

## Looking back GOCI experience towards the upcoming GOCI-II period and beyond

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The GOCI in space since July 2010 is still delivering good-quality images even when the designed lifetime is exceeded by two years. The successor GOCI-II has been equipped on the GK-2B satellite, which is planned to launch in 2020. It is timely to look back lessons from GOCI experience for the GOCI-II time and beyond.

GOCI's eight images a day opened up new opportunities for the ocean color remote sensing scientists. However, GOCI images showed unexpectedly radiometric artifact near the bottom of a slot due to straylight intrusion. A baffle was introduced in GOCI-II to minimize straylight effects. Numerous scientific achievements have been published using GOCI data. In particular, diurnal variabilities were investigated in many coastal or inland water processes including tidal effects in turbid coastal waters, harmful algal blooms in East/Japan Sea and cyanobacteria blooms in Taihu lake. Studies are still underway to capture weaker signal of diurnal variability of the open ocean processes. Also, submesoscale turbulent characteristics are examined with hourly GOCI chlorophyll data over the East/Japan Sea. On the other hand, practical utilization of GOCI data by providing satellite-based information on various marine and atmospheric issues was a main driver for GOCI development and operation. Those issues include harmful algal blooms, floating macroalgae blooms, low salinity water mass, coastal water quality, oil spill and sea ice, marine fog and airborne fine particles. A research project have just been launched to strengthen practical utilization of satellite imagery by implementing state-of-art technology into user-oriented data processing system. High spatial anomaly of the red-edge reflectance for floating algae patches has been used to produce a map of floating *Sargassum honeri* blooms in the East China Sea. The spatial anomaly technique with another band combination was tested to detect large-scale ocean debris after the 2011 East Japan tsunami and to detect oil emulsion after the 2011 Bohai Sea oil rig accident, which shows promising results worth investigation for further development.

GOCI is one of best sensors for monitoring coastal waters of the northeast Asia. However, higher spatial resolution and more spectral channels are required to deal with complexity of coastal waters. GOCI-II meets some of these demands but is far from ideal. What should be the next after GOCI-II?