Introduction to Data and Products of FENGYUN Polar Orbiting satellites

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OUTLINE

- FY Polar Orbiting satellites Overview
- FY-3 Products Processing and Generation
- Typical Products Evaluation and Validation
- Data and Products Application

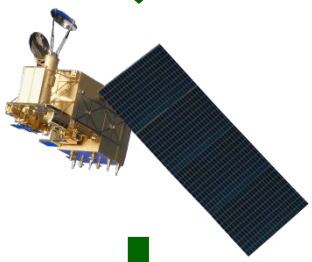
FENGYUN LEO Satellites Overview

FengYun LEO Satellites

Polar System

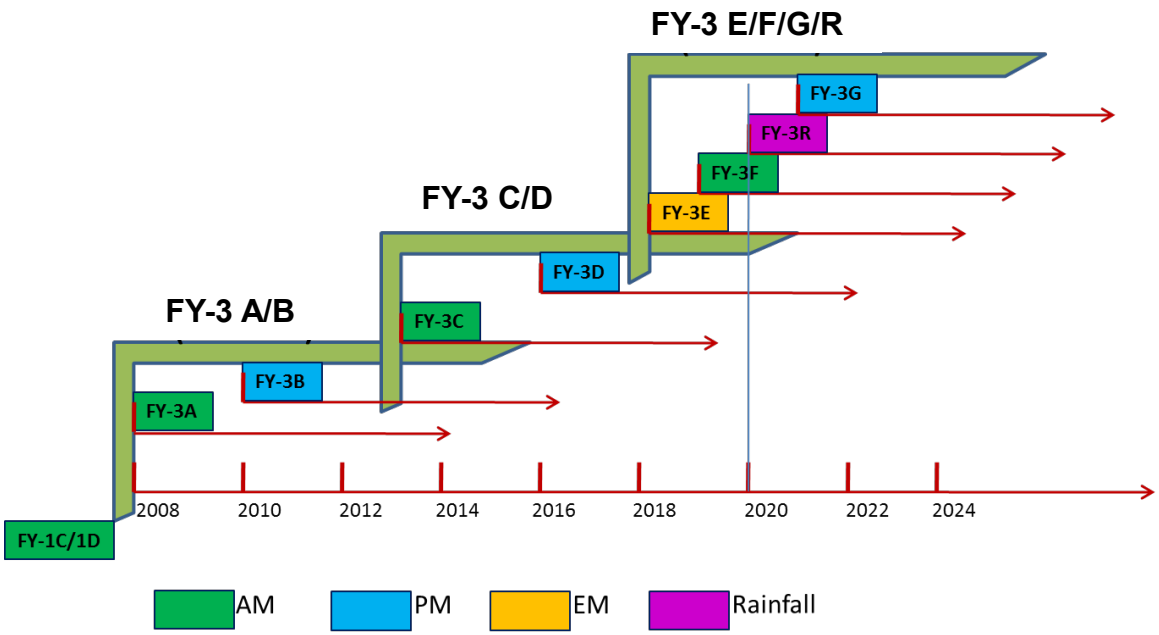
First Generation
FY-1 A, B, C, D

Second Generation
FY-3 A, B, C, D,
E, F, G, R



Expected until 2025

FY-3 C/D to E/F/G/R Transition



