

About BEC



The **Barcelona Expert Centre (BEC)** was created in 2007, as a joint initiative between the Spanish Research Council ([CSIC](#)) and the Universitat Politècnica de Catalunya ([UPC](#)), to provide support to the Spanish SMOS-related activities. The initial **BEC objectives were focused on:**

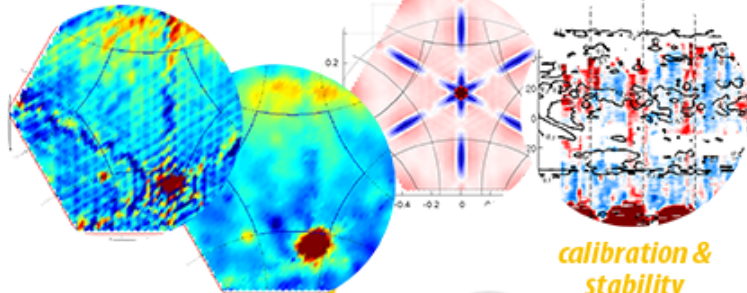
- Providing assessment to ESA as a Level 2 Ocean Salinity Expert Support Laboratory,
- Contributing to the SMOS instrument calibration and lower level algorithm developments,
- Developing new algorithms for the generation of added-value products at Levels 3 and 4.
- Participating in validation activities

BEC provides support on remote sensing data processing and applications by hosting postgraduate students and visiting scientists. The centre has progressed over the last decade to become a sound reference in active and passive microwave remote sensing R&D. BEC also hosts the production and distribution system of the in-house developed remote sensing products, which are freely distributed to the scientific community (<http://cp34-bec.cmima.csic.es/>). **Main research activities:**

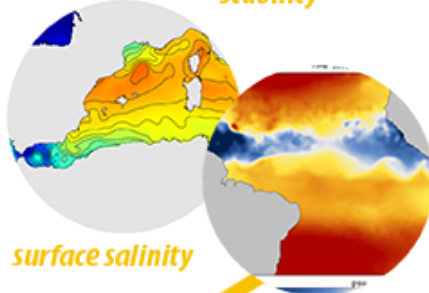
- Improvements on calibration, image reconstruction and stability of radiometric data
- Synergy of observations from different sensors and data sources

- Forward and measurement error modelling, non-linear inversion
- Quality control and validation
- Assimilation into atmospheric and ocean models
- Support to nowcasting

image processing

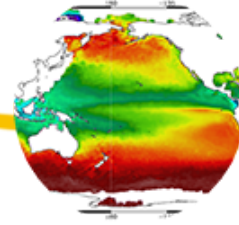


calibration & stability



surface salinity

surface density



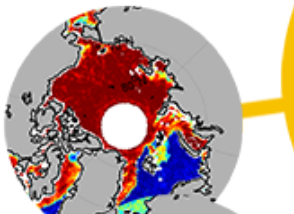
data distribution & visualization services



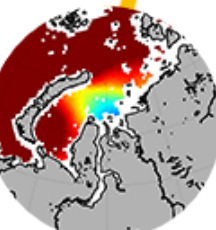
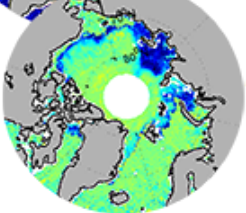
BEC

Paving the way to the future of Remote Sensing

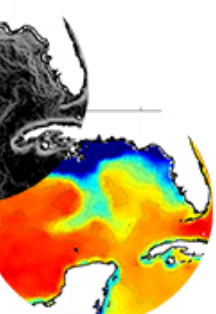
sea ice concentration



sea ice thickness

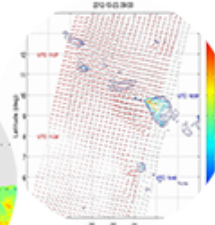
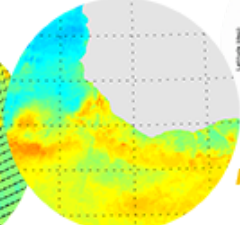


river discharges

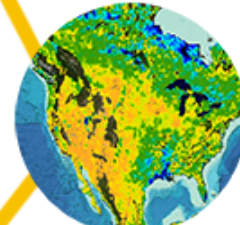


data fusion

ocean forcing

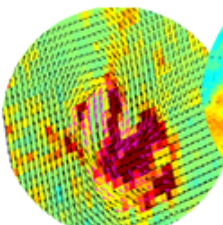


moist convection

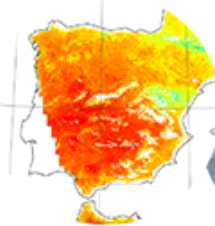


soil moisture

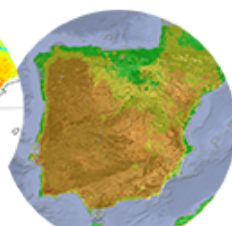
extreme winds



high resolution soil moisture



fire-risk index



Products under development:

- Salinity in marginal seas
- Salinity in cold waters
- Ocean currents
- Sea ice concentration and thickness
- Sea surface winds, convergence, and vorticity
- Coastal and extreme winds
- Ocean forcing
- High-resolution soil moisture
- Fire risk index