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"*Observation of sub-mesoscale eddies over Baltic Sea using TerraSAR-X and Oceanographic data*"

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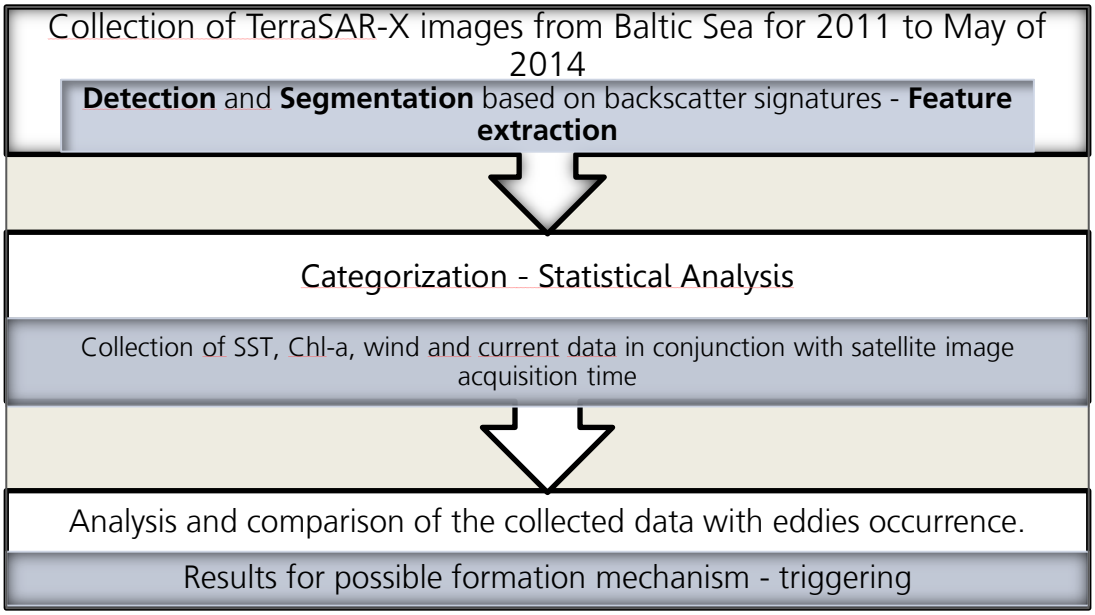
Methodology Workflow:



In the present research in summary were analyzed:

- **1329** TerraSAR-X radar images (ScanSAR and Stripmap mode)
- **Sea surface temperature (SST)** high resolution images (GHRSST Level 4 ~5km (1/20 degree) and global MODIS SST (4km) for each image with detected eddies.
- **Wind direction data** from Cross Calibrated Multi-Platform Ocean surface (SSM/I; TRMM; Quickscat), 25km resolution, 10 meters height, Level 3, per 6 hours, global 0.25 degrees, for each image with detected eddies.
- **Wind speed data** from Daily averaged Scatterometer (ASCAT) surface wind fields, Level 2b, spatial resolution 0.25 degrees. Wind fields calculated near real time with delay of 48 hours, for each image with detected eddies.
- **Ocean Chlorophyll concentration** from MODIS (Aqua, Terra), 4km resolution.
- **Current model data** 5km resolution, every 15 minutes, BSH, for each image with detected eddies.

