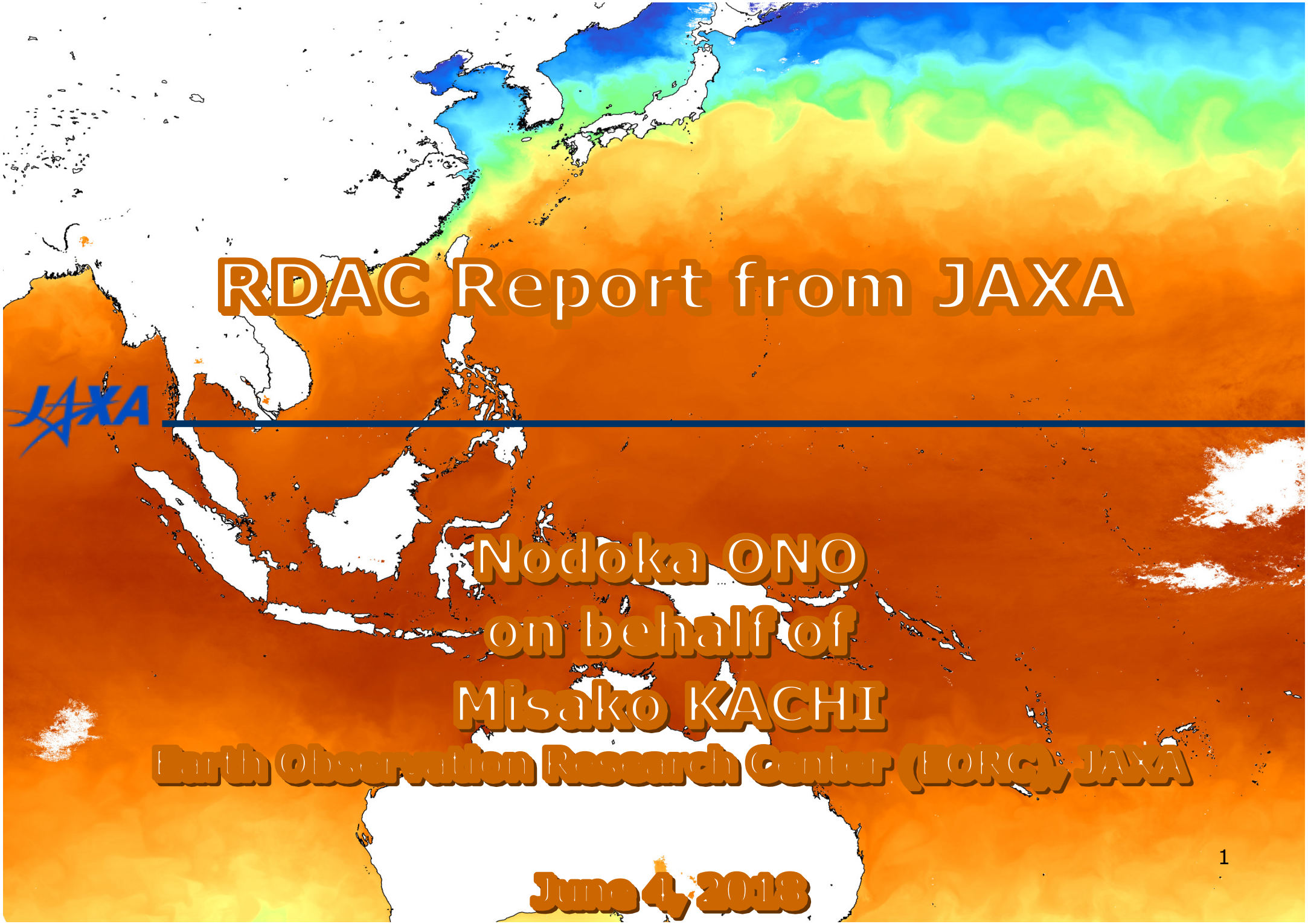

RDAC Report from JAXA

Nodoka ONO
on behalf of
Misako KACHI
Earth Observation Research Center (EORC), JAXA

