

## Validation of JCOPE-T DA ocean assimilation product

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We constructed the high resolution (3km, 1 hour) ocean data assimilation system named as JCOPE-T DA which targets around Japan. This system is running operationally and that's outputs have been provided by JAXA through the Himawari Monitor website and P-Tree System since November 2018. One of the aims in this system is to make the useful ocean analysis and forecast data by assimilating satellite SST data provided by JAXA directly. We assimilate the satellite SST data observed by Himawari/AHI, GCOM-W/AMSR2, GPM main satellite/GMI, and Coriolis/WindSAT. Multi-3DVAR (Miyazawa et al. 2017) and IAU are applied in this system.

We will show the results of validation of JCOPE-T DA using independent in situ data observed by buoys and ship in this presentation. The results of comparison with CTD data observed by SHINSEI-MARU off the Kii Channel show that JCOPE-T DA ocean temperature data are good estimate in upper layer (Figure 1). Biases and RMS error are lower than  $\pm 0.2$  deg.C and 0.7 deg.C in 2 -40m depth respectively. On the other hand, there are negative bias and large RMS difference (over 1 deg.C) in thermocline (5 -200 m depth). These mean that mixed layer of JCOPE-T DA is deeper than that of observation. JCOPE-T DA clearly show the internal tide because the ocean model of JCOPE-T DA considers the tide effects. Especially, we find that the channel between Taiwan and Philippines causes strong internal tide which is made change of several degree Celsius at 500m depth in a day.

In the future plan, we are going to construct the higher resolution (1 km grid) ocean model with CaMa-Flood river flow data. And also, we are going to assimilate the GCOM-C/SGLI SST data which have 250m resolution. Furthermore, we will construct a nest model for coastal area.

Keywords: Data assimilation, Satellite SST data, Regional ocean model

