



# *SynObs Web Meeting 11*

## Agenda

1. Current status of the SynObs flagship OSE
2. Current status of the database construction
3. Frontiers in Marine Science Special Issue
4. Other plan to submit papers.
5. Collaboration to other groups
6. Future meetings (and communications)

# ★ Current Status of the flagship OSEs

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## ◆ OP Analysis OSEs

- Data are submitted from UKMO, ECCO, JAMSTEC, JMA (global), ECMWF (also from Pukyong Uni. And NASA in different formats)
- Calculation is on-going for NASA, NOAA-EMC, JMA (N Pac.)

## ◆ OP Forecast OSEs

- On-going in ECMWF, UKMO(?)
- Planned in JMA (Global, N. Pac.), JAMSTEC
- Interested in NASA

## ◆ S2S Reanalysis OSEs

- Performed in JMA (global)
- On-going in NOAA-CPC
- Planned in ECMWF

## ◆ S2S Forecast OSEs

- Planned in JMA (global), NOAA-CPC, ECMWF

## ◆ OP OSSEs

- Tested in NOAA QUOSAP

## ★ Current status of the database construction

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- **Initial results of OP-OSEs from 4 systems (FOAM, GIOPS, MOVE-G3, JCOPE-FGO) have been submitted to the internal server at JAMSTEC Application Lab**
- **They are used to prepare the introduction of SynObs project that will be published in the Frontiers in Marine Science Special Issue at JAMSTEC APL server (see Yosuke's presentation)**
- **Outputs of OSEs used in the above paper are available from the following link [https://www.jamstec.go.jp/jcope/data/synobs\\_frontiers/OP-AN/](https://www.jamstec.go.jp/jcope/data/synobs_frontiers/OP-AN/)**  
)
- **We are still trying to resolve issues related to implement data analyzing platform at JAMSTEC side (Earth Analyzer; mostly related to security issues)**

## ★ A brief review of SynObs netCDF format

**Categories:** OP-AN(Ocean prediction analysis), OP-FC (Ocean prediction forecast, S2S-AN: S2S analysis, S2S-FC: S2S forecast)

**Data Output Types:** Daily field (OPA-D), Pentad field, Point location data (OPA-PL)

**Format Settings:** Latitude/Longitude, Vertical levels, Time-averaging intervals, Variables (Naming conventions are predefined) are specified

**Example of file name convention:** in **OP-AN, Daily SSH (Dec 31, 2020), CNTL** experiment derived from **JCOPE-FGO**: OP-AN/JCOPE\_FGO/**CNTL**/**OPA-D**/SSH/2020/**OPA-D\_SSH\_20201231\_JCOPE\_FGO\_CNTL.nc**

Please refer to SynObs Flagship OSE Guideline: Tables 3, 4, and 5 as well as Python scripts for netCDF templates:  
<https://github.com/shokido/SynOBS/tree/main/SCRIPTS>

# ★ How to transfer data onto common server

- We are planning to use dropbox to temporally correct data
- If we use dropbox API and special script called “dropbox-uploader”  
<https://github.com/andreafabrizi/Dropbox-Uploader>  
 ,we can upload a large number of files and directories based on command

## # An example: Upload file A at local server onto remote dropbox server B

```
./dropbox_uploader.sh upload local/A /B
```

(Example):

```
local/OP-AN/JCOPE_FGO/CNTL/OPA-D/SSH/2020/OPA-D_SSH_20201231_JCOPE_FGO_CNTL.nc  
/OP-AN/JCOPE_FGO/CNTL/OPA-D/SSH/2020/OPA-D_SSH_20201231_JCOPE_FGO_CNTL.nc
```

• Please let us know if you have any alternative ideas/suggestions for efficiently collect files (Globus? Amazon web service?)

# ★ Paper on the flagship OSEs for the Frontiers Special Issue

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- ◆ The call for papers are almost closed.
- ◆ 17 manuscripts are submitted. (JMA will submit another one.)
- ◆ 10 have already been accepted
- ◆ <https://www.frontiersin.org/research-topics/58025/demonstrating-observation-impacts-for-the-ocean-and-coupled-prediction>
- ◆ The paper for introducing the early results of the flagship OSEs are submitted in August and now in the independent review
- ◆ Data from UKMO, ECCO, JMA, and JAMSTEC are used.
- ◆ Evaluation of Altimetry and Argo data on SSH fields and TS RMSEs with respect to independent Argo data are presented.