June 4, 2018

Introduction: JAXA SST Missions Status

- Aqua/AMSR-E
  - Reprocessing applying AMSR-2 format and algorithms. New L1B & L1R will be released in June 2018, and L2 SST in 2018.
- GCOM-W
  - No major problem in satellite and instruments. Achieved designed mission life of 5 years in May 2017.
  - SST/SSW/SIC/SMC products are updated to Ver.3 in Mar. 2017.
  - Standard products distribution service is transferred to the G-Portal (https://www.gportal.jaxa.jp)
- GPM Core Observatory (NASA-JAXA)
  - No major problem in satellite and instruments. Achieved designed mission life of 3 years and 2 months in Apr. 2017.
  - The product version V05 has been released to public in Apr. 2017, including L1 updates of DPR & GMI.
- GCOM-C
  - Launched in Dec. 2017. First light was released in Jan. 2018.
  - Public data release is scheduled in Dec. 2018.

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JAXA GHRSST Datasets

- JAXA GHRSST server (http://suzaku.eorc.jaxa.jp/GHRSST/) distributes following L2P/L3C products in GDS 2.0.
  - *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
  - Himawari-8/AHI (2015.07 – present): realtime/(delay)
- Planned products in future
  - Himawari/AHI update (in 2018)
  - SNPP/VIIRS (in 2018)
  - GCOM-C/SGLI (in 2019)
  - Level 4 SST around Japan (data assimilation product) (in JFY2018)

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Main Activities since GHRSST-XVII (1/3)

- AMSR-E activities
  - **AMSR-E products consistent with AMSR2**, which are processed with the latest AMSR2 L2 algorithms and formats.
  - L1 reprocess completed (open to public soon), and L2 reprocess is in progress.
  - L2 SST applying the latest AMSR2 algorithm, which was released in Mar. 2017, will be released in 2018.
- AMSR2 activities
  - **L2 version-up** to Ver.3 in Mar. 2017 for SST, wind speed, sea ice concentration, and soil moisture. Reprocessing of L2 Ver.3 for the past period was completed.
  - **AMSR2 10GHz SST in GDS 2.0** was released in Feb. 2017.
  - **Updated all-weather sea surface wind speed** (research product) in Jan. 2018.
  - New land surface temperature (research product) has been released in Feb. 2018. Available at: http://suzaku.eorc.jaxa.jp/GCOM_W/research/terms.html

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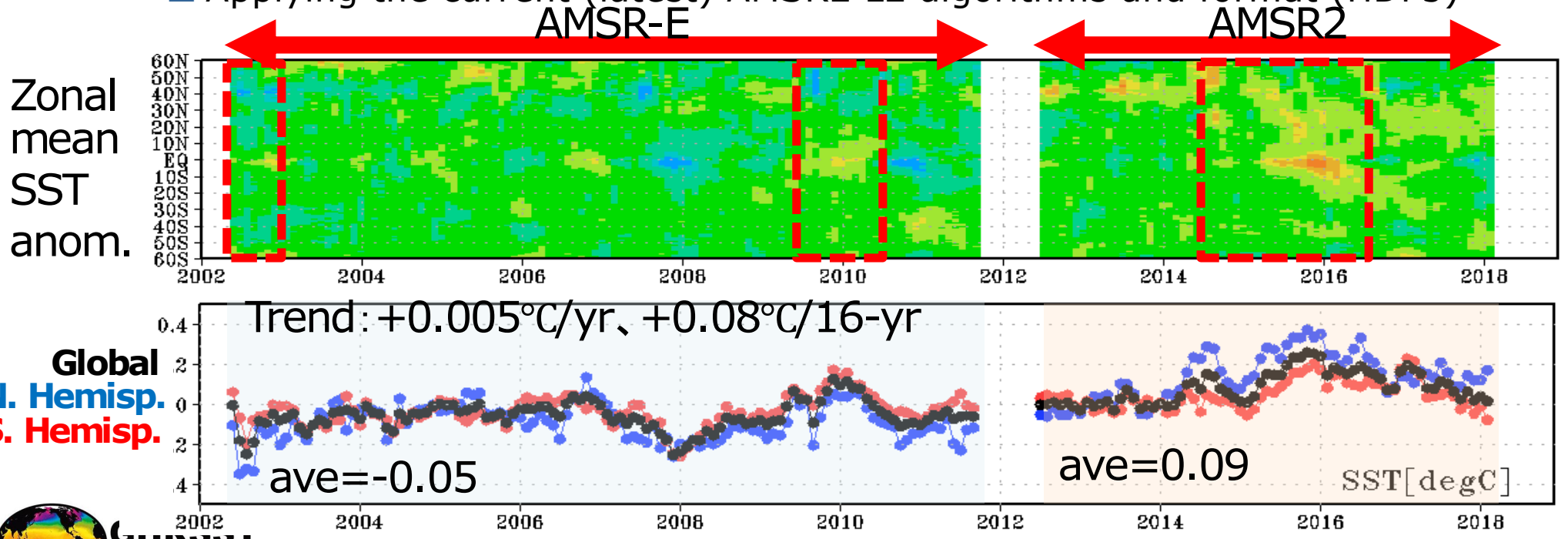
AMSR-E Reprocess Product Status

