



Coastal tides and sea level variations at high latitudes from altimetry and GNSS-R.

Ole Baltazar Andersen (1), Karina Nielsen (1), Simon Williams (2), and Michael Kern (3)

(1) DTU Space, Geodesy, Lyngby, Denmark (oa@space.dtu.dk), (2) National Oceanographic Center, Liverpool, Great Britain, (3) ESA ESTEC, Noordwijk, The Netherlands

The ability to determine ocean tides are still limited in coastal regions due to the limited space-time sampling and ocean tide errors remain the largest source of range error in satellite altimetry today in the coastal zone. SAR altimetry from Cryosat-2 and Sentinel 3A/B is capable of providing altimetry closer to the coast than conventional altimetry and in this presentation we aim at presenting result from the ESA GOCE++ project which looks at the ability to add information about sea level and tides from GPS reflectometry in high latitude regions where tide gauges are sparse and where GPS reflectometry is a promising alternative to measure sea level close to the GPS stations. We have currently identified some high latitude stations on Greenland where tide gauges are sparse, but where the Danish GNET system of coastal GNSS stations operated and have identified and processed the GNSS data to determine sea level variation. We will present results from these co-located GPS reflectometry data and Cryosat-2 and Sentinel 3A SAR altimetry with respect to both sea level variations and estimation of the residual tide signal at those locations.