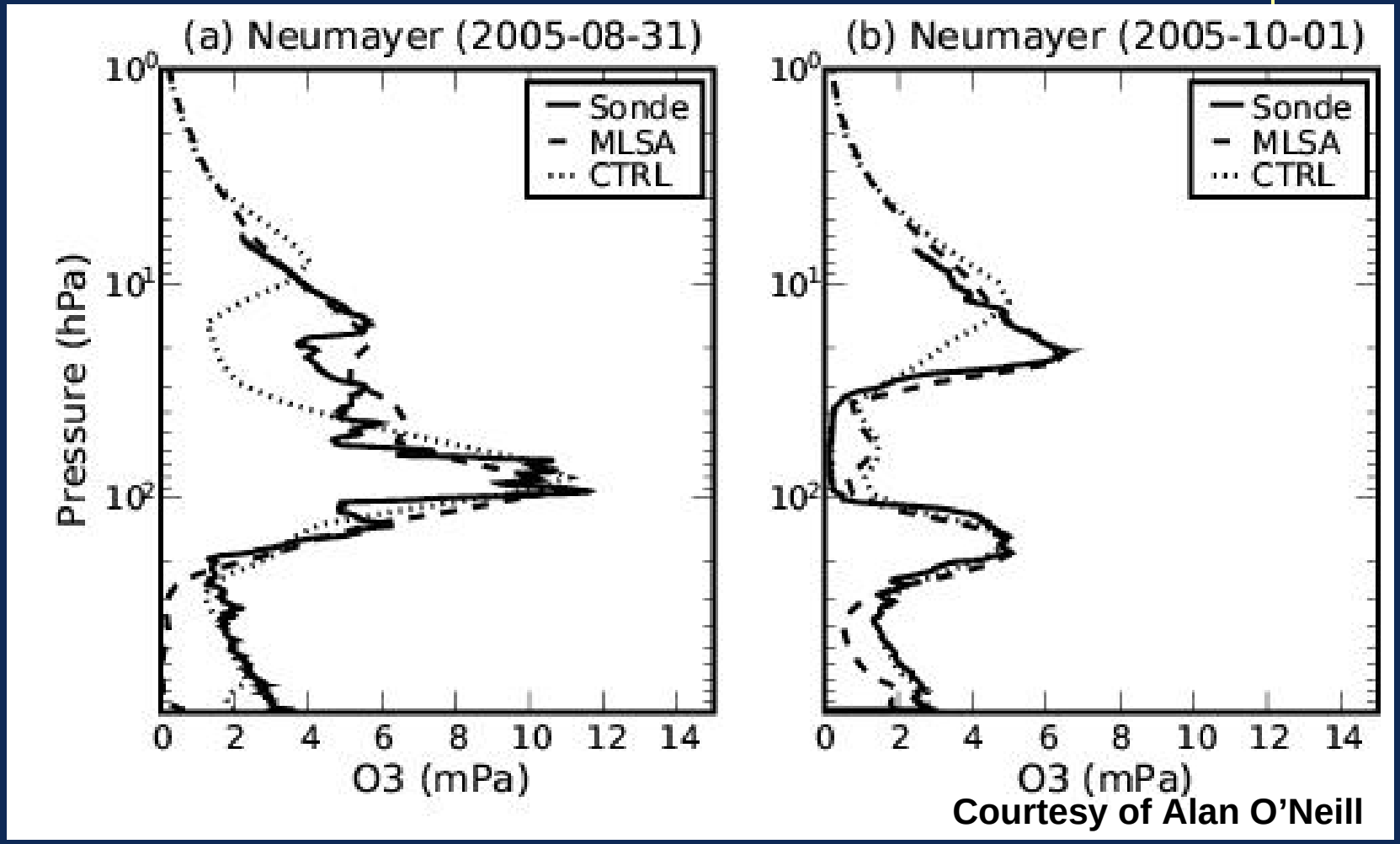
Linkages with other IPY core activities

- POLARCAT has been endorsed by SPARC
  - Transport of pollution into and out of arctic
  - Investigate role of long-range aerosol transport on climate
- ORACLE-O3
  - Ozone layer and UV-rad in a changing climate
  - Topics: ozone loss, PSCs, atm chem UV rad, impact of ozone changes on climate (modeling)
- PANSY
- IASOA

Field work: 2007-9

Locations	Coordinates
ALOMAR, Andoya, Norway	69° N, 16° E
Poker Flat Research Range, Chatanika, Alaska	65° N, 147° W
Polar Environment Atmospheric Research Laboratory (PEARL), Eureka, Canada	80°N, 86°W
Sondrestrom Upper Atmospheric Research Facility,	67° N, 51° W
Kangerlussuaq, Greenland	
Base Antártica Marambio, Argentina with instruments run in cooperation with Finland and Spain	64° S, 56° W
Base Antártica Belgrano II, Argentina, with instruments run in cooperation with Spain	54°S-68°W
Mobile DIAL LIDAR System, currently based in Rio Gallegos, Argentina, in cooperation with France/Japan	51º S

Ozone analyses with and without MLS data assimilation (70°S, 8°W)



Courtesy of Alan O'Neill

Summary

- SPARC-IPY will be the main activity for the SPARC DAWG in 2007
- SPARC can offer
  - all analysis and observational data available at SPARC Data Center
  - archiving capability at the Center for special purpose data
- SPARC is interested in exploring linkages with POLARCAT
  - transport of pollution into and out of arctic
  - role of long-range aerosol transport on climate
- Special purpose measurements for validation or reanalysis will be done as part of SPARC-IPY (at planning stage)

Joint SPARC-IPY and Data Assimilation Workshop

When?

September 4-7, 2007

Where?

Fields Institute, Toronto, Canada

How to apply?

http://www.fields.utoronto.ca/programs/scientific/07-08/data_assim/