

Study of freshwater outflow, shallow water bathymetry and water quality in the East China Sea

by

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THEME: PROG

KEY WORDS: Satellite sensors synergy, coastal, regional

In this DRAGON-3 project the target is to study freshwater outflow, shallow water bathymetry and water quality in the East China Sea in association with the runoff from the Yangtze river. This will in particular target Chinese marine environmental services and information products arising from integrated use of networks of remote sensing data from Chinese and European satellite data. In this presentation we will focus on achievements regarding:

- Development and validation of a regional-to-local bio-optical algorithm for retrieval of chlorophyll a, suspended minerals and dissolved organic carbon (DOC) from ocean color remote sensing data. The algorithms account for the local hydro-optical conditions.
- Establishing regional relationship between CDOM and salinity in vicinity of the Yangtze river mouth which can allow for the creation of a long time series of salinity data from optical satellite data.
- Monitoring of changes in shallow water bathymetry in the region around Shanghai based on SAR observations in combination with dredging data and a simple 3D barotropic ocean model. This is highly important for ship traffic and routing. May also potentially allow to study effects and changes of sediment depositions.
- Estimating and monitoring the Yangtze River freshwater runoff (surface speed and speed variability) from the SAR based range Doppler shift anomaly observations. Combined with in-situ data the discharge can be estimated. In so doing we will also provide high-resolution wind field estimates from the SAR data to be used for the range Doppler shift correction, but will also be used for coastal wind field monitoring with focus on extreme events connected with typhoons etc.