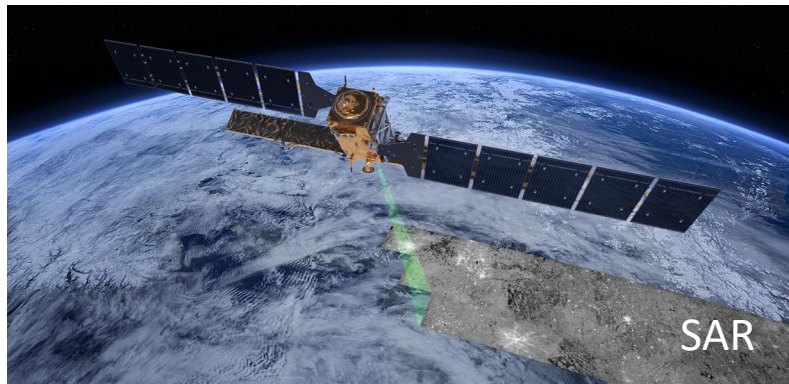


Pulse of the Weddell Sea

Title: Sea ice dynamics and its driving forces

Topic: T3 - Sea ice kinematics and dynamics



SAR



UAV



AUV



OMB



Sea ice dynamics and its driving forces – T3

Principal Investigator: Leif Eriksson, Chalmers University of Technology,
Professor in radar remote sensing

Co-PI: Malin Johansson, UiT The Arctic University of Norway,
Associate Professor, remote sensing of sea ice

Participant(s):

Anna Wåhlin, GU, Professor in physical oceanography

Wolfgang Dierking, UiT The Arctic Univ. of Norway, Adj. Prof., RS of sea ice

Denis Demchev, GU and JPL, postdoc, remote sensing of sea ice

Anis Elyouncha, GU, researcher, remote sensing of ocean surface dynamics



Scientific hypotheses / Research questions

- » Better forecasts and predictions of sea ice conditions in the Weddell Sea require better understanding of the sea ice dynamics in this area
- » Better understanding of the sea ice dynamics in the Weddell Sea requires observations from satellites and in situ
- » How much do the currents under the sea ice influence the drift of the ice?
- » How far into the sea ice do waves travel and to what extent do waves contribute to the break up of the sea ice?



Parameters measured within the project

- » Sea ice drift and deformation
- » Waves in sea ice
- » Ice and snow properties
- » Ocean currents under sea ice



Type of data collection

Sampling from the ice:

Deployment of ice drift buoys, snow pits, surface roughness, ice thickness

Observations from air and space:

Sea ice conditions, sea ice drift and deformation, surface temp.

Observations in the water:

Currents under the sea ice, roughness of ice-water surface

Direct measurements on board:

Wind and air temperature, observations of sea ice conditions

Data analyses onboard: Analysis of satellite images and drone photos

Sample analyses onboard: Salinity of sea ice and snow

Sample analyses post-expedition: No



Logistic support requirements

- » Ice breaker
- » Ice stations
- » Helicopter
- » Assistance to launch drones (air and water)
- » Meteorologist
- » Lab for salinity check of snow and sea ice
- » Space to work with drones and to store and dry equipment
- » Workspace for laptops
- » Access to bridge for ice observations
- » Communication link that allow download of satellite images

