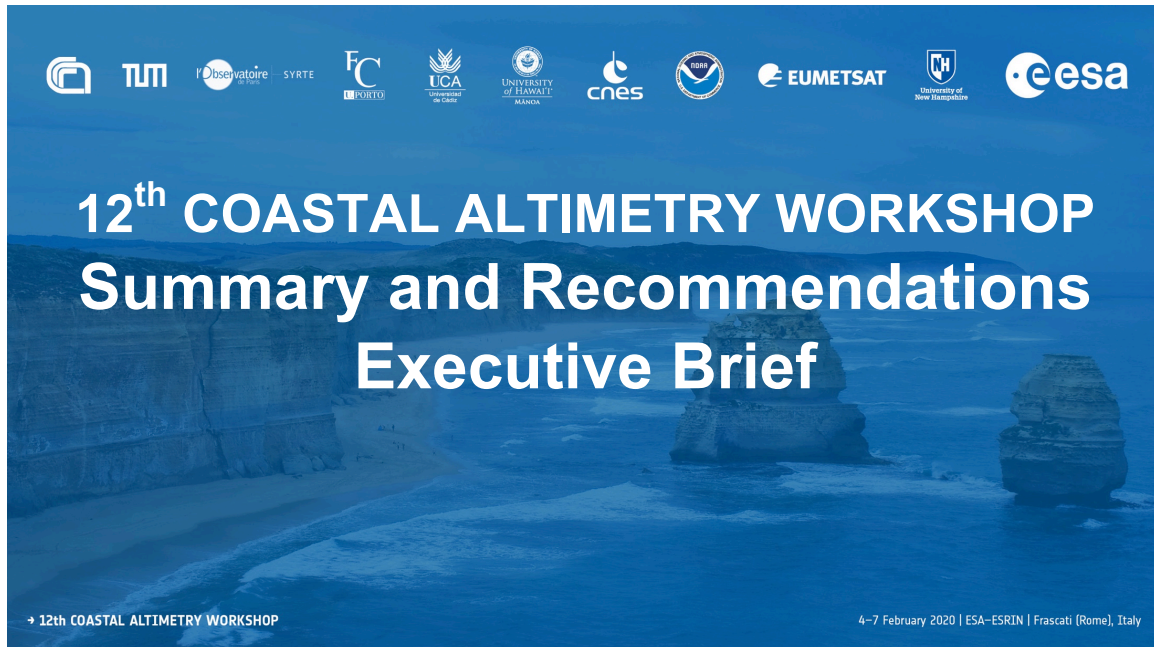


12th COASTAL ALTIMETRY WORKSHOP (CAW-12)

4–7 February 2020 | ESA–ESRIN | Frascati, Italy



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3 April 2020

Published by:

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Cite as:

[Marco Restano, Marcello Passaro, Stefano Vignudelli, and Jérôme Benveniste \(2020\) 12th Coastal Altimetry Workshop Summary and Recommendations Executive Brief, ESA Publication, \[http://doi.org/10.5270/esa.caw12_2020.final_report_brief\]\(http://doi.org/10.5270/esa.caw12_2020.final_report_brief\)](http://doi.org/10.5270/esa.caw12_2020.final_report_brief)

INTRODUCTON

The 12th edition of the Coastal Altimetry Workshop series was organized by the European Space Agency (ESA) with the support from ten institutions and took place on February 4-7 2020 at ESA-ESRIN in Frascati (Italy). The workshop brought together 116 scientists from 26 countries and included a Coastal Altimetry Training course for students and young researchers.



Key topics discussed at the workshop covered 5 themes: 1) Data processing, 2) Corrections, Calibration & Products, 3) Application of Coastal Altimetry Data, 4) Sea Level, Currents & Data Assimilation, and 5) Synergistic and Climate Studies. New contributions on synergies among coastal altimetry data, in-situ observations and models were also extensively reviewed.

Satellite radar altimetry has been supporting both oceanographic studies since the 1970s and coastal oceanography in the more recent years thanks to the continuous improvement in data processing and the recent progress in technology. This maturation has allowed the development of products at a higher resolution, which are more and more suitable for coastal zone investigations. Coastal altimetry aims today at characterizing the sea level and sea state variability from the open ocean to the coastal zone, in synergy with other complementary measurements (e.g., tide gauge records) and modelling tools. Estuaries have become areas of interest with a few studies presented during the Workshop.

High resolution datasets from radars onboard the Sentinel-3 & Cryosat-2 missions (300 m resolution in the along-track direction) will be soon enhanced by Sentinel-6 products which also allow the full exploitation of advanced high resolution processing schemes providing data with a maximum resolution up to 0.5 m in the along-track direction. This is expected to improve the knowledge of mesoscale features and resolve smaller scale processes. Moreover, as current altimeters allow investigating only a narrow track below the spacecraft, the future Surface Water Ocean Topography (SWOT) mission, providing 2D images, will open new exciting possibilities of investigation. Several contributions focused on analyses and datasets in view of Sentinel-6 & SWOT missions due to launch in 2020 and 2021, respectively.

Meanwhile, the confidence in the reprocessing of the time series from the beginning of the altimetry era grows. The workshop showed how it is possible to exploit over 20 years of data up to at least 4 km from the coast. This is a distance that was hardly imaginable at the beginning of the workshop series in 2008, when the limit of data confidence was usually placed at about 30 km from the coast.

SUMMARY OF RECOMMENDATIONS FROM THE WORKSHOP

The Coastal Altimetry Community encourages:-

- 1) synergies with in-situ (tide gauges, HF radar) coastal observation systems, as the merging of the satellite and in-situ data is crucial to advance the understanding of the process that dominate the variability of the SSH in the coastal regions;
- 2) studies to improve the sea state bias characterization and solve the current limitations in the last ~4Km from the coastline ;
- 3) studies focused on the development of gridded products to stimulate the comparisons of ocean variabilities observed with coastal altimetry against remote sensing observations (Sea Surface Temperature/Ocean Color in Sentinel-3 and radar imaging) and model data;
- 4) the implementation of coastal-dedicated processors in the operational processing chains of CryoSat, Sentinel-3 and Sentinel-6;
- 5) the development of constellations for coastal altimetry monitoring to address the poor temporal sampling of existing systems;
- 6) studies to exploit altimetry data in highly populated coastal areas of the world with insufficient in-situ coverage and the collaboration/formation with/of local expertise, which would be of high societal impact;
- 7) funding agencies to stimulate the development of open-source and open access programs & tools to facilitate the exchange of knowledge and reach a broader audience of non-expert users

The Final Report (70 pages), this brief, presentations and posters from the Coastal Altimetry Workshop are available online at <https://www.coastalaltimetry.org>. The web site holds links to all the past Workshops and also the link to the Coastal Altimetry Community web site <http://coastalt.eu>.

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