# Observation Impacts on SSH RMSEs in each system

FOAM

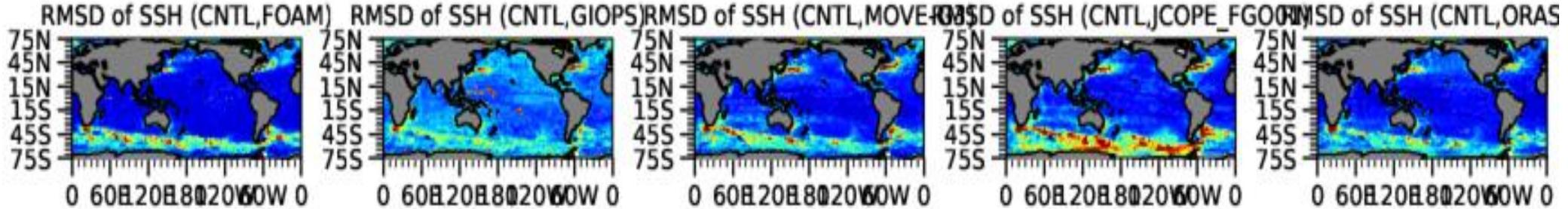
GIOPS

MOVE-G3

JCOPE-FGO

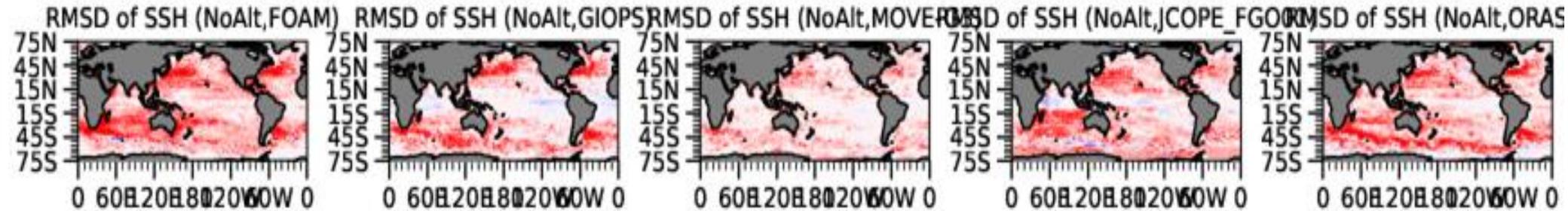
ORAS6

CNTL



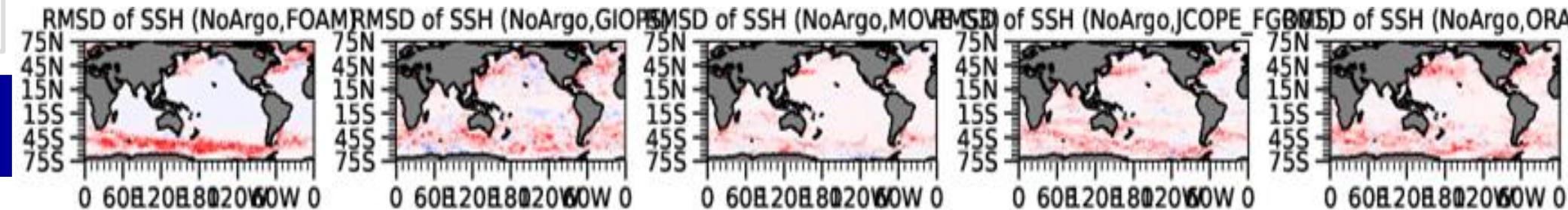
NoALT - CNTL

Impact of satellite altimeters

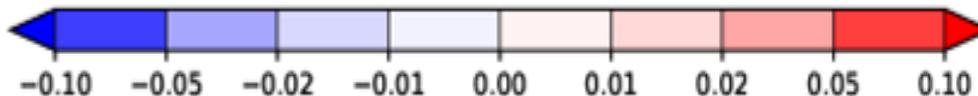


NoArgo - CNTL

Impact of Argo floats

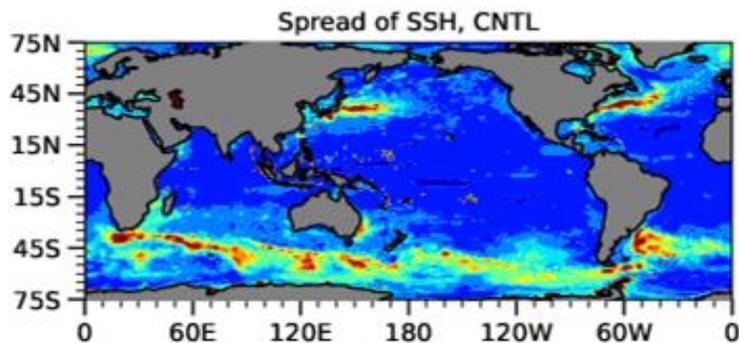


ORAS6 results is not presented in the paper

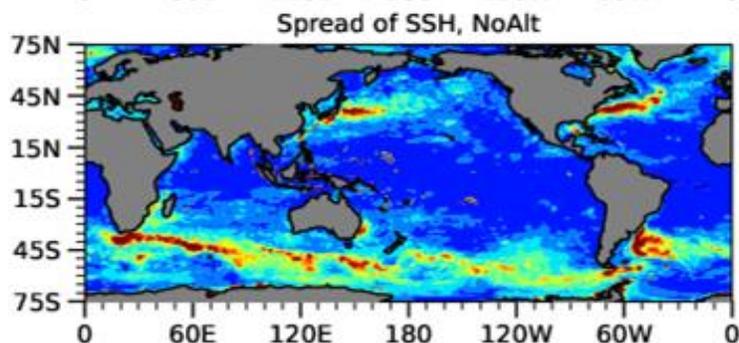


# Impacts on SSH (multi-system ensemble spread)

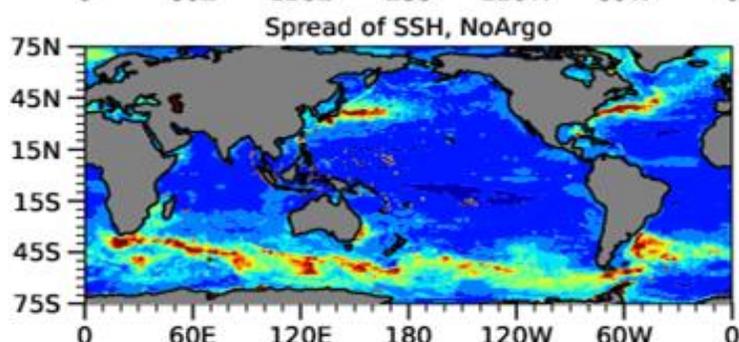
