



SAR Altimetry numerical simulations over water surfaces

Christine Gommenginger(1), Paolo Cipollini(1), Cristina Martin-Puig(2), Jose Marquez(2), P. David Cotton(3), Keith Raney(4) & Jérôme Benveniste(5)

(1) National Oceanography Centre, Southampton, UK, (2) Starlab, Barcelona, Spain, (3) Satellite Observing Systems Ltd, Godalming, UK, (4) APL, Johns Hopkins University, USA, (5) ESA/ESRIN, Frascati, Italy

The application of Synthetic Aperture Radar (SAR) techniques to classical radar altimetry at nadir offers a potential solution to significantly enhance the precision and along-track resolution of ocean surface topography mapping and the ability to obtain altimeter measurements closer to the coast. The main objective of the ESA SAMOSA project: "Development of SAR Altimetry Studies and Applications over Ocean, Coastal zones and Inland waters" is to better quantifying the improvement of SAR altimetry (aka Delay Doppler Altimetry, or DDA) with respect to conventional pulse-limited altimetry over water. This paper will provide an overview of the objectives and methodology in the SAMOSA project, and will present its latest results. In concrete, the project will use CRYOSAT CRYMPS numerical simulations for a variety of water surface scenarios to estimate the improvement in altimetric precision in SAR mode. These will be compared with previous theoretical and numerical finding by Jensen & Raney (1998) and Raney (1998).