

## GSOP Report

### 1. Panel or Working Group:

Global Synthesis and Observations Panel (GSOP)

### 2. Contributions to WCRP cross cutting topics as appropriate

- **Anthropogenic Climate Change**

A pilot project will be developed between GSOP and the carbon community for incorporating carbon data in synthesis efforts. Members of the carbon community have attended the CLIVAR/GODAE Ocean Synthesis meeting in 2006 and initiated this interaction. Moreover, a Hydrography Advisory Group has been formed, co-sponsored by GSOP, IOCCP and the SOLAS/IMBER Carbon group. This group will first meet in October/November. In addition, a member of the carbon community is intended to be appointed as part of the GSOP panel to help facilitate the interaction. It was decided at the last GSOP meeting to start with a joint pilot project for a joint synthesis of physical and carbon data. It is expected that during the next months a respective plan will emerge.

- **Decadal Predictability:**

Ocean synthesis products are an important tool for identifying and understanding decadal ocean variability of some processes. The GSOP ocean synthesis evaluation effort tests methods and products which can contribute to studies of decadal variability. The goal of the next synthesis evaluation workshop, to be held at MIT Sept. 24/245, is to come to some quantitative conclusions about which of the existing synthesis products can serve this purpose. First studies exist, that use 50 year or shorter synthesis results to analyse space and time scales of, e.g., MOC changes in the Atlantic and to identify causes for those changes.

Decadal and 50-year global syntheses are now going into the next generations, with the goal to be truly global and to improve ocean mixing as well.

Simultaneously it will be attempted to be up-to-date with new estimates so that at the time of the AR5, those new fields can be used for the initialization of coupled models. Work on testing the improvement of coupled model forecasts through the use of ocean syntheses has started and shows first promising results.

Simultaneously, discussions have started to enter coupled assimilation approaches. Ultimately those efforts are expected to provide best initial conditions for coupled decadal forecasts.

- **Extreme Events and Climate:**

At this point GSOP does not provide dedicated results related to this subject.

- **International Polar Year**

With input from the Southern Ocean Panel and CliC, GSOP will encourage ocean synthesis groups to prepare a special IPY-period ocean synthesis, using the additional polar data generated during IPY. Attempts are underway now to include the full Arctic in new synthesis efforts which will use all data available there, including those from the IPY. A major obstacle here is the assimilation of ice data which urgently needs to be address to make progress in global synthesis

and initialization attempts. The next GSOP synthesis meeting at MIT will likewise address this topic.

- **Sea Level Rise :**

Studies are now underway, analysing sea level changes on regional and global scale as they emerge from synthesis results. Results confirm earlier ones based on data alone stating that most of the observed sea level changes are thermosteric in nature. However, synthesis results indicate that the underlying changes in heat content are caused by the changing wind field and an associated redistribution of heat in the ocean. This seems to hold especially for the last 40 years. Considering the last decade, however, the change in surface heat flux seems to gain importance in the northern hemisphere.

**3. Highlights of wider contributions to CLIVAR science**

- Active interaction between GSOP and basin through a basin panel representative attending and providing updates at GSOP meetings.

**4. Cooperation with IGBP projects:**

- Close discussion about a pilot synthesis project and appointment of member of the carbon community on the GSOP panel.

**5. New activities being planned, including timeline,**

- Second CLIVAR/GODAE meeting on Synthesis (24-25 September 2007, MIT, USA)
- First hydrography Advisory group meeting (1-2 November 2007, Victoria, Canada)
- Velocity Workshop, 8-9 December 2007, SIO, USA
- 3<sup>rd</sup> Panel Meeting, 13-14 March 2008, NOCS, Southampton, UK
- OceanObs 09, to be run jointly by GSOP and OOPC (see extra document).
- Upper ocean thermal review with emphasis on XBT lines. Date TBD, but before OceanObs09.

**6. Description of your expected “legacy” at the end of CLIVAR (2013)**

- An integrated mechanism for planning and collection of hydrography data, in association with the carbon community.
- Sustained ocean synthesis capabilities, possibly in coupled ocean-atmosphere-ice models.
- Capabilities to initialize ocean-atmosphere-ice coupled models through ocean syntheses to improve decadal predictions.
- Synthesis products

**7. Issues for the SSG**

- After the International Hydrography workshop, held in Shonan Village, Japan, in November 2005, it has been recommended the change of name for the CLIVAR/Carbon Repeat Hydrography Programme to International Repeat Hydrography and Carbon Programme. This change of name has been accepted by the GSOP and should be endorsed by the SSG.

- Dean Roemmich has been replaced by Bernadette Sloyan as GSOP co-chair. Dean Roemmich continues as a panel member. The SSG has given its agreement to this change.
- Detlef Stammer ends his term as panel member in December 2007. GSOP recommends that Detlef Stammer has his mandate as panel co-chair extended for 2 years, ending in December 2009.
- Three members are rotating off the panel: Neville Smith, David Anderson and Phil Arkin. GSOP recommends that the panel should have a carbon representative, like the ocean basin panels. IOCCP will make an indication for names. Also, GSOP recommends having a CliC representation on the panel, as well as adding a data person to the panel.

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**Annex B**

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

Requests should be made through D/ICPO ([hyc@noc.soton.ac.uk](mailto:hyc@noc.soton.ac.uk)), against the following headings:

1. Panel or Working Group:  
Global Synthesis and Observations Panel (GSOP)
2. Title of meeting or workshop:  
3<sup>rd</sup> Panel meeting
3. Proposed venue:  
Southampton (UK)
4. Proposed dates:  
13-14 March 2008
5. Proposed attendees, including likely number:  
Panel members and some invited experts, with likely number to be around 20 people.
6. Rationale, motivation and justification, including: relevance to CLIVAR themes & JSC cross cutting topics and any cross-panel/working group links and interactions involved:
7. Specific objectives and key agenda items:  
Report to panel on outcomes and action items from (1) 2<sup>nd</sup> CLIVAR/GODAE ocean synthesis meeting; (2) 1<sup>st</sup> Hydrography advisory group meeting; (3) Ocean velocity workshop. Identify action item from these meetings for GSOP to address.  
  
Discussion and role of GSOP in proposed OceanObs09 conference.
8. Anticipated outcomes (deliverables):
9. Format:  
  
15 minute presentations followed by discussions.
10. Science Organising Committee (if relevant)
11. Local Organising Committee (if relevant)
12. Proposed funding sources and anticipated funding requested from WCRP:  
This meeting will be held close to the Argo Science Team meeting, which will be held in Exeter, UK, on 17-20 March. GSOP panel members who are also part of the AST will have their travel funded by the Argo Program. US CLIVAR has supported GSOP members from the US. Requested WCRP funding is US\$ 7K.