3 yrs 5 yrs 8 yrs

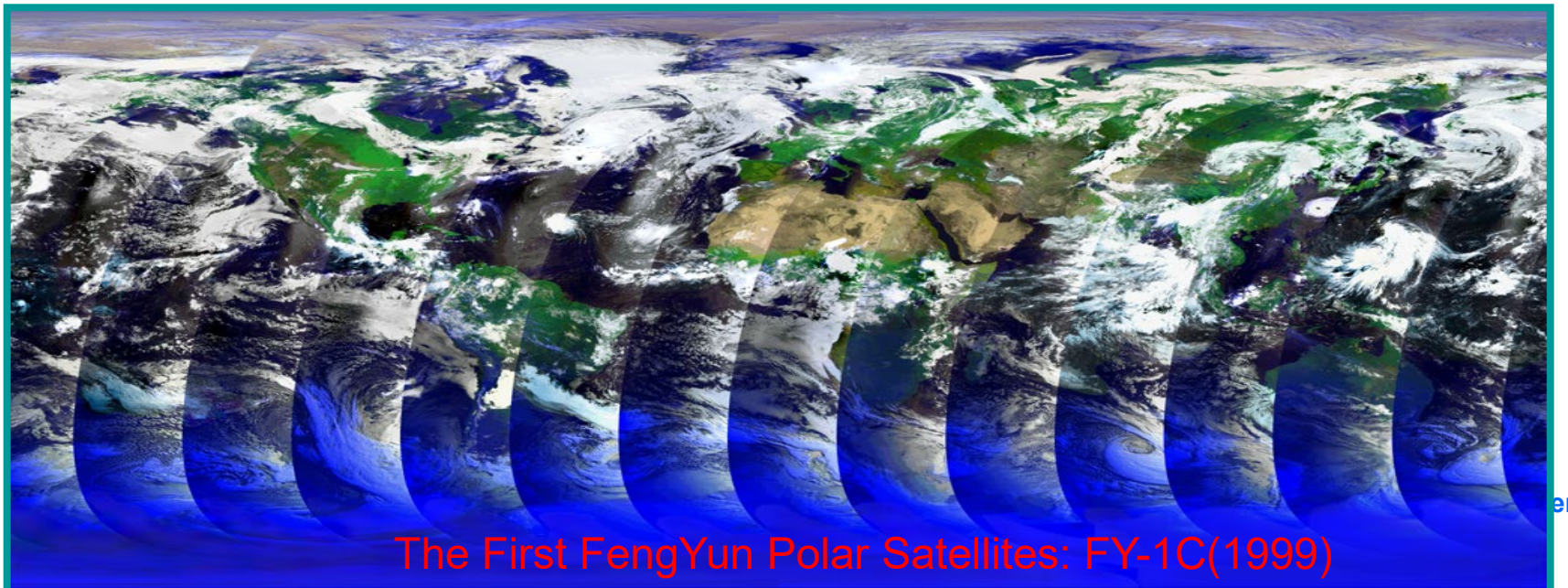
Designing lifetime

About 30 years:

From EXPERIMENT to OPERATION

Polar-orbiting Series

1988.09.07	FY-1A	Experimental	39 Days	LEO
1990.09.03	FY-1B	Experimental	158 Days	
1999.05.10	FY-1C	Operational	6.5 Years	
2002.05.15	FY-1D	Operational	>10 Years	
2008.05.17	FY-3A	AM Orbit	Experiment	
2010.11.05	FY-3B	PM Orbit	Experiment	
2013.9.23	FY-3C	AM Orbit	Operational	
2017.11.15	FY-3D	PM Orbit	Operational	

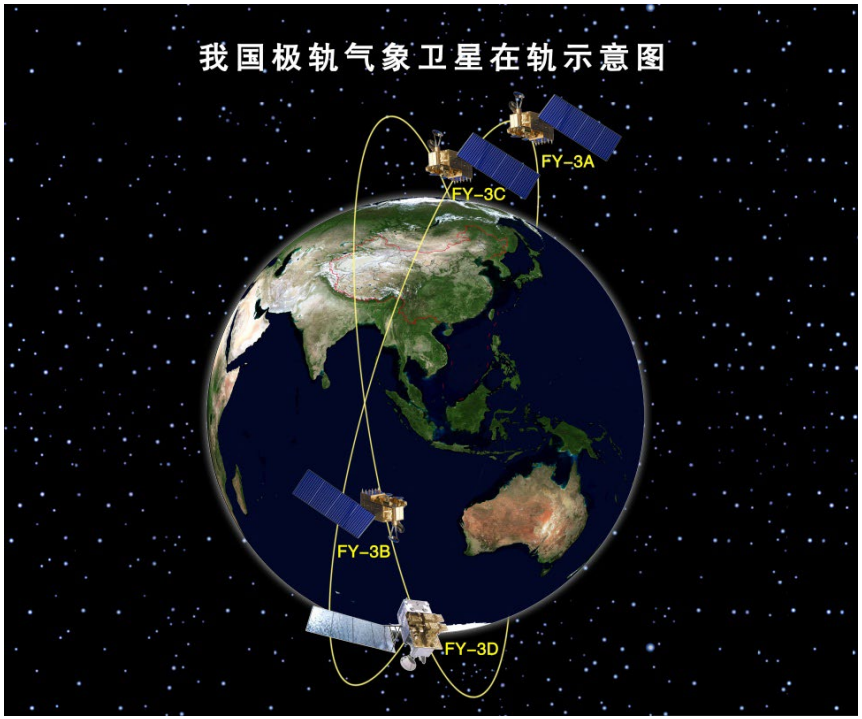


The First FengYun Polar Satellites: FY-1C(1999)

