

Stratospheric Processes and their Role in Climate

To bring knowledge of the stratosphere to bear on relevant issues in climate variability and climate prediction

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<http://www.sparc-climate.org/>



SPARC: issues of joint interest with CLIVAR (1)

SPARC SSG-19 (Zurich, February 2012) :

new directions, larger domain, new leadership to come, possibly new name

SPARC Office in Zurich: Director Dr Johannes Staehelin, since 2011-2012, transition from the University of Toronto in 2011, new website

New scope:

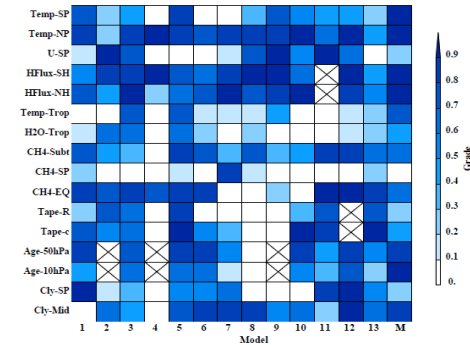
- the troposphere and its dynamics, probably also some interest in the mesosphere
- from stratosphere Climate-Chemistry Models to full ESMs + account of solar factors
- use CCMVal experience in model validation in other domains, model grading

SPARC: issues of joint interest with CLIVAR (2)

Seasonal: Stratospheric CHFP, role of solar factors and stratosphere, and several other processes like QBO, work through WGSIP

Decadal + IPCC time scales:

- interaction of Ozone and GHG both very important, justifies tighter coordination of CMIP & CCMVal
- GeoMIP (stratospheric sulphur)



WCRP polar climate predictability initiative:

- polar ocean issues – vital, SOP – key, WGOMD CORE – relevant
- experience of CLIVAR in ocean data synthesis – need permission to offer it to polar ocean groups

WCRP DynVar: focus on full climate models with tops above stratopause, identification of tropospheric and surface predictability - largely through CMIP5

Indian I-SPARC: “Tropical Stratosphere - Troposphere: Implications on Indian Monsoon and Climate” (18-partner Indian – EU proposal)

Cryosphere and Climate

To bring knowledge of the cryosphere to bear on relevant issues in climate variability and climate prediction

Chair: Konrad Steffen

Vice-Chair Gino Casassa

CliC IPO Director: Jenny Baeseman



<http://www.climate-cryosphere.org/>

CliC: issues of joint interest with CLIVAR (1)

CliC SSG-8 (Innsbruck, March 2012), talk by Martin, several issues highlighted:
will try to briefly respond to them and highlight most important developments

New CIPO Director: Dr Jenny Baeseman, since 2 April 2012,
former director of APECS (Association of Polar Early Career
Scientists), executive officer interviews this week

Overall strengthening of CliC modelling activities:

- to be achieved through attention to corresponding expertise in new SSG
- instead of a single modelling group, several groups are now considered because there are clear needs to prioritise sea-ice and snow



CliC: issues of joint interest with CLIVAR (2)

Arctic, (WG on) Arctic Climate (part of regional WCRP Grand Challenge):

- to be addressed through the WCRP Polar Climate Predictability Initiative and related initiatives such as
 - - WMO Global Integrated Polar Prediction System (GIPPS)
 - - World Weather Research Programme (WWRP) Polar Prediction Project (PPP)
- Issue: Arctic Ocean Observations and data for prediction; work underway to provide basis for the development of corresponding arrangements, there are significant difficulties at the moment, but for the first time there are prospects to achieve success
- Challenge: rapid decline of Arctic Ocean sea-ice:
 - - CliC Arctic Sea-Ice WG now well engaged
 - - recognised as a grand issue in the WCRP polar climate predictability initiative
 - - should not expect huge progress in CMIP5 but most likely a little later

CliC: issues of joint interest with CLIVAR (3)

Southern Ocean (SO) and Antarctic (AA):

- to be also addressed through the WCRP Polar Climate Predictability Initiative and related initiatives such as
 - - WMO Global Integrated Polar Prediction System (GIPPS)
 - - World Weather Research Programme (WWRP) Polar Prediction Project (PPP)
 - - Southern Ocean Observing System (SOOS), (Hobart Workshop on observing ocean circulation and ice (sea and continental) interaction in AA, 22-25 Oct 2012)

-Issue: strong coupling of the SO and AA climate factors: GHG-warming, stratospheric ozone minimum and expected recovery, role in carbon balance, mass balance and the role of ice shelves in it, etc. Less focus on prediction but more on understanding

- CLIVAR/CliC/SCAR SO Panel (SOP), CliC liaison: Alexander Klepikov (on SSG)
- SCAR/CliC Antarctic Sea-ice Processes and their role in Climate (ASPeCt), chair: Marilyn Raphael; there are plans for modelling focus



Sea-level Variability and Change (SLVC)

WCRP/IOC SLVC Task Group (est. 2009):

- Workshop on regional sea-level, 2010, February, Paris (thanks to Detlef Stammer and Jonathan Gregory)
- Proposed WGOMD/SOP Workshop on Sea-Level Rise, Ocean-Ice Shelf interactions and Ice Sheets (Hobart, February 2013) – support from TG on SLVC
- - WMO Global Integrated Polar Prediction System (GIPPS), the longest time scale

- Progress in understanding of ice sheets mass loss
- Progress in quantitative understanding of terrestrial water issues
- Progress on related ocean dynamics

- IPCC AR5 WG 1 report, higher estimates than in AR4 in 2007

- Need to strengthen the TG: research integration weak, many things are happening independently, weak analysis of combined extremes

WCRP Grand Challenges

for which there are joint responsibilities of CLIVAR with CliC and SPARC

Provision of skilful future climate information on regional scales (includes decadal and polar predictability) – CLIVAR, SPARC

Regional Sea-Level Rise – WCRP/IOC TG on SLVC, CLIVAR, CliC

Cryosphere response to climate change – CliC, WGOMD