CNTL



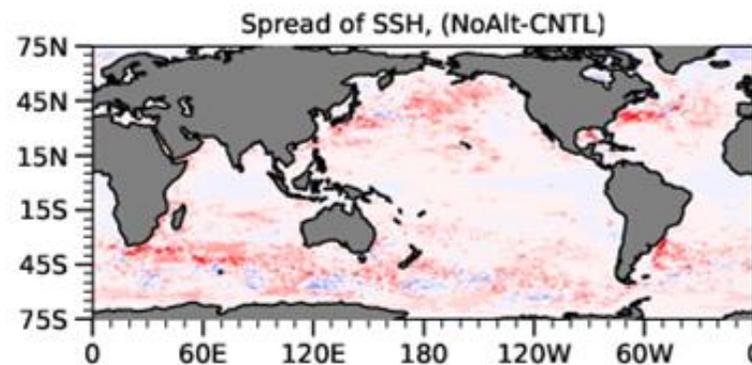
NoALT



NoArgo

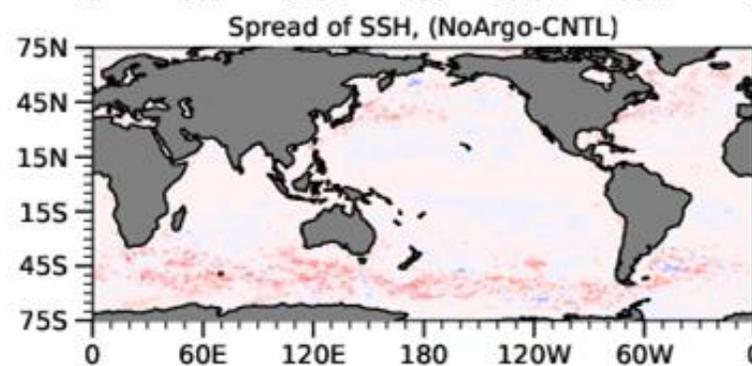


ORAS6 data are included in the calculation of the spread here although ORAS6 data were not included in the spread presented in the paper.



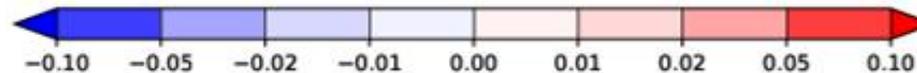
NoALT - CNTL

Impact of satellite altimeters



NoArgo - CNTL

Impact of Argo floats



# RMSE profiles against independent Argo in each system

RMSE

Normalized RMSE

RMSE

Normalized RMSE

Temp.

Salt.

Temp.

Salt.