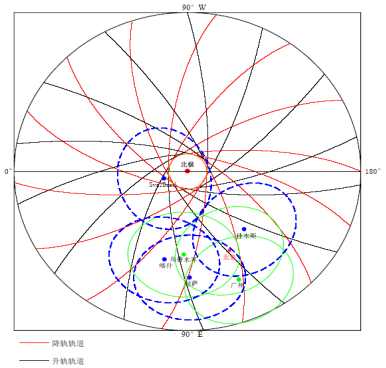
er ,CMA

Revolutionary Upgrade from 1st to 2nd Generation LEO: FY-3 (2008-)

FY-3 is the Chinese second generation LEO meteorological satellite. Four Satellites has already been on orbit and four more satellite will be lunched.



- **Instruments Covering UV, VIS, IR, MW, GNSS**
  - ✓ Optical imaging
  - ✓ Atmospheric sounding
  - ✓ Microwave Imaging
  - ✓ Ozone sounding
  - ✓ Radiation budget from Earth/Solar
- **Spatial Resolution from Km to 250m**



Global Data Latency within 4 hours maximum

Station Name	*Longitude*	*Latitude*
Beijing Station	*116° 16′ 36″ E*	*40° 03′ 06″ N*
Guangzhou Station	*113° 20′ 20″ E*	*23° 09′ 52″ N*
Wulumuqi Station	*87° 34′ 08″ E*	*43° 52′ 17″ N*
Jiamusi Station	*130° 22′ 48″ E*	*46° 45′ 20″ N*
Kiruna Station	*21° 02′ E*	*67° 32′ N*
Antarctic station	*2.5° E*	*72S*

FY-LEO Continuity

- Current FY-3 constitute the Leo constellation with 2 premier satellites to provide the global observation of the Earth 4 times per day in AM orbit and PM orbit.
- Future FY-3 beyond will provide some particular observations, such as early-morning orbital observations and Rainfall mission from LEO. At the same time, the atmospheric composition monitoring will be enhanced.
- FY-LEO series can be one important components of global observation with improved instrument performance (NEΔT), enhanced and traceable calibration procedures.

Payloads Configuration for FY-3E/F/G and Rainfall Mission

N0.	Sensor Siute	Satellite / Sensor	FY-3E （05） EM	FY-3F （06)AM	FY-3G (07)PM	FY-3R (08)Rainfall
		Scheduled Launch Date	2020	2021	2022	2021
1	Optical Imagers	MERSI	√（LL）	√（III）	√（III）	√（Simp.）
2	Passive Microwave Sensors	MWTS	√	√	√	√
		MWHS	√	√	√	√
		MWRI		√	√	√
3	Occultation Sounder	GNOS	√	√	√	√
4	Active Microwave Sensors	WindRAD	√	√		
		Rainfall RAD				√
5	Hyperspectral Sounding Sensors	HIRAS	√	√	√	
		GAS (Greenhouse Gases Absorption Spectrometer)			√	
		OMS (Ozone Mapping Spectrometer)		√		
6	Radiance Observation Sensor Suite	ERM		√		
		SIM	√	√		
		SSIM (Solar Spectral Irradiation Monitor)	√			
7	Space Weather Sensor Suite	SEM		√	√	
		Wide Angle Aurora Imager		√	√	
		Ionosphere photometer	√	√	√	
		Solar X-EUV Imager	√			

Latest FY-3D Instrument configuration

-- Launched on 15, Nov. 2017 and Operational Running on orbit

10 instruments on board FY-3D:

☐ 5 Successive instruments:

