

Workshop participants recommended that the African pilot project should address region-specific issues that bring stakeholders and water managers into the activity, and it should involve the World Bank; United States Agency for International Development (USAID); United Nations Habitat; United Nations Educational, Scientific and Cultural Organization

(UNESCO) International Hydrological Programme; WaterNet; NASA; and other groups already working in the Nile Basin. The required science contribution includes tool development and capacity building for a science and decision-making interface for water management in Africa and will need international participation from African countries within the Nile Basin and data

sharing through a common decision support framework.

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Improved Coastal Altimetry Could Contribute to the Monitoring of Regional Sea Level Trends

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Satellite altimetry is now a mature Earth observation technique with great impact in many areas of study, including ocean circulation, marine geoid, bathymetry, and assimilation into models, as well as sea level trends and their impacts on the understanding of global climate change. Until recently, the centimeter-level accuracy achieved by this technique had been limited to open ocean about 50 kilometers off the coast.

Aiming to develop products for coastal zones with an accuracy similar to that achieved in the open ocean, several research projects in the past few years, such as Prototype Innovant de Système de Traitement pour les Applications Côtières et l'Hydrologie (PISTACH), Development of Radar Altimetry Data Processing in the Coastal Zone (COASTALT), Centre de Topographie des Océans et de l'Hydrosphère (CTOH), and more recently the European Space Agency Climate Change Initiative (ESA CCI), have been supported by various agencies. In parallel, a set of Coastal Altimetry Workshops was initiated (Silver Spring, Md., 2008; Pisa,

Italy, 2008; Frascati, Italy, 2009). The Fourth Coastal Altimetry Workshop followed on this successful series of workshops and was hosted by the University of Porto, with support mainly from ESA and 10 other institutions and space agencies.

The workshop was designed to discuss a wide range of topics, from the latest developments in data processing to emerging applications and new technologies. An unprecedented number of scientists (126), from 17 countries on four continents, participated in the event. The workshop agenda, a detailed report, and the presentations can be found at <http://www.coastalt.eu>.

Participants agreed on the need for continuation of research projects and initiatives aimed at reprocessing and sustaining the production of coastal altimeter products, especially those already available and preferably refined with recently developed algorithms. There is also a need for exploitation of better coastal bathymetry, which is not yet accessible in the scientific domain; improved description of existing coastal altimeter products in terms of their capabilities, advantages, and disadvantages; and publication of “champion user cases” demonstrating the added

value of altimetry in coastal studies. Workshop participants also agreed that access to all required data for validating coastal altimetry (tide gauge, coastal geoid) is important. They pointed out that deriving coastal currents from altimetry is still a challenge. Merging data from several sources (drifters, tide gauges, acoustic Doppler current profilers, etc.) is useful and necessary. Furthermore, it was noted that coastal forecast systems are already exploiting coastal altimetry for operational applications. Tides will be included in the next generation of the models assimilating altimetry.

Overall, the community recognized that much progress has been made, particularly on wet tropospheric correction and on retracking, and that the generation of coastal altimetry products is bound to have a great impact in synergy with other data sets to better monitor coastal zones. One of the next challenges is to demonstrate that coastal altimetry can contribute to the monitoring of regional sea level trends.

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