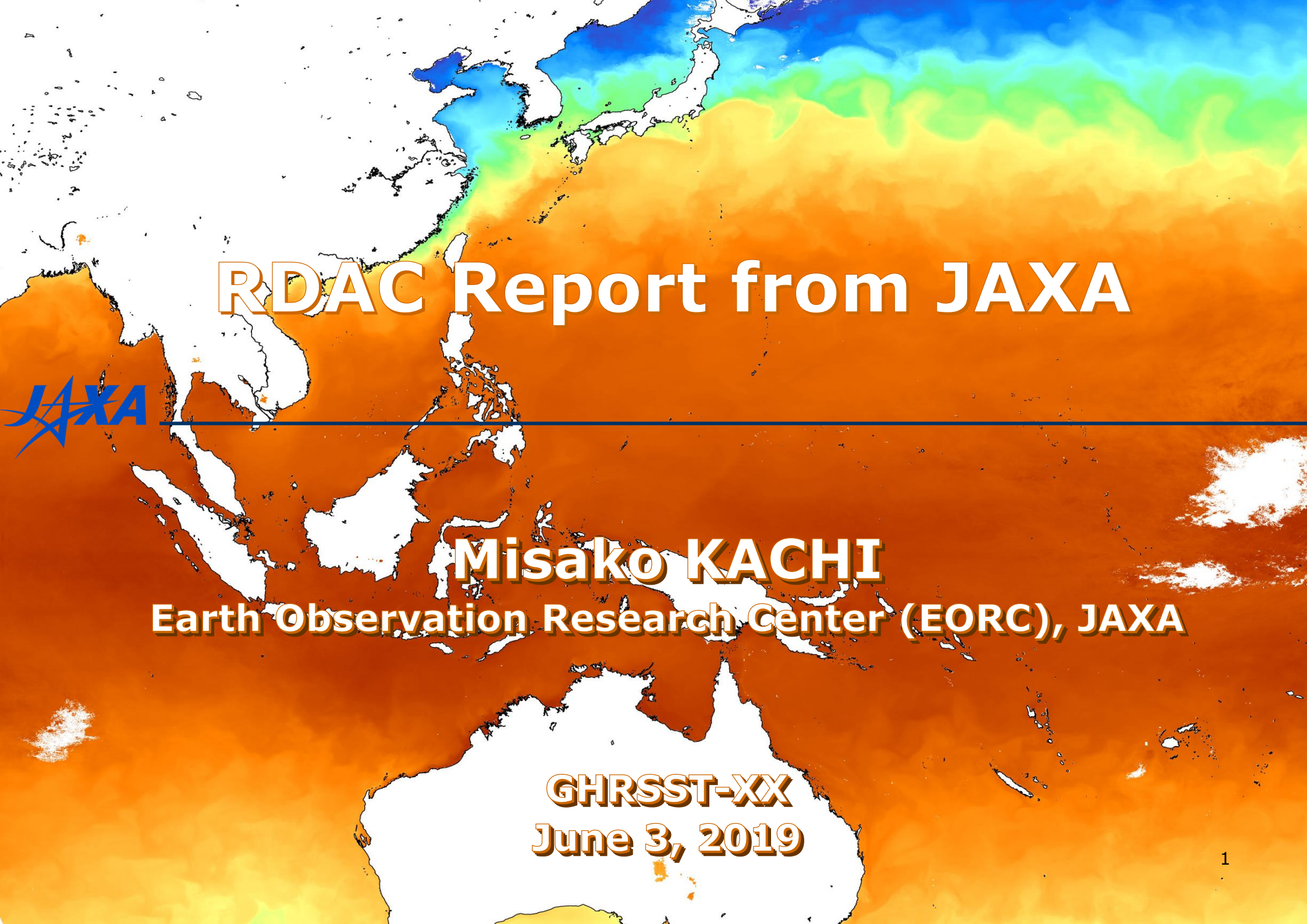

RDAC Report from JAXA

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GHRSST-XX

June 3, 2019

Introduction: JAXA GHRSST Datasets

- JAXA GHRSST server (https://suzaku.eorc.jaxa.jp/GHRSST/)
  - *Aqua/AMSR-E (2002.07 – 2011.10)*
  - *TRMM/VIRS (1997.12 – 2015.04)*
  - Windsat/Colioris (2009.04 – present): realtime
  - GCOM-W/AMSR2 (6-GHz) (2012.07 – present): realtime/delay
  - GCOM-W/AMSR2 (10-GHz) (2012.07 – present): realtime/delay
  - GPM-Core/GMI (10-GHz) (2014.03 – present): realtime/delay
- JAXA Himawari Monitor (https://www.eorc.jaxa.jp/ptree/)
  - Himawari-8/AHI (2015.07 – present): realtime
  - Model SST around Japan (data-assimilated product*) (2018.08 – present, including 2-week forecast): realtime/delay/forecast

    * in NetCDF format but not in GDS2.0.
- Planned products in future
  - AMSR-E & AMSR2 SST updates (in 2019)
  - GCOM-C/SGLI (in 2019): 250m/1km L2P?
  - SNPP/VIIRS (in 2019)

GHRSST Group for High Resolution Sea Surface Temperature

Main Activities since GHRSST-XIX (1/3)

- AMSR-E
  - **Reprocessing products consistent with AMSR2** (wider swath).
  - L1 Ver.4 was released to public, and L2 Ver.8 is soon available at: https://www.gportal.jaxa.jp/
  - L2 Ver.8 SST in GDS2.0 format will be released in 2019.
- WindSat (L1 received from NOAA)
  - **Removed Ver.8 SST products from 1 Apr. 2009 to 2 Aug. 2011** from the sever that have anomalous scan biases at scan edge.
- GMI (L1 received from NASA & JAXA/GPM)
  - **Replaced Ver.3 SST (delayed mode) during 10 May 2017 to present** due to problem in ancillary data used in previous processing. **No impact to realtime files**.
- GCOM-W/AMSR2
  - **L2 Ver.4 SST & wind speed (+more) are planned in late-2019**.
  - New 'thin ice detection' and 'total precipitable water over land' (research products) have been released in Jan. 2019. Available at: http://suzaku.eorc.jaxa.jp/GCOM_W/research/terms.html

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Major Activities since GHRSST-XVII (2/3)

- Himawari-8/AHI (L1 received from JMA)
  - **Monthly mean SST** has been released in Aug. 2018.
  - **Algorithm updates to be consistent with SGLI** is planned in mid-2019.
- GCOM-C/SGLI
  - **Public release of standard product (incl. SST) in Dec. 2018**. See **Yukio Kurihara's poster** for mode details.
  - SST in GDS2.0 is considered as 250m/1km resolution L2P.
- NPP/VIIRS (L1 received from NOAA)
  - Applying algorithm for SGLI is underway.
  - SST in GDS2.0 is also considered.
- Meteosat/SEVIRI (L1 received from EUMETSAT)
  - L1 has been received under agreement with EUMETSAT since 2018
- GOES/ABI
  - Reception of L1 is considered under agreement with NOAA, including possible data sharing with JMA

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Major Activities since GHRSST-XVII (3/3)

- AMSR2 follow-on mission
  - AMSR2 follow-on instrument will **share satellite bus with GOSAT-2 follow-on mission** (greenhouse-gas observation mission), led by Japanese Ministry of Environment. **Mission name is TBD**.
  - Mission Definition Review (MDR) and project readiness reviews were completed in Jun. 2018.
  - **Project Preparation Phase (Phase-A) activities since Sep. 2018**.
  - Expect to complete System Definition Review (SDR) in autumn 2019 and start Phase-B in winter 2019.
- Model SST with satellite data assimilation
  - Himawari, AMSR2, WindSat & GMI SSTs are assimilated to 3-km resolution regional ocean model (around Japan, East Asia) in collaboration with JAMSTEC and Nagoya University.
  - **Assimilated SST around Japan was released in Oct. 2018**. Realtime analysis with 2-week forecast & reanalysis in NetCDF format.
  - Public release since Oct. 2018 (data available from Aug. 2018)
  - Introduction of SGLI SST and improvement of spatial resolution (~1km) is planned in 2019.

