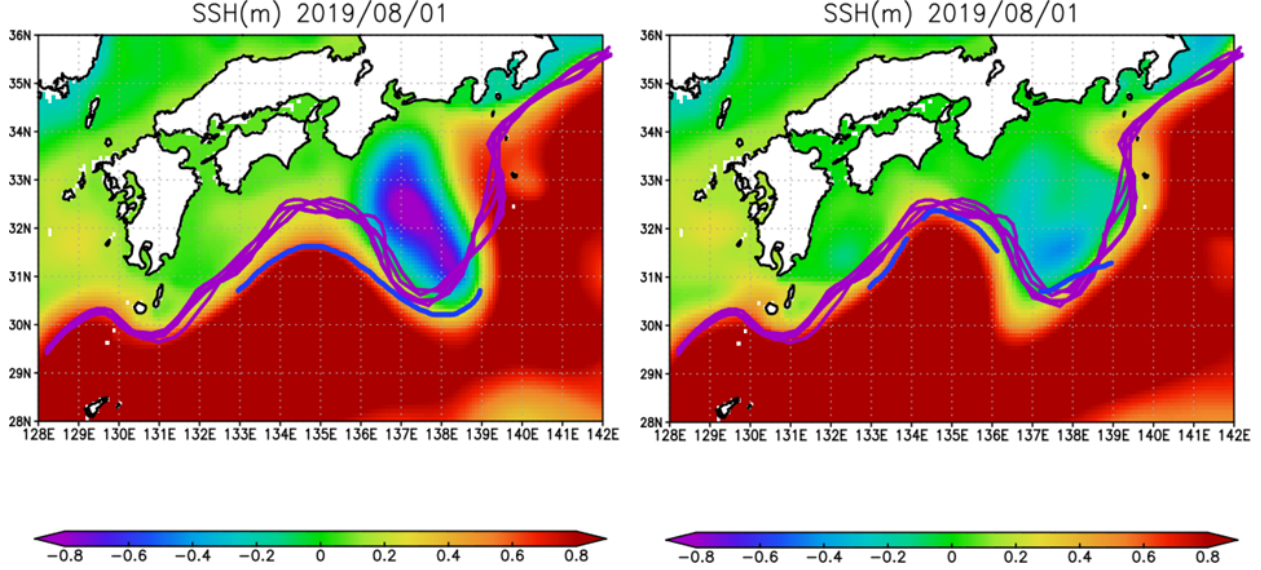


# Distribution of JCOPE2M reanalysis data

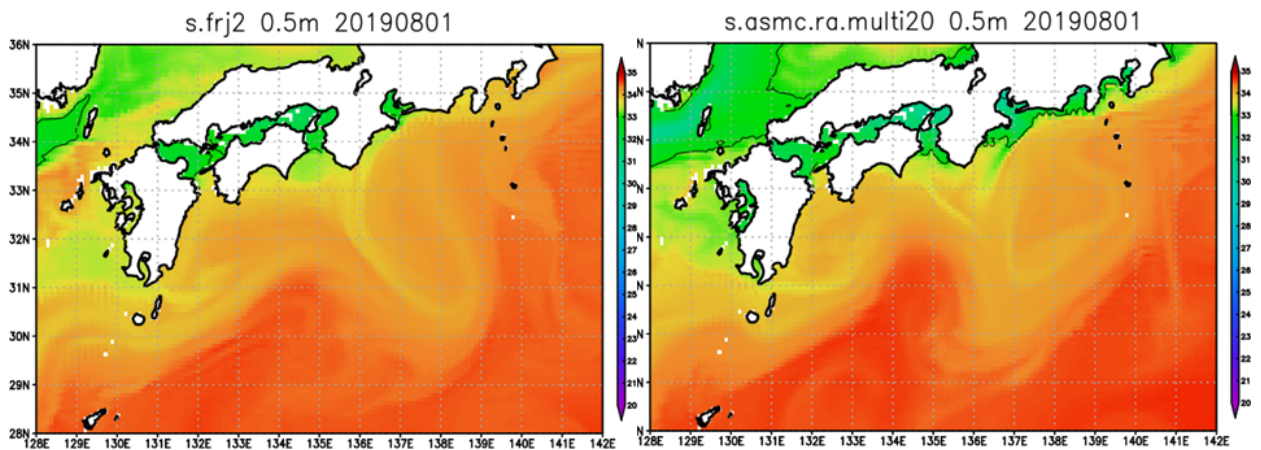
Application Laboratory	JAMSTEC	2019.09.02
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By assimilating available observation data into the JCOPE2M ocean nowcast/forecast system, Application Laboratory has created the reanalysis data (JCOPE2M) with horizontal high resolution of 1/12 deg. to describe the oceanic variability associated with the Kuroshio-Kuroshio Extension, the Oyashio, and the mesoscale eddies from January 1993 to present time (Miyazawa et al., 2017; 2019). JCOPE2M reanalysis data are available from the authors by request.