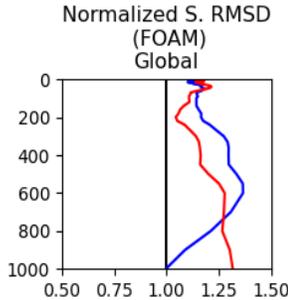
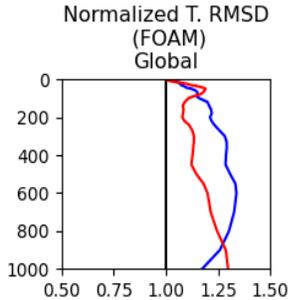
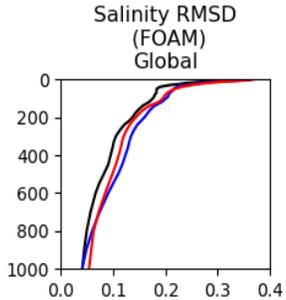
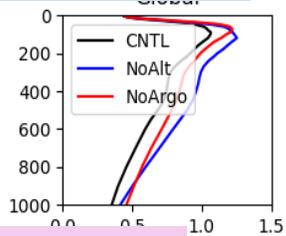
Temp.

Salt.

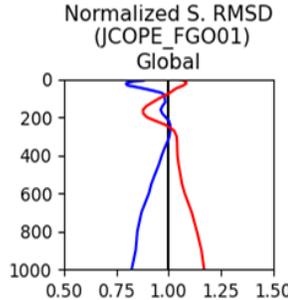
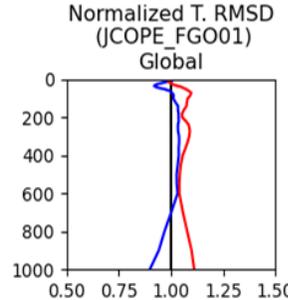
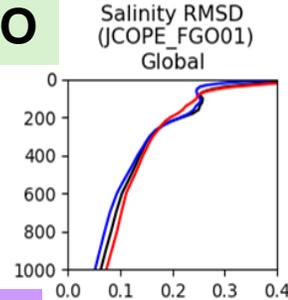
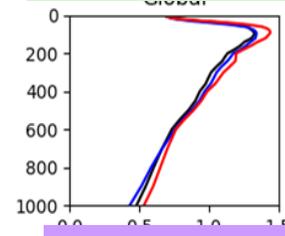
Temp.

Salt.

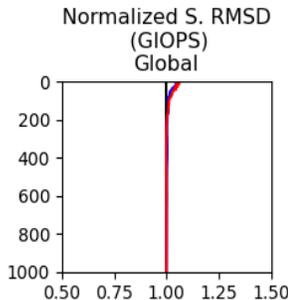
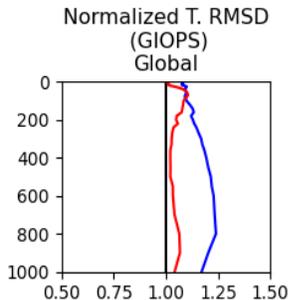
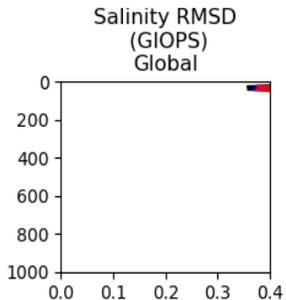
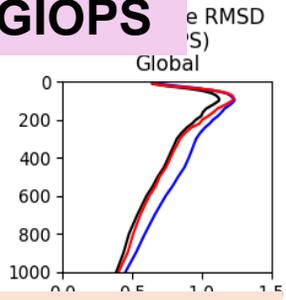
**FOAM**



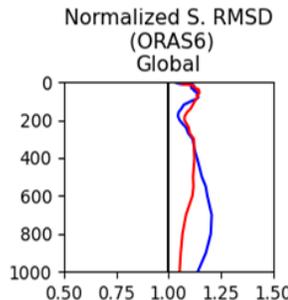
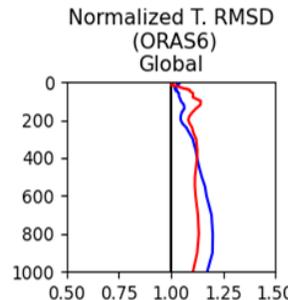
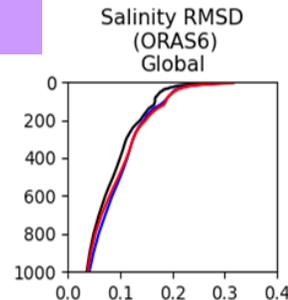
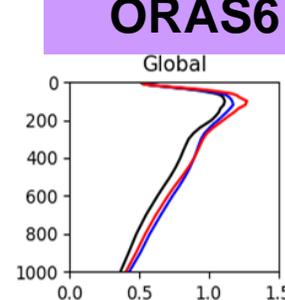
**JCOPE-FGO**



