

GCOM-C1 ocean product development

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Global Change Observation Mission for Climate (GCOM-C) is planned to be launched in FY2015. JAXA is designing, developing, and characterizing the satellite and sensor intensively in these years. Data product development has been conducted by JAXA and GCOM-C Principal Investigators (PIs) which has been organized in summer 2009 as the first research period (2009-2012). The first version of the algorithms are being examined by using in-situ data and simulation L1B data (HDF5 format) in EORC. The next research period will start from April 2013 (until March 2016), and it will more focus on development of the standard algorithm (operational processing codes) and validation preparation for the first version of the standard products which will be released to the public one year after the launch.

The GCOM-C1 standard ocean products includes sea-surface temperature, ocean color (normalized water-leaving radiance, chlorophyll-a concentration, suspended solid concentration, colored dissolved organic matter absorption, and photosynthetically available radiation). In addition to the above, we defined the research products, inherent optical properties, euphotic zone depth, net primary productivity, phytoplankton functional type, and redtide detection.

SGLI has 250m spatial resolution with 1050-km swath, which is expected to improve the coastal monitoring. Although the offshore ocean-color products show good accuracy showing seasonal and interannual changes properly, we still have some problems about the ocean color retrievals in the coastal area where the water has complex composition and the atmosphere is affected by the terrestrial aerosols.

We have started characterization study of coastal in-water optical properties (spectral absorption and back scattering) and aerosol characteristics in some coasts mainly around Japan, e.g, Mutsu, Tokyo, and Ariake Bays and so on. The obtained optical properties will be analysed by a consistent way, and the characterization results will be used in the satellite data retrievals (atmospheric correction and inversion of in-water optical properties) in each area. The analysis needs to make measurements in the variety of (typical) coastal areas. The observations will be conducted in collaboration with our GCOM-C1 science team, other collaborative research organizations, and international partners.

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