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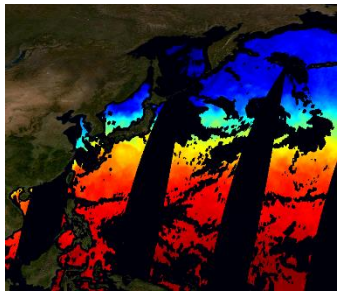
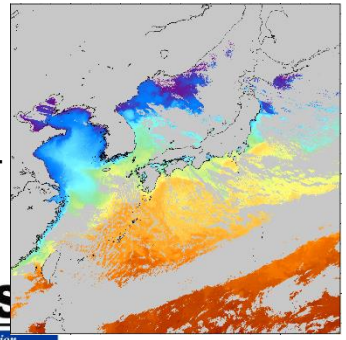
Ocean Weather Forecast by assimilating satellite observations

- JAXA and JAMSTEC have developed of the system assimilating satellite-based sea surface temperature (SST) into the 3-km resolution ocean model around Japan.
- JAXA has started routine distribution of SST analysis and 2-week forecasts by the model since Nov. 2019 through the JAXA P-Tree system (https://www.eorc.jaxa.jp/ptree/).
- Other data (temperature, salinity, currents under ocean) and their forecast are also available from JAMSTEC.
- Introduction of GCOM-C/SGLI SST is currently underway.