- To provide consistent dataset between AMSR2 and AMSR-E for long-term analysis, JAXA has reprocessed AMSR-E product applying the latest AMSR2 algorithms.
  - Level 1 & 3 (brightness temperature): Public release from G-Portal (https://www.gportal.jaxa.jp) (June 2018)
    - Level 1B & 1R in AMSR2 format (HDF5)
    - Wider swath width (>1600km) same as AMSR2
  - Level 2 & 3 (geophysical parameters): Planning public release
    - Applying the current (latest) AMSR2 L2 algorithms and format (HDF5)



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Major Activities since GHRSST-XVII (2/3)

- TRMM activities
  - **TRMM V8** products was released in Nov. 2017.
- GPM activities
  - **GPM V05** (DPR, GMI, & combined products) has been released in Apr. 2017.

    JAXA: https://www.gportal.jaxa.jp and also available from NASA.
  - **GMI SST in GDS2.0** also has been updated in Apr. 2017 in corresponding to GMI L1 V05 updates.
- Himawari-8 activities
  - **JAXA Himawari Monitor** (http://www.eorc.jaxa.jp/ptree) has been opened to public since Aug. 2015 to distribute JMA-provided L1 and JAXA-produced L2 products.
  - **Himawari-8 SST V1.2** has been released in Aug. 2016.
  - Algorithm updates to improve cloud mask is in preparation.
  - During maintenance of Himawari-8 on 13-14 Feb. 2018, Himawari-9 SST was distributed.
    - Approximately 0.5 ºC decrease in the Himawari-9 retrievals compared the Himawari-8 product due to the difference in the calibration.

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Major Activities since GHRSST-XVII (3/3)

- GCOM-C/SGLI activities
  - **Successfully launched** in Dec. 2017. Currently in Cal/Val phase. See **Yukio Kurihara's poster**.
  - SST algorithm developed for SGLI is applied to Himawari-8/AHI, and will be applied to Aqua/Terra MODIS to produce consistent dataset.
  - SGLI SST in GDS 2.0 will be available at JAXA GHRSST server after public data release in Dec. 2018.
- AMSR2 follow-on mission
  - The Roadmap for the Basic Plan on Space Policy was revised in Dec. 2017: "The government should conduct development research on AMSR2's successor sensor (AMSR3) on condition that hosted payload with GOSAT-3 (Green-house gases Observation SATellite-3) in JFY2018."
  - The government approved the budget for JFY2018 to built and test prototypes of AMSR3's components.
  - The Mission Definition Review (MDR) is in progress.
- Marine Environment Monitoring research
  - Himawari, AMSR2 and MODIS SST data are assimilated to 3-km resolution regional ocean model (Japan, East Asia) in collaboration with JAMSTEC and Nagoya University.
  - Assimilated SST (Level 4 SST) around Japan is consider to release in JFY2018. GDS format?

