This study aims at describing the outcomes of the Dragon-3 project no. 10689. The research subject covered during the project are related to coastal area monitoring and they include sea pollution, coastline extraction, ship detection, sea oil spill tracking, etc. The key remote sensing tool is the Synthetic Aperture Radar (SAR) that provides fine resolution images of the microwave reflectivity of the observed scene. However, the interpretation of SAR images is not at all straightforward and all the above-mentioned coastal area applications cannot be easily addressed using single-polarization SAR. Hence, the main outcome of this project is investigating the capability of multi-polarization SAR measurements to generate added-value product in the frame of coastal area management. As a matter of fact, polarimetric models have been developed to take full benefit of multi-polarization information in order to conceive robust and effective methods to deal with coastal area applications. The main results can be summarized as follows:

- Coastline extraction: The best performance is achieved when dual-polarimetric (even incoherent) HH-HV/VV-VH SAR data are available;
- Oil pollution: The best performance is achieved when quad-pol or compact-pol SAR data are available;
- Ship detection: The best performance is achieved when quad-pol/dual-pol coherent SAR data are available.

All this matter will be discussed using actual L-C and X-band SAR data collected over coastal area [1]-[4].

REFERENCES:


