

Report to CLIVAR SSG-18

Panel or Working Group: CLIVAR/CliC/SCAR Southern Ocean Region Panel

1. Contributions to developing CLIVAR science and fit, where appropriate, to the CLIVAR imperatives

1.1. Southern Ocean Vision Document finalised:

The Southern Ocean Vision Document has now also been finalised, which was reviewed in the context of the emerging new structure of WCRP and future grand challenges for the Southern Ocean.

1.2. Process Study Plan:

The panel has initiated a common process study plan with the carbon community. This will be developed further at the 7th Session of the CLIVAR/CliC/SCAR Southern Ocean Region Panel (SOP) later this year

1.3. Southern Ocean Observing System (SOOS) Design Plan:

CLIVAR/CliC/SCAR SOP worked closely with the SCAR/SCOR Oceanography Expert Group to move the Southern Ocean Observing System (SOOS) Design Plan forward. The document is due to be published soon.

1.4. Community paper on Southern Ocean Observing System (SOOS):

The community paper, entitled *Rationale and strategy for sustained observations of the Southern Ocean* was updated in terms of the frontier and research directions and is out for broad community input.

1.5. Participation in the International Polar Year:

Through the Climate of Antarctica and the Southern Ocean (CASO) activity and Synoptic Antarctic Shelf-Slope Interactions Study (SASSI).

2. Cooperation with other WCRP projects, outside bodies (e.g IGBP) and links to applications

The CLIVAR/CliC/SCAR Southern Ocean Region Panel acts as an intersection between WCRP CLIVAR, WCRP CliC and the Scientific Committee on Antarctic Research, which is an interdisciplinary committee of the International Council for Science. The link with SCAR is particularly prevalent with the development of the Southern Ocean Observing System.

The panel is also developing links with the carbon community; in 2010 Dr Nicole Lovenduski was appointed as the newest member of SOP, as approved by the Scientific Steering Group. Nicole represents the interests of the carbon community.

3. Workshops/meetings held

The 6th Session of the CLIVAR/CliC/SCAR Southern Ocean Region Panel (SOP) was hosted by the National Oceanography Centre (NOC) in Southampton, UK. The

science goals of the meeting were to explore the latest ideas for the dynamics of the Upper Cell of the Meridional Overturning Circulation (MOC) in the Southern Ocean (SO), and to discuss missing elements and appropriate future observations needed to fill out our understanding of the Lower Cell of the MOC in the SO. These goals were intended to further the objectives of the Southern Ocean Observing System (SOOS), and to help plan for collaborative studies with carbon and other groups.

4. New activities being planned, including timeline,

4.1. Review Paper

Currently underway with the panel co-authors, a review is being developed on the state of the southern climate system.

4.2. Freshwater Budget Study

The Panel intends to work closely with CliC (co-chair Tony Worby) to develop a freshwater flux estimate and evaluation for the Southern Ocean. This project involves measuring oxygen isotopes, and is also part of CLIVAR repeat hydrography.

4.3. Contribution to WCRP Open Science Conference

The panel is currently planning its contributions to the Open Science Conference in Denver later this year. It is coordinating a group of posters focusing on CLIVAR Repeat Hydrography Programme.

4.4. Panel Meeting

See section 5 below.

4.5. Publication of the final SOOS design plan 2011

The panel will work closely with the new SOOS Project Office, which is to be based in Hobart and funded (one full-time post) by the Institute for Marine and Antarctic Studies (IMAS) at the University of Tasmania, and potentially co-located with the office of Australia's Integrated Marine Observing System (IMOS) to allow access to their infrastructure. Recruitment is underway.

4.6. Contribution to CMIP5

It is also intended that the panel produce a list of five or six diagnostics for the Southern Ocean to submit to CMIP5.

5. Workshops / meetings planned

The 7th Session of the CLIVAR/CliC/SCAR Southern Ocean Region Panel (SOP) will be held in Boulder, CO, in October this year. The meeting will focus on the following topics: assessment of progress on atmospheric processes linked to carbon cycle processes; upwelling and CO₂ fluxes; the Polar Jet trends; and the Southern Ocean freshwater budget with CliC.

6. Issues for the SSG

None.

Annex A

Proforma for CLIVAR Panel and Working Group requests for SSG approval for meetings

Requests should be made through D/ICPO (Robert.molinari@noc.soton.ac.uk), against the following headings:

- 1. Panel or Working Group:**
CLIVAR/CliC/SCAR Southern Ocean Region Implementation Panel
- 2. Title of meeting or workshop:**
Annual Panel Meeting
- 3. Proposed venue:**
Hobart, Australia
- 4. Proposed dates:**
End 2012
- 5. Proposed attendees, including likely number:**
Panel members, Southern Ocean Observing System Project Office, a representative from CliC and Australian researchers with Southern Ocean interests
- 6. Rationale, motivation and justification, including: relevance to CLIVAR themes & JSC cross cutting topics and any cross-panel/working group links and interactions involved:**
TBD
- 7. Specific objectives and key agenda items:**
TBD
- 8. Anticipated outcomes (deliverables):**
Panel meeting report
- 9. Format:**
3-day meeting
- 10. Science Organising Committee (if relevant)**
CLIVAR SO panel members and SOOS Project Office
- 11. Local Organising Committee (if relevant)**
- 12. Proposed funding sources and anticipated funding requested from WCRP:**
Anticipated will need \$20k USD. Additional support will be requested from SCAR.