AMSR2 & passive microwave SSTs

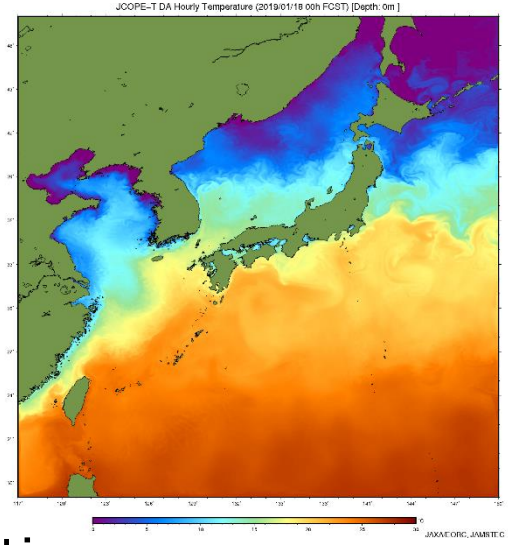


Himawari-8 SST



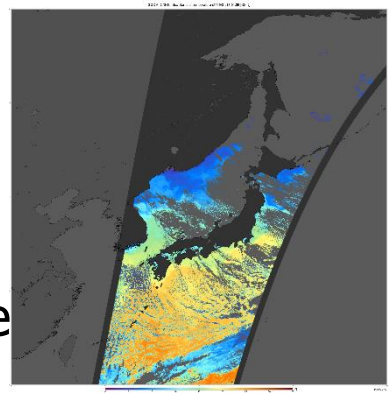
Data assimilation

Hourly model SST with 3-km resolution



Future Plan

