

Report of the GC on Regional Sea-level Change and Coastal Impacts

1. Highlights for JSC

- Highlight 1: The Science and Implementation Plan (2015-2025) of the GC SL was finalized and published in February, 2017. It is available through the GS Sealevel website <http://www.clivar.org/research-foci/sea-level>.
- Highlight 2: A successful international Conference on Regional Sea Level Changes and Coastal Impacts was organized at Columbia University, New York, USA in July, 2017. A high-level Conference Statement was published in July, signed by more than 350 participants of the conference as well as other scientist. The conference summary was published in EOS (<https://doi.org/10.1029/2018EO090093>). A collection of short summary papers emerging out of the conference were published in a recent Exchanges special issue (<http://www.clivar.org/documents/exchanges-74>). Another paper on “Sea Level Change and Coastal Climate Services” out of the conference was also published by the GC members (<http://www.mdpi.com/2077-1312/5/4/49/htm>).
- Highlight 3: Workshop on high-end sea level rise, Hamburg, September 2017. It was highlighted during the workshop that the global mean sea level rise for 2081–2100 relative to 1986–2005 will likely be in the ranges of 0.26 to 0.55 m for RCP2.6, 0.45 to 0.82 m for RCP8.5 (medium confidence). For RCP8.5, the rise by the year 2100 is 0.52 to 0.98 m, with a rate during 2081 to 2100 of 8 to 16 mm/yr (medium confidence). A Nature paper on the matter is in preparation.
- Highlight 4: A first paper on the global sea level budget is close to being finalized.

2. Early success and/or planned activities in 2018/2019

- A summer school on “Regional Sea Level and Coastal Impacts” is being planned to take place in June, 2018 in Qingdao, China in cooperation with FIO. Several lecturers have been called for and identified by the GC SL.
- A workshop is being held at ISSI in March 2018 on interaction basin wide changes and coastal changes.
- A writing workshop is being planned to take place in spring 2018 back to back with the next GC Sealevel steering team meeting there.
- A paper on sea level terminology is being finalized.
- Reports on observing requirements in support of regional and coastal sea level studies is planned for 2018. The same holds for a report on modelling requirements.

3. Partners for GC implementation

Several partners, including (within WCRP) CLIVAR, CliC, and outside including PAGES and Future Earth.

4. Overall GC timeline

- In 2012, a new RF “Regional Sea Level Change and Coastal Impacts” was developed at the 19th session of CLIVAR SSG in 2012, and was then agreed to be adopted as WCRP GC by the WCRP JSC.
- In March, 2015, the 1st Science Steering Team Meeting of the GC was held in University of Utrecht, the Netherlands.
- In February, 2016, 2nd Science Steering Team Meeting of the GC was held in New York University, USA.
- In February, 2017, the Science and Implementation Plan (2015-2025) of the GC SL was finalized and publicized at the CLIVAR website (<http://clivar.org/research-foci/sea-level>).
- In July, 2017, the international Conference on Regional Sea Level Changes and Coastal Impacts was successfully held in Columbia University, New York, USA, with over 300 participants. A high-level Conference Statement was published in July, being signed by many of the participants.

5. Issues and challenges

Dealing with sea level requires interaction with many communities within and outside WCRP. The GC involves CliC, GEWEX, and PAGES in the membership of its steering team to build links with other groups outside of WCRP, such as geodesy. The six parallel, but interconnected, working groups (WP) overseen by the GC steering team focus on different aspects of sea level research, and also organize or reach out to relevant groups/projects (ISMIP6, FAFMIP, heat balance RF, land subsidence, coastal service) with particular emphasis.

The GC has outlined its future plan in its 10-year Science and Implementation Plan towards 2025 and will move forward by bringing more scientists and engineers together and bridging the gaps between scientific research and coastal services.

The next Sea Level Conference is planned for 2022 to be held in the region of the western pacific low-laying islands or Indonesian Region (e.g., Bangkok or Jakarta).
