

Four-dimensional Variational Ocean ReAnalysis for the Western North Pacific over 30 years (FORA-WNP30)

- Dataset

FORA-WNP30 was produced by using MRI Multivariate Ocean Variational Estimation system, version of 4-dimensional variational method (MOVE-4DVAR; Usui et al. 2015), the data assimilation system developed by the JMA/MRI. MOVE-4DVAR uses MRI.COM-WNP (Tsujino et al. 2006), eddy-resolving ocean model for Western North Pacific developed by JMA/MRI, as the forward model of ocean and sea ice. The settings of the assimilation system are as follows:

- * Ocean and sea ice model

- Domain: 117° E-160° W, 15° N-65° N
- Horizontal resolution: 1/10° (1/6° east of 160° E) longitude × 1/10° (1/6° north of 50° N) latitude
- Number of vertical levels: 54 levels (0-6300m)

- * Assimilation method

- Ocean: 4-dimensional variational method
- Sea ice: objective analysis by minimum variance estimation and nudging
- Assimilation cycle: 3 cycles in a month (day 1 to 10, 11 to 20, 21 to the end of month in each month), sea ice is nudged to the daily analysis.

- * Assimilated observation

- In situ temperature and salinity profiles from WOD2013 and GTSP (0-1500m)
- Gridded SST made by merging satellite and in situ observations (MGDSST; Kurihara et al., 2006 [in Japanese])
- SLA by satellites (TOPEX/Poseidon, Jason-1/2, ERS-1/2, Envisat, GFO,

Cryosat)

- SSM/I sea ice concentration data

* Atmospheric forcing

- daily-mean of JRA-55 (Kobayashi et al., 2015)

* Analysis period

- Jan. 1, 1982 to Dec. 31, 2016

* Data Policy

Japan Agency for Marine-Earth Science and Technology (JAMSTEC) and Meteorological Research Institute, Japan Meteorological Agency (JMA/MRI) provide Four-dimensional variational Ocean ReAnalysis for the Western North Pacific (FORA-WNP30) as a basic ocean reanalysis dataset for research activities in ocean, climate and other related fields. The computational resources for the dataset is provided by the Earth Simulator in the Strategic Project with Special Support of JAMSTEC. The dataset is available under the terms and conditions and the constraints listed below.

■ Terms and Conditions

1. The dataset is available for free for scientific and educational purposes. If you wish to use the dataset for non-scientific or non-educational purposes, please inform us in advance and follow our instructions.
2. The source of the dataset should be accordingly acknowledged and the article below should also be referred in scientific or technical papers, publications, press releases or other communications regarding the dataset: Usui et al., 2017, Four-dimensional Variational Ocean Reanalysis: A 30-year high-resolution dataset in the western North Pacific (FORA-WNP30). *J. Oceanogr.*, **73**, 205-233. doi:10.1007/s10872-016-0398-5

* Example of the citation format: "This study utilized the dataset 'Four-dimensional Variational Ocean Reanalysis for the western North Pacific'

(FORA-WNP30), which was produced by Japan Agency for Marine-Science and Technology (JAMSTEC) and Meteorological Research Institute of Japan Meteorological Agency (JMA/MRI)."

3. Users should provide JAMSTEC/CEIST a copy or URI of their scientific or technical papers, publications, press releases or other communications regarding the dataset.
4. Users are not permitted to redistribute, deliver, or sell the dataset to public.

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