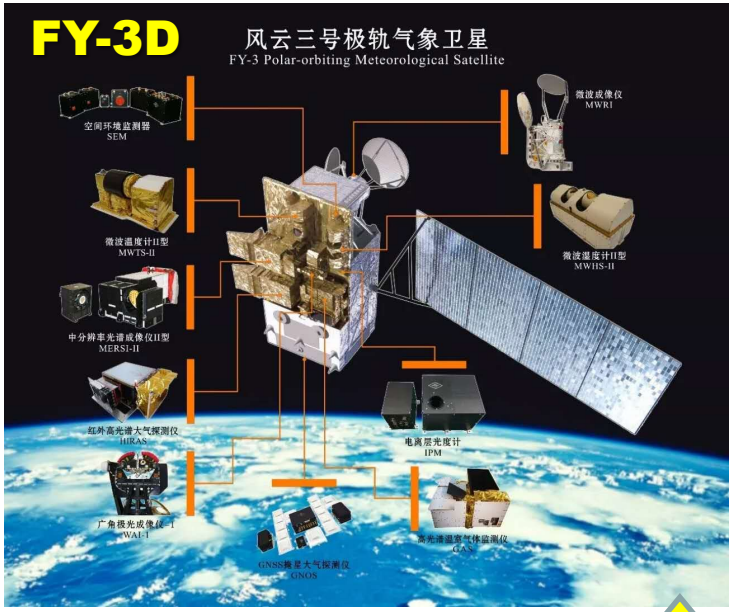
MWTS-II: Microwave Temperature sounder
MWHS-II: Microwave Humidity sounder
MWRI: Microwave Radiation Imager
GNOS: Global Navigation Occultation Sounder
SEM: Space Environment Monitor

☐ 2 Improved instruments：

MERSI-II： Improved from MERSI
HIRAS: Upgraded from filter-type sounder IRAS

☐ 3 New Instruments:

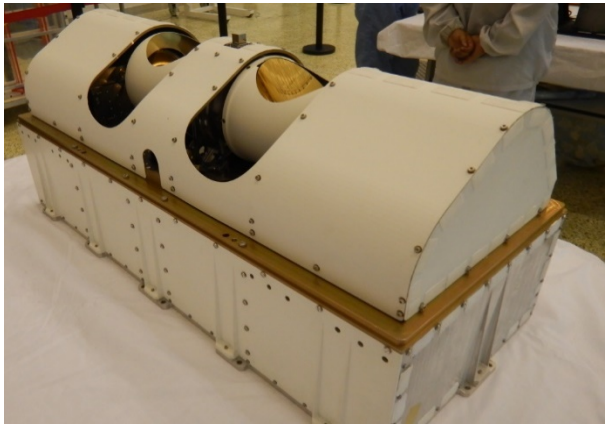
GAS: Greenhouse gases Absorption Spectrometer
WAI: Wide-angle Aurora Imager
IPM: Ionospheric Photometer



Microwave Instruments

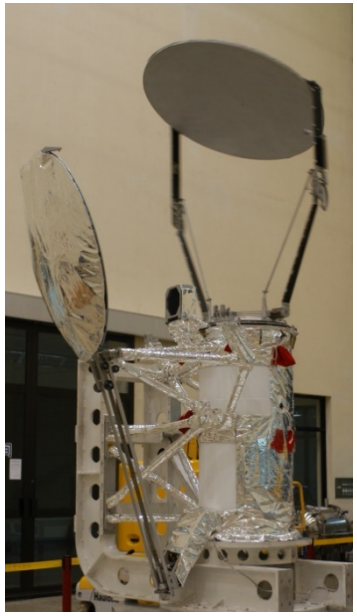
MicroWave Radiation Imager (MWRI)	10 (10.65 – 89 GHz)
MicroWave Temperature Sounder (MWTS-2)	13 (50.3 – 57.29 GHz)
MicroWave Humidity Sounder (MWHS-2)	15 (89.0 – 183.31 GHz)
GNSS Occultation Sounder (GNOS)	29 (--)