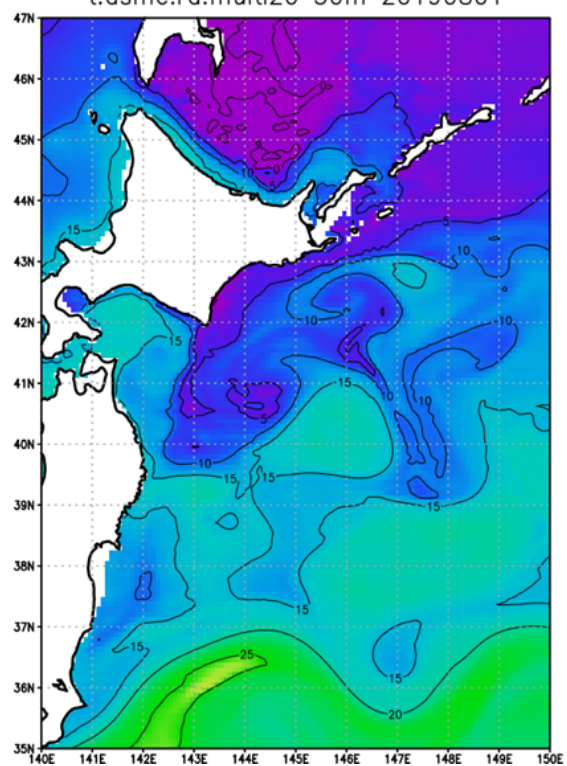
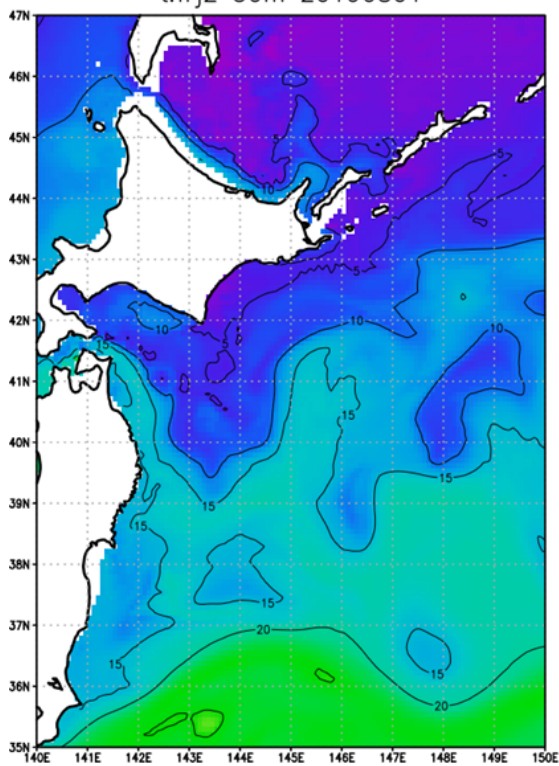
JCOPE2M is an updated version of JCOPE2 reanalysis. The high-resolution sea surface temperature data were assimilated into the model by using the multi-scale three dimensional variational method. Salinity representation at the surface was improved by including river discharge, precipitation, and evaporation effects.