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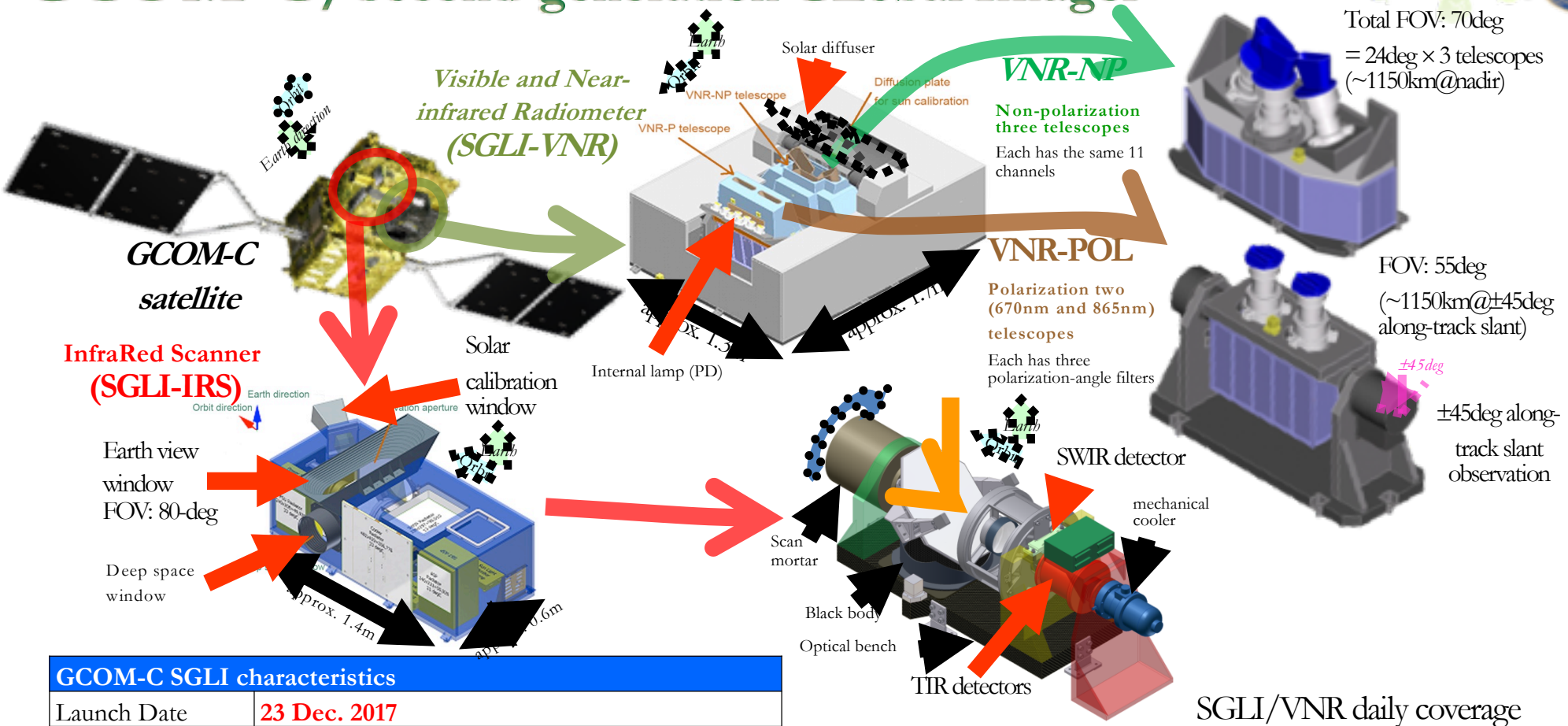
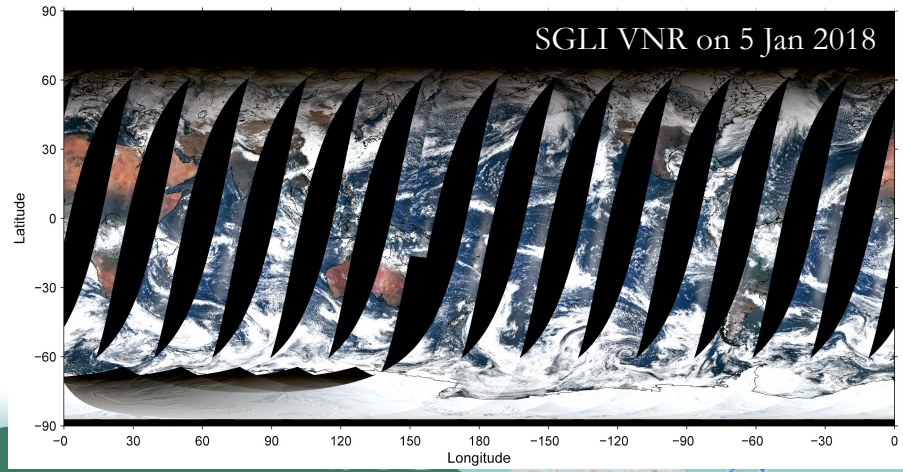
GCOM-C/Second-generation GLobal Imager