Results –Case Study

White Eddies near to Saaremaa Island

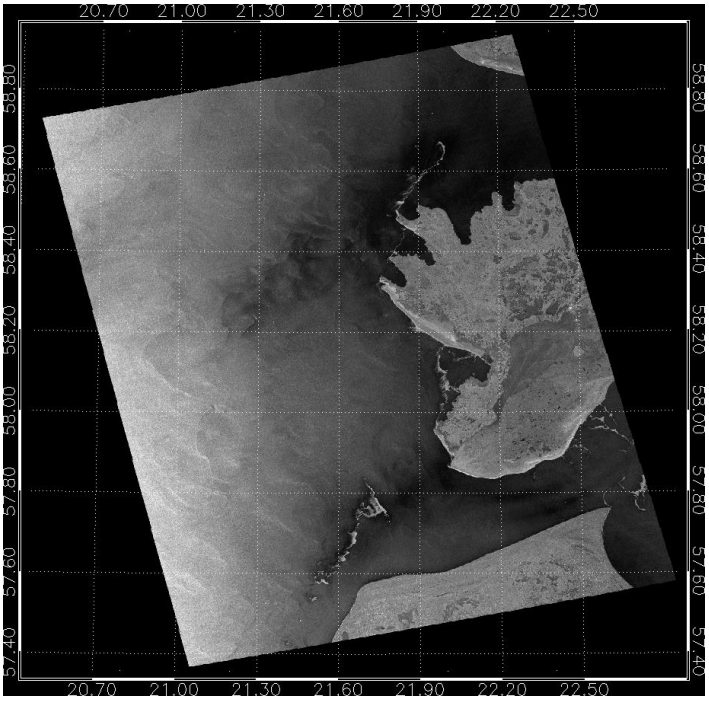


Figure 1: The acquired image from 9.1.2011, 16:01:47 UTC showing the region of the detected white eddies.

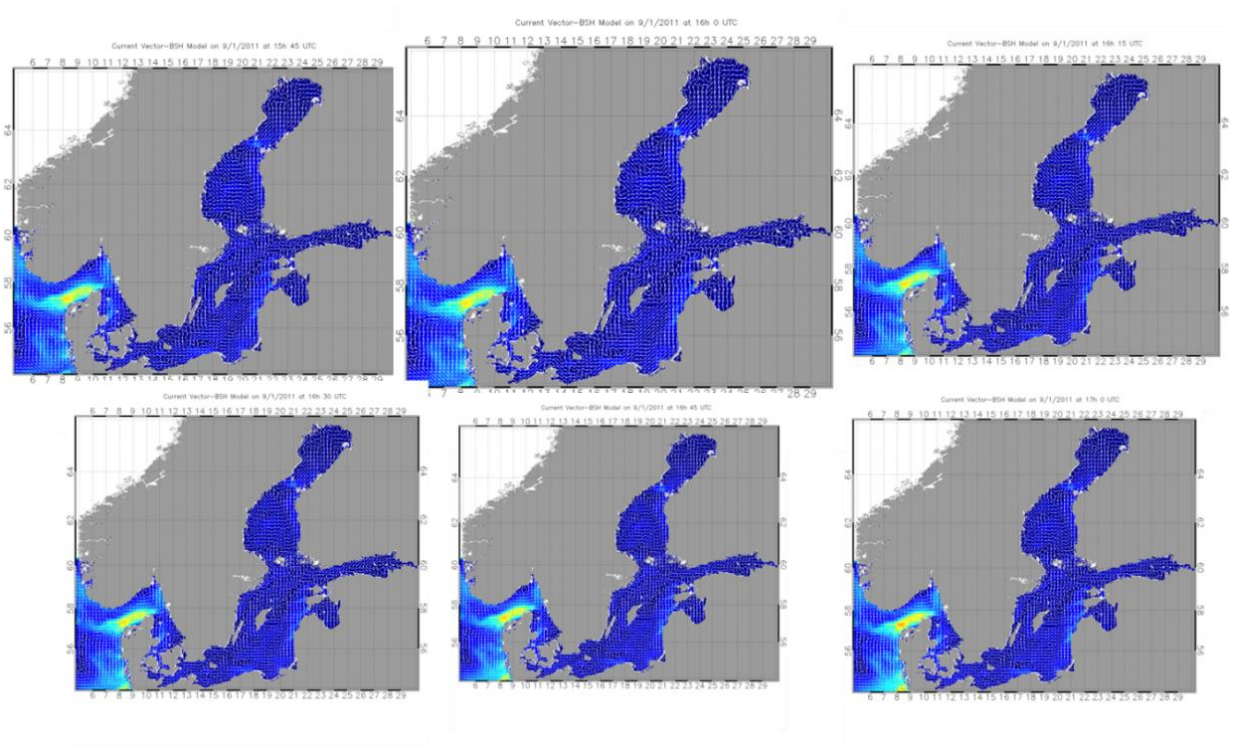


Figure 2: Current model data from the same date near to image acquisition time. Cyclonic, anti-clockwise current movement and velocities at 1.08 m/s averaged.