MWHS-II



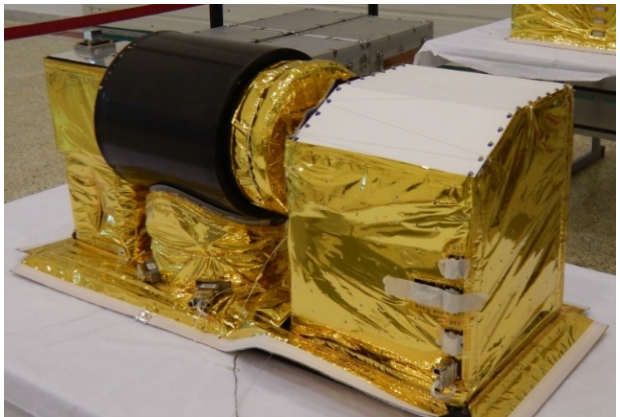
MWRI

Imaging

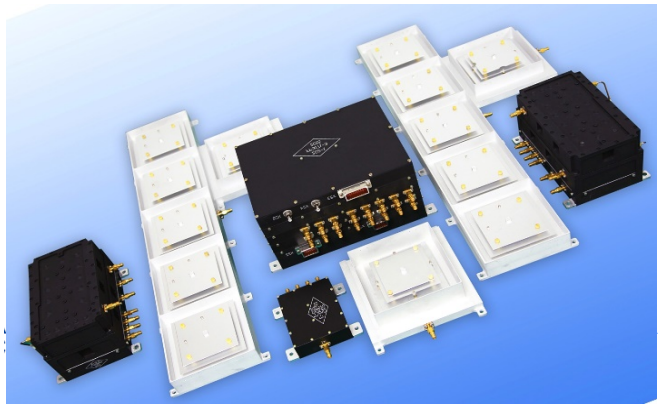


NWP---Atmosphere Profile Sounding

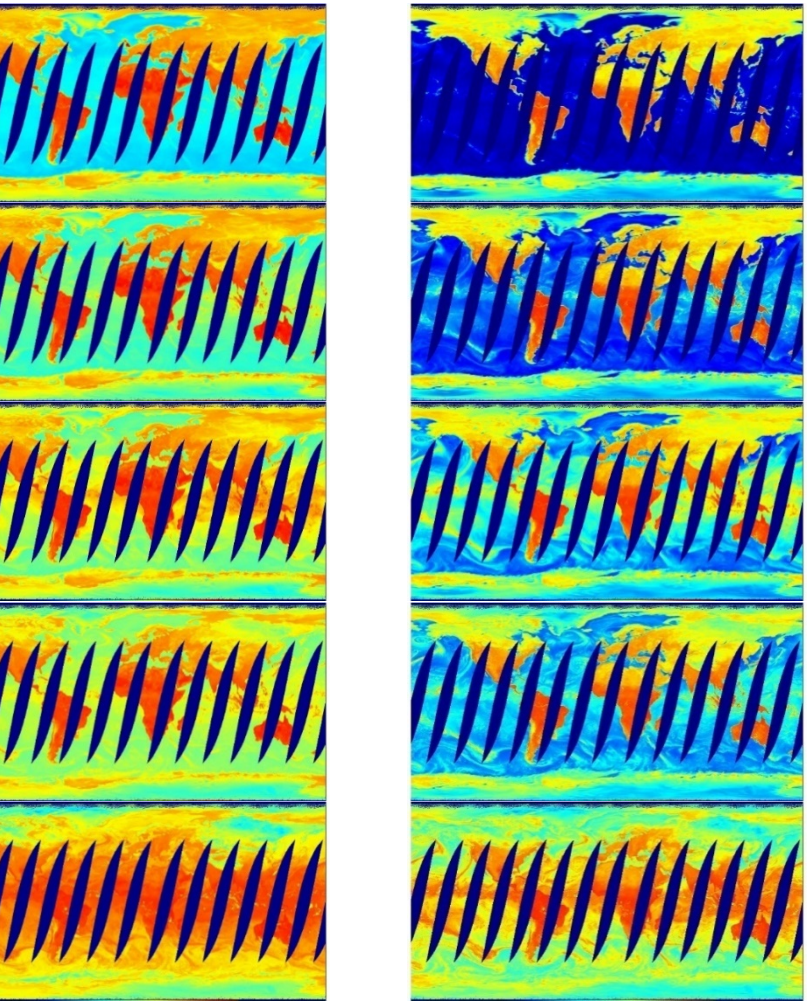
MWTS-II



GNOS