GCOM-C SGLI characteristics	
Launch Date	**23 Dec. 2017**
Weight	2,000kg
Orbit	Sun-synchronous (descending local time: 10:30), Altitude: 798km, Inclination: 98.6deg
Mission Life	5 years (3 satellites; total 13 years)
Scan	Push-broom electric scan (VNR: VN & P) Wisk-broom mechanical scan (IRS: SW & T)
Scan width	**1150km** cross track (VNR: NP & POL) **1400km** cross track (IRS: SWIR & TIR)
Spatial resolution	**250m, 500m, 1km**
Polarization	**3 polarization angles for POL**
Along track tilt	Nadir for VN, SW and TIR, & +/-45 deg for POL

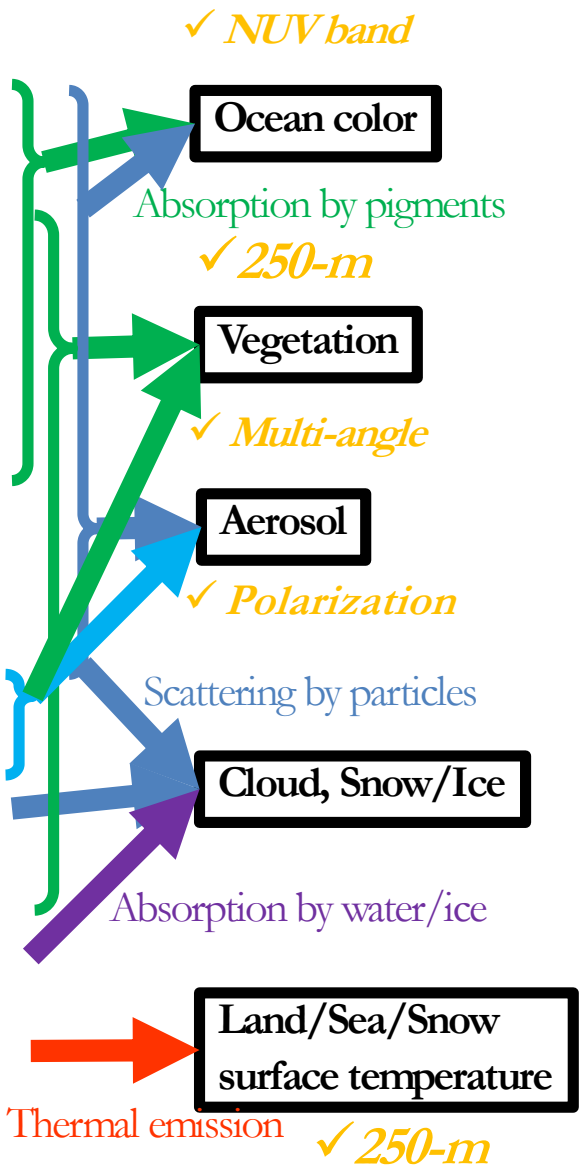
SGLI/VNR daily coverage



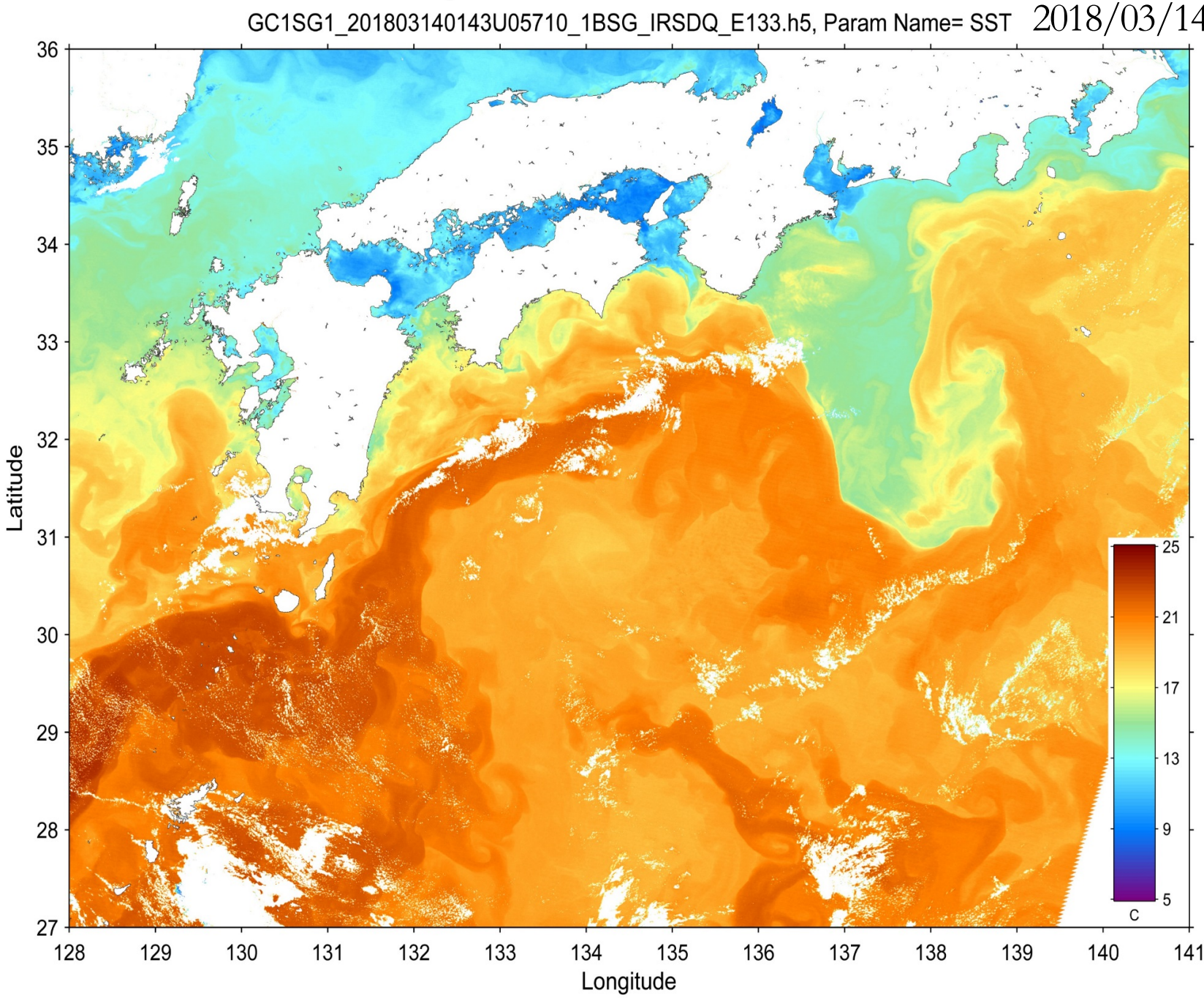
GCOM-C/SGLI: observation channels

CH	λ	Δλ	L_{std}	L_{max}	SNR	IFOV
	nm		$W/m^2/sr/\mu m$ TI: Kelvin		TI: NEΔT	m
VN01	380	11	60	210	675	**250**/1000
VN02	412	10	75	250	800	**250**/1000
VN03	443	10	64	400	517	**250**/1000
VN04	490	10	53	120	865	**250**/1000
VN05	530	20	41	350	482	**250**/1000
VN06	566	20	33	90	1040	**250**/1000
VN07	672	22	23	62	1002	**250**/1000
VN08	672	22	25	210	549	**250**/1000
VN09	763	11	40	350	1646	250/**1000**
VN10	867	21	8	30	491	**250**/1000
VN11	867	21	30	300	498	**250**/1000
PL01	672	21	25	250	655	**1000**
PL02	866	20	30	300	723	**1000**
SW01	1050	21	57	248	951	**1000**
SW02	1390	20	8	103	346	**1000**
SW03	1630	196	3	50	100	**250**/1000
SW04	2210	51	1.9	20	379	**1000**
TI01	10800	760	300K	340K	0.039K	250/**500**/1000
TI02	12000	780	300K	340K	0.069K	250/**500**/1000