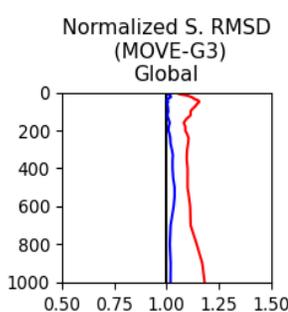
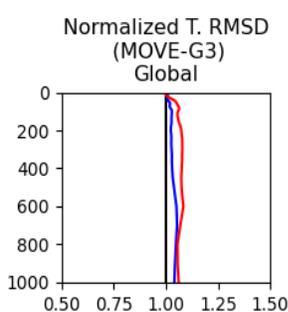
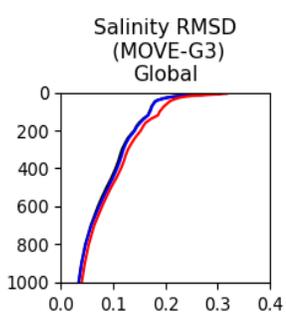
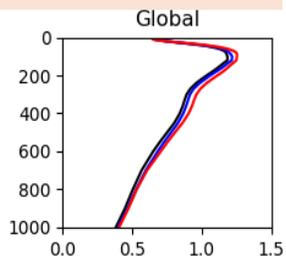
**GIOPS**



**ORAS6**



**MOVE-G3**



- GIOPS and ORAS6 results is not presented in the paper.
- Salinity for GIOPS is not correct and will be modified.

## ★ Other plan to submit papers

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- The flagship OSE introduction papers to BAMS
  - ✓ It will be a brief paper including OP and S2S OSE results. Only a few figures can be included
  - ✓ YF will start to write on October (?)
  - ✓ Need to submit a proposal to the editor
  - ✓ Support from the people familiar with BAMS is helpful
- A paper to AMS Special Collection on "The atypical 2014-2024 ENSO decade"
  - The current deadline is extended, but it will likely be extended.
  - We would like to ask to write a draft to people who plan to analyze for the tropical region (A. Subramanian, B. Dewitte, W. Kessler?)
- Papers by other analysis group is also encouraged.
  - We need to share the OSE outputs as soon as possible.

# ★ Collaboration with other groups

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## ◆ Proposal to US National Science Foundation AccelNet

- Proposal Title: Observing Science Co-Design Analysis and Reanalysis or OSCAR
- Purpose
  - Enhance the collaboration between ocean observation and prediction specialists for establishing the best practice of the ocean observing system evaluation
  - Building the network among international networks of ocean observations and predictions.
  - Network among Ocean Observing Co-design, OceanPredict/ForeSea/SynObs, and Joint Center for Satellite Data Assimilation at UCAR (JCSDA) is initially considered.
- The proposal is almost submitted.
- Plan to have a workshop to build the network (on 2025?)

## ◆ Marine Environmental Reanalysis Evaluation Project (MER-EP)

- Follow-on project of Ocean Reanalysis Intercomparison Project (ORA-IP)
- Proposed to UN Ocean Decade as a project under ForeSea
- Led by CMEMS
- Collaboration with SynObs is expected.

# ★ Future meetings

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- ◆ OceanPredict'24 Symposium (18-22 Nov, UNESCO, Paris)
  - ✓ OS-Eval TT Lunch Meeting (19 Nov., 12:45-13:45)  
We welcome all SynObs supporters to participate in. (50 people capacity)
  - ✓ Presentation introducing SynObs Activities.
- ◆ SynObs presentations in the following meeting
  - ✓ 10<sup>th</sup> International Workshop on Data Assimilation (21-25 Oct., Kobe, Japan)
  - ✓ 6<sup>th</sup> International Conference on Reanalysis (28 Oct. – 1 Nov., Tokyo, Japan)
  - ✓ AGU 2024 ?
- ◆ Session in Japan Geoscience Union Annual Meeting (25-30 May 2025, Chiba, Japan, Hybrid)
  - ✓ Plan to propose a (English) Session on SynObs
- ◆ OSCAR Meetings in 2025?
- ◆ SynObs Symposium 2026
  - ✓ In Japan
  - ✓ Aug-Early Sep 2026 or Nov-Early Dec 2026 or Feb-Early Mar. 2026 (we may take the poll.)
- ◆ Next Meeting: Early Nov. ?