

Verification of GCOM-C/SGLI-derived chlorophyll *a* data in the western North Pacific during May 2018 aboard the R/V *Shinsei Maru*

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The Second-generation Global Imager (SGLI) aboard the JAXA GCOM-C satellite was successfully launched on 23 December 2017. We conducted the first GCOM-C field campaign for the western North Pacific during 20–30 May 2018 aboard the R/V *Shinsei Maru*. During this expedition, in situ apparent optical property (AOP) measurements were made using a Compact-Optical Profiling System (C-OPS, Biospherical Instruments Inc.) in order to match up with SGLI data. Also, phytoplankton pigment samples were concomitantly collected from surface waters. A significant linear correlation ($R^2 = 0.99$, $n = 6$) was found between ultra-high performance liquid chromatography (UHPLC)-determined chlorophyll (Chl) *a* levels and those derived from C-OPS with the in-water algorithm OC3M6. However, the C-OPS values were underestimated by 32% as compared with the UHPLC data. This could be partly due to the higher pigment extraction efficiency of *N,N*-dimethylformamide (DMF) than other organic solvents such as methanol and acetone which are generally used in the world. During the field campaign, SGLI data were successfully matched up with in situ data at a station off Iwate Prefecture, Japan on 21 May. The SGLI-, C-OPS-, UHPLC- and Turner fluorometry-determined surface Chl *a* values were 0.546, 0.709, 0.847 and 1.21 mg m⁻³, respectively. Other results obtained from the GCOM-C field campaign will also be shown in our presentation.

Keywords: GCOM-C/SGLI, ocean color, satellite remote sensing