



First assessment of present-day global mean sea level budget under the auspices of the World Climate Research Programme

Anny Cazenave and the WCRP Global Sea Level Budget Group
LEGOS-CNES, OMP, Toulouse, France (anny.cazenave@legos.obs-mip.fr)

Accurate assessment of present-day global mean sea level variations and its components (ocean thermal expansion, ice sheet mass loss, glaciers mass change, changes in land water storage, atmospheric water vapour content, etc.) is important for many reasons. The global mean sea level is an integrator of changes occurring in the climate system in response to unforced climate variability as well as natural and anthropogenic forcing factors. Its temporal evolution allows detecting changes (e.g., acceleration) in one or more components. Study of the sea level budget provides constraints on missing or poorly known contributions, such as the unsurveyed deep ocean or the land water component. In the context of the Grand Challenge entitled “Regional Sea Level and Coastal Impacts” of the World Climate Research Programme, an international effort involving the sea level community worldwide has been recently initiated with the objective of assessing the various data sets used to estimate components of the sea level budget during the altimetry era (1993 to present). These data sets are based on the combination of a broad range of space-based and in situ observations, model estimates and algorithms. Evaluating their quality, quantifying uncertainties and identifying sources of discrepancies between component estimates are extremely useful for various applications in climate research. This effort involves several tens of scientists from about sixty research teams worldwide (www.wcrp-climate.org/grand-challenges/gc-sea-level). Here we present the status of the first assessment realized during the last few months. The ultimate objective is to revisit the global mean sea level budget at regular time intervals, as currently done for example by the Global Carbon Budget Project.