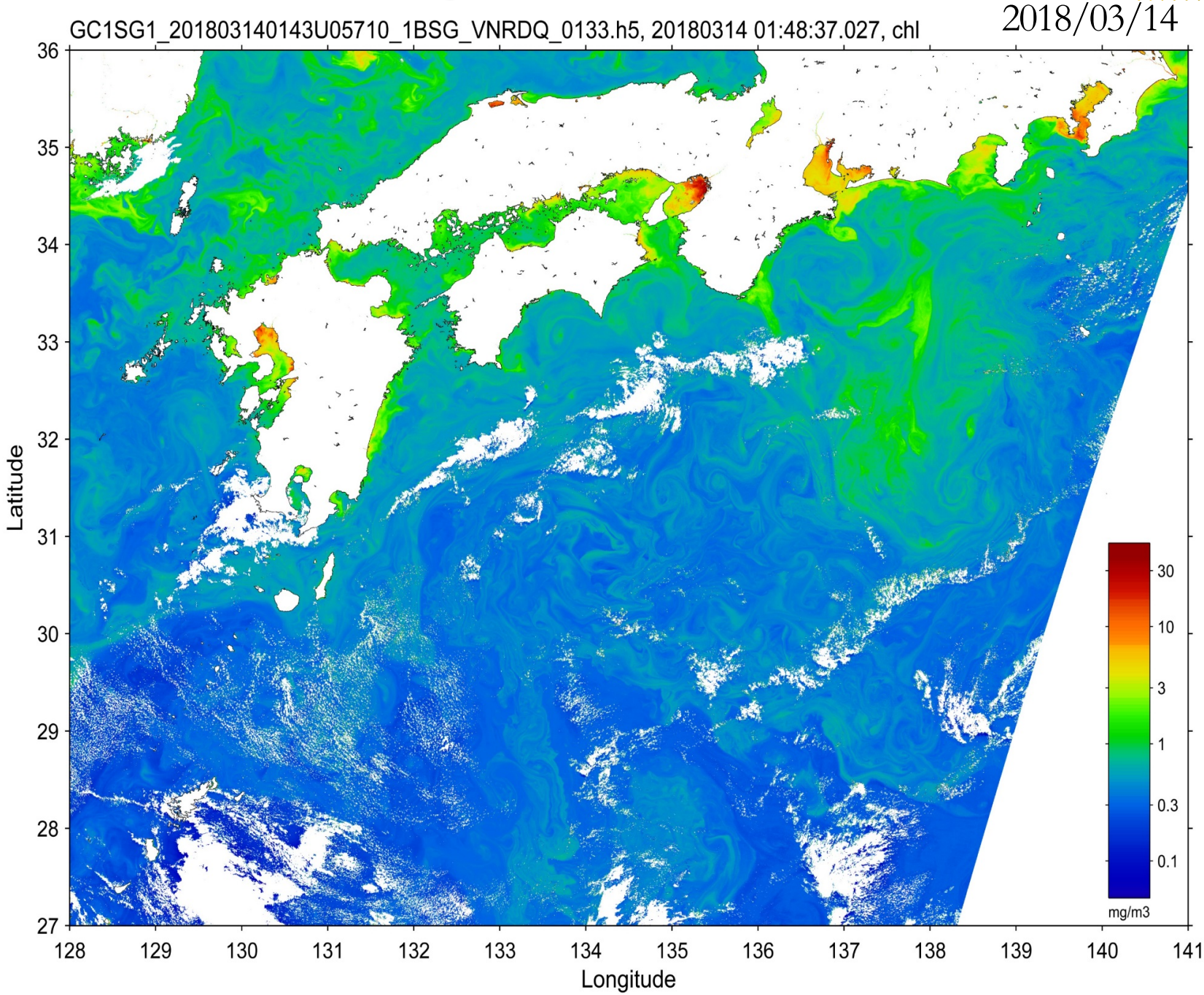
SNR is defined at L_{std} and IFOV shown by bold characters



GCOM-C images: 250-m SST



GCOM-C images: 250-m Chl-*a*



GDS Format Data Availability

- Registration (automatic):
  - for LEO products: http://suzaku.eorc.jaxa.jp/GHRSST/
  - for Himawari: http://www.eorc.jaxa.jp/ptree
  - NOTE: Both will be 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 under consideration at JAXA.

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