Sea surface height distribution south of Japan 2019/8/1. Blue curves denote the modeled Kuroshio axis, and purple curves denote the weekly mean Kuroshio axis estimates including the target day reported by Japan Coastal Guard. Left:JCOPE2, Right:JCOPE2M



Sea surface salinity distribution south of Japan 2019/8/1. Left:JCOPE2, Right:JCOPE2M



Subsurface temperature distribution at 50m depth  
2019/8/1. Left:JCOPE2, Right:JCOPE2M

## Comparison with drifter velocity

1993/01/01 – 2015/12/31

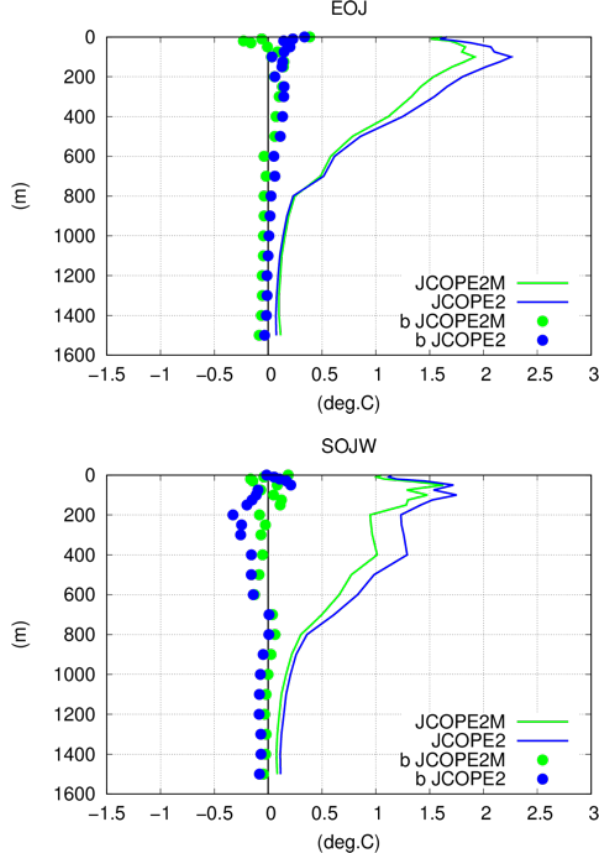
East of Japan 140-180E 35-45N

Products	Correlation	RMSD (m)
JCOPE2M RA	0.46	0.31
JCOPE2 RA	0.36	0.31

South of Japan 123-180E 11-35N

Products	Correlation	RMSD (m)
JCOPE2M RA	0.57	0.24
JCOPE2 RA	0.55	0.23

Comparison with drifter velocity data



Comparison with in-situ temperature data used for data assimilation. Thick curves (dots) denote root mean square difference (mean difference). Left: 20N-35N, 125E-180E. Right: 35N-43N, 140E-180E.

## How to download JCOPE2M reanalysis data

Application Laboratory freely distributes JCOPE2M reanalysis data to any interested persons. If you accept following conditions of data use, please send us an E-mail describing your order: time range (maximum period: 1993.01.01-present; 2TB+), spatial range (maximum range:10.5-62N, 108-180E), variables (sea surface height, north-south velocity, east-west velocity, potential temperature, salinity). We provide URL of your ftp site for downloading your data (Fortran binary) with [a README](#)

[document](#).

Contact: jcope at \_mark jamstec.go.jp

## Principal conditions of data use

1. The user is permitted to use the data for the purpose of scientific research.
2. The user is not allowed to copy or reproduce the data in any form for the purposes of distribution, (whether for remuneration or otherwise), sale, hire, lease or license or otherwise commercialise the data.
3. The user is recommended to include our paper (Miyazawa et al., 2009) in the reference of any documents describing results obtained from analyses/visualizations of the data.

Miyazawa, Y., A. Kuwano-Yoshida, T. Doi, H. Nishikawa, T. Narazaki, T. Fukuoka, and K. Sato, 2019: **Temperature profiling measurements by sea turtles improve ocean state estimation in the Kuroshio-Oyashio Confluence region**, *Ocean Dynamics*, 69, 267-282. [html](#)

Miyazawa, Y., S. M. Varlamov, T. Miyama, X. Guo, T. Hihara, K. Kiyomatsu, M. Kachi, Y. Kurihara, and H. Murakami, 2017: **Assimilation of high-resolution sea surface temperature data into an operational nowcast/forecast system around Japan using a multi-scale three dimensional variational scheme**, *Ocean Dynamics*, 67, 713-728. [html](#)

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