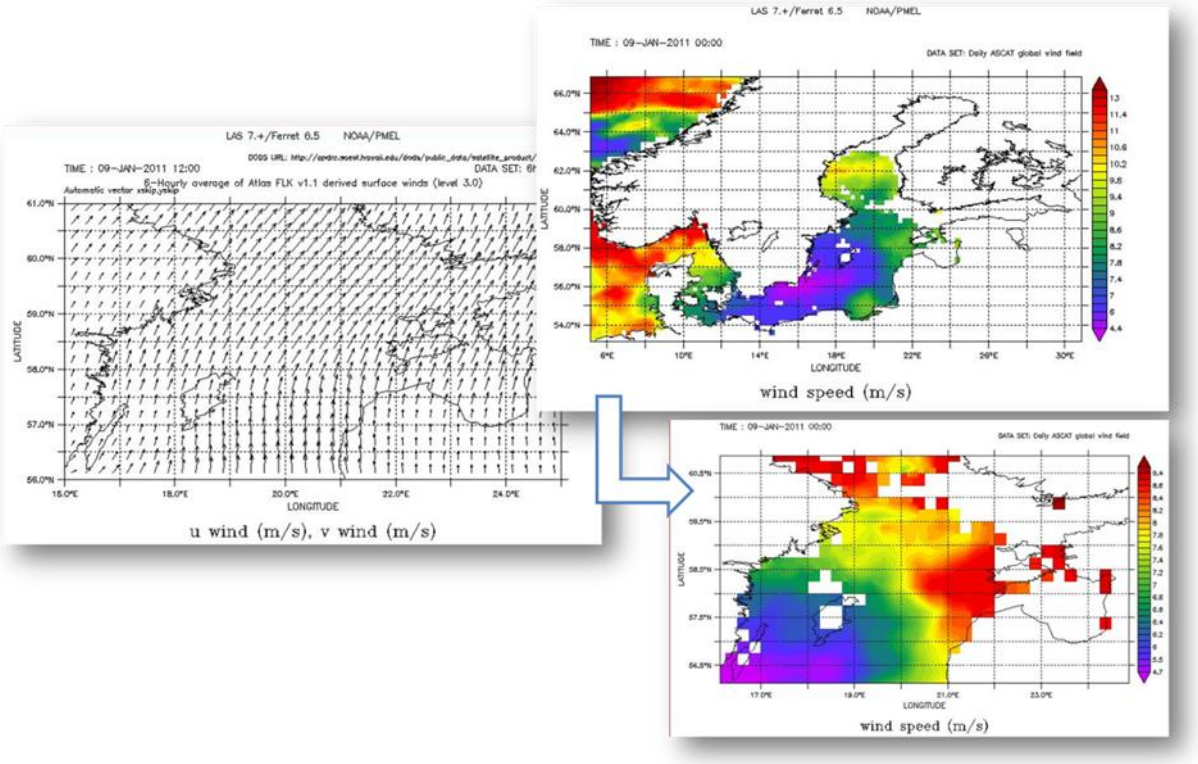


Figure 3: Collected wind data from the same date near to image acquisition time. Estimated wind speed in the region of interest 8.5 m/s [http://apdrc.soest.hawaii.edu].

Overall statistics for the size of the detected eddies and the size variation for the different categories of eddies:

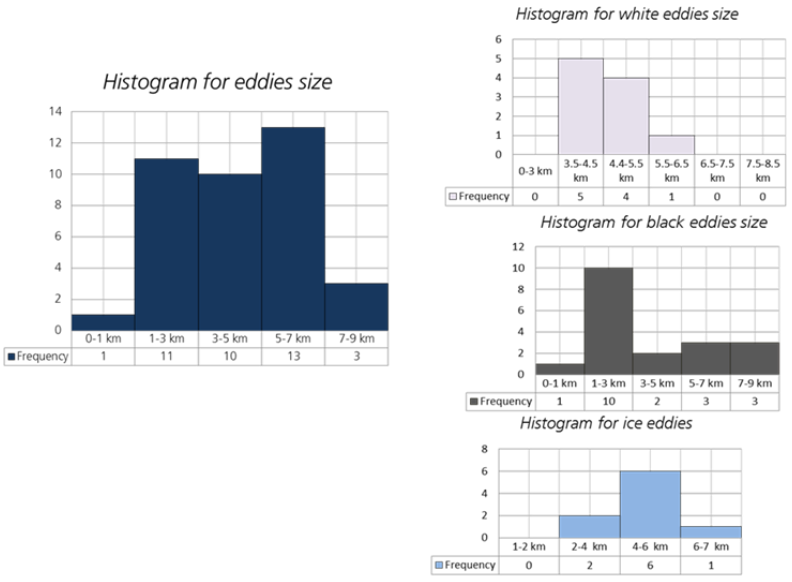


Figure 4: Histograms related to the detected meso-scale eddies size and for each category.