SGLI & polar IR SSTs



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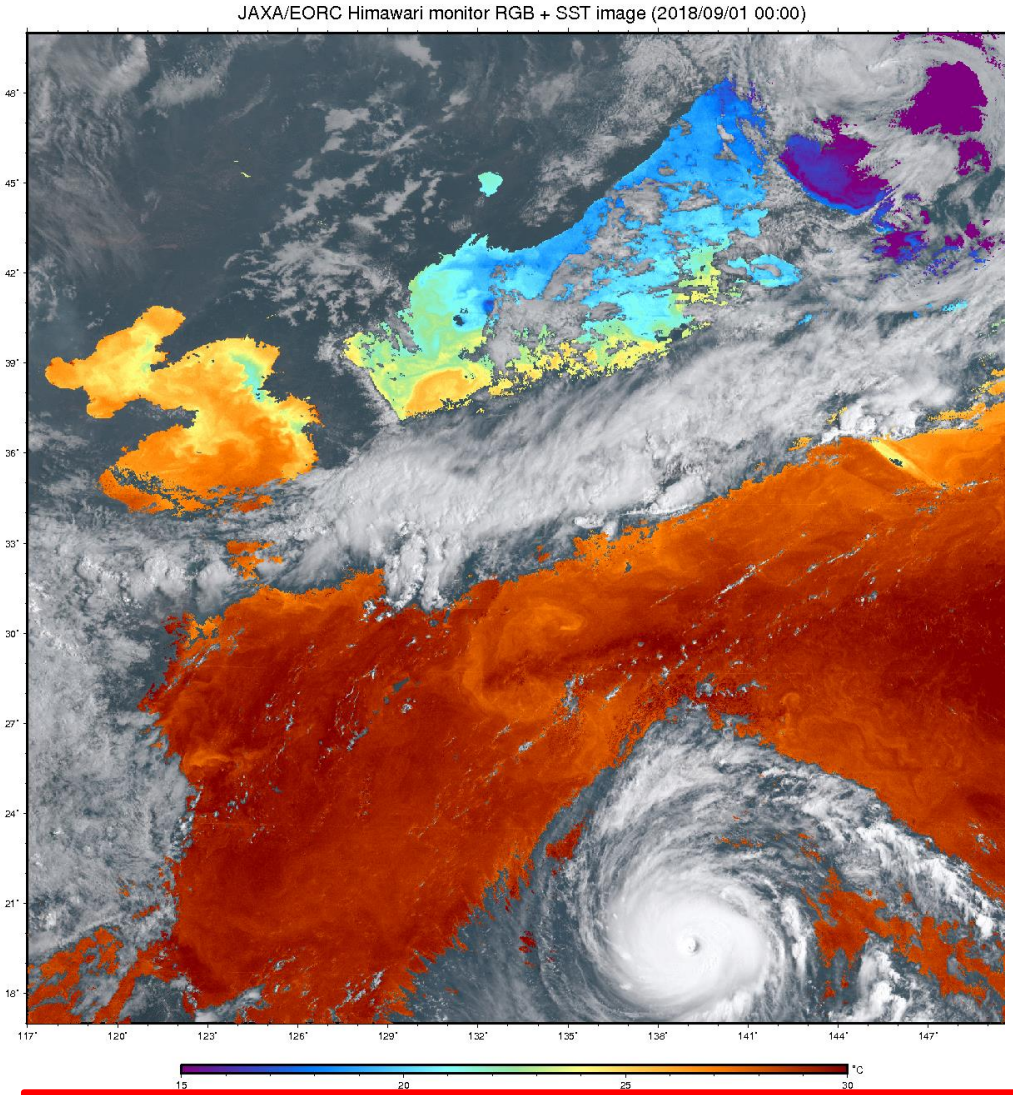
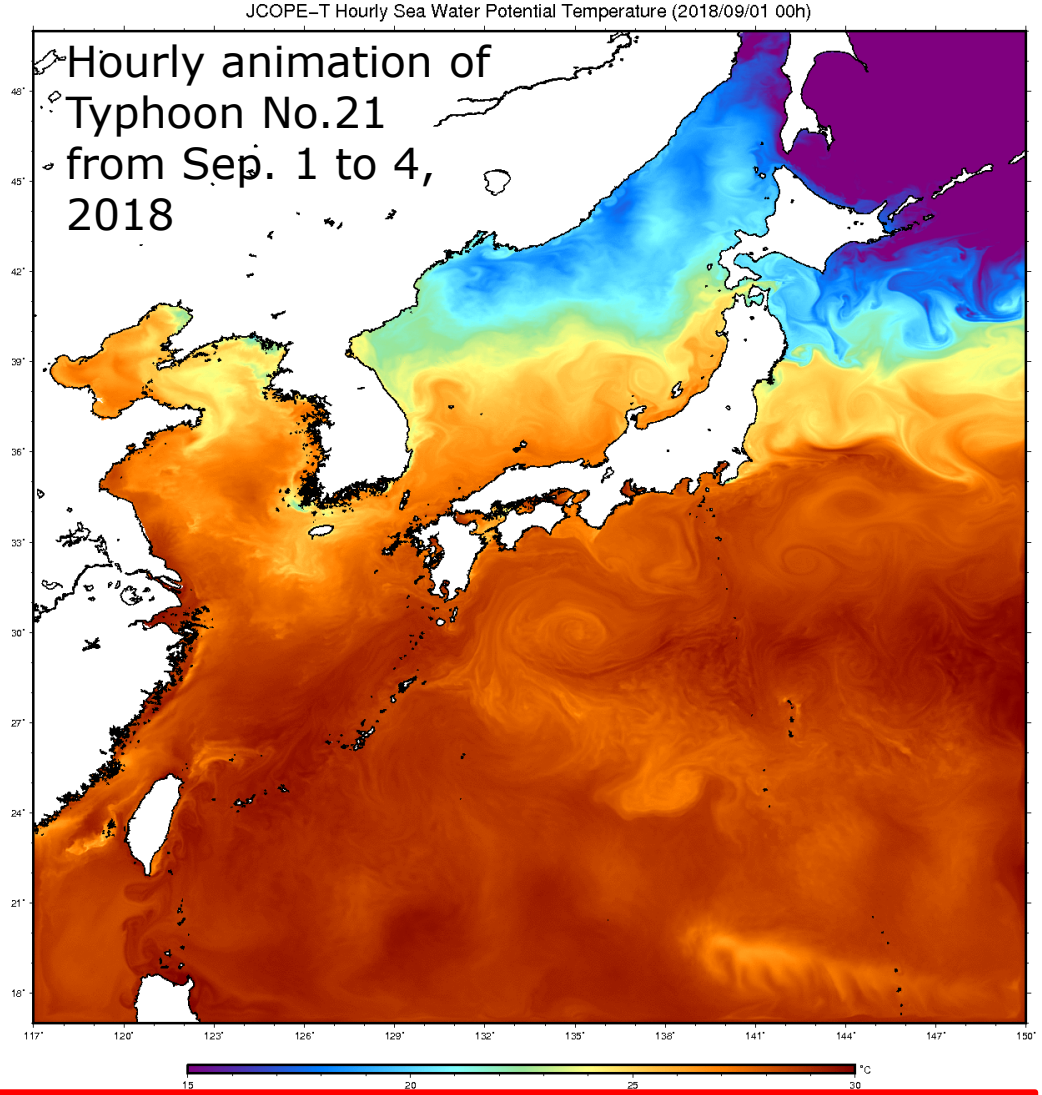
Decrease of sea surface temperature after Typhoon passing

Himawari SST & Visible RGB



Model SST with satellite assimilation



Previously, decrease of sea surface temperature (SST) corresponding to typhoon passing was partly observed by passive microwave imagers. This information is important for forecasting development/decay of typhoon.

GDS Format Data Availability

- Registration (automatic):
  - for LEO products: https://suzaku.eorc.jaxa.jp/GHRSST/
  - for Himawari: https://www.eorc.jaxa.jp/ptree/
  - NOTE: all URLs were switched to **HTTPS** in Oct. 2018
- Data access: ftp (with UID and password)
- Data latency:
  - for LEO
    - NRT mode: 1-6 hours after observation
    - Delayed mode: 1-2 days after observation
  - for Himawari-8
    - NRT mode: 20-30 minutes after observation
    - Delayed mode: 1 day after observation (will be started soon)
- Format: GDS 2.0
- Systems
  - No restriction to ingest JAXA products to GDAC except Himawari-8 (JMA's policy "non-profit only")
  - Discussed with GDAC in Apr. 2017. Request of MoU from GDAC is still under consideration at JAXA.

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Issues to be raised at G-XX

- SSES definition
  - Currently, data provider choose own “definition” of SSES of each product.
  - Want to make sure what we defined is sufficient to what users want.

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Future of GHRSST

- In next 20-year, movement of direct assimilation (SST and/or radiances) to ocean/coupling models seems to be accelerated … How GHRSST can contribute?
  - Validation of model SST
  - Consistency in long-term dataset
  - Cross-calibration of radiances
  - User requirements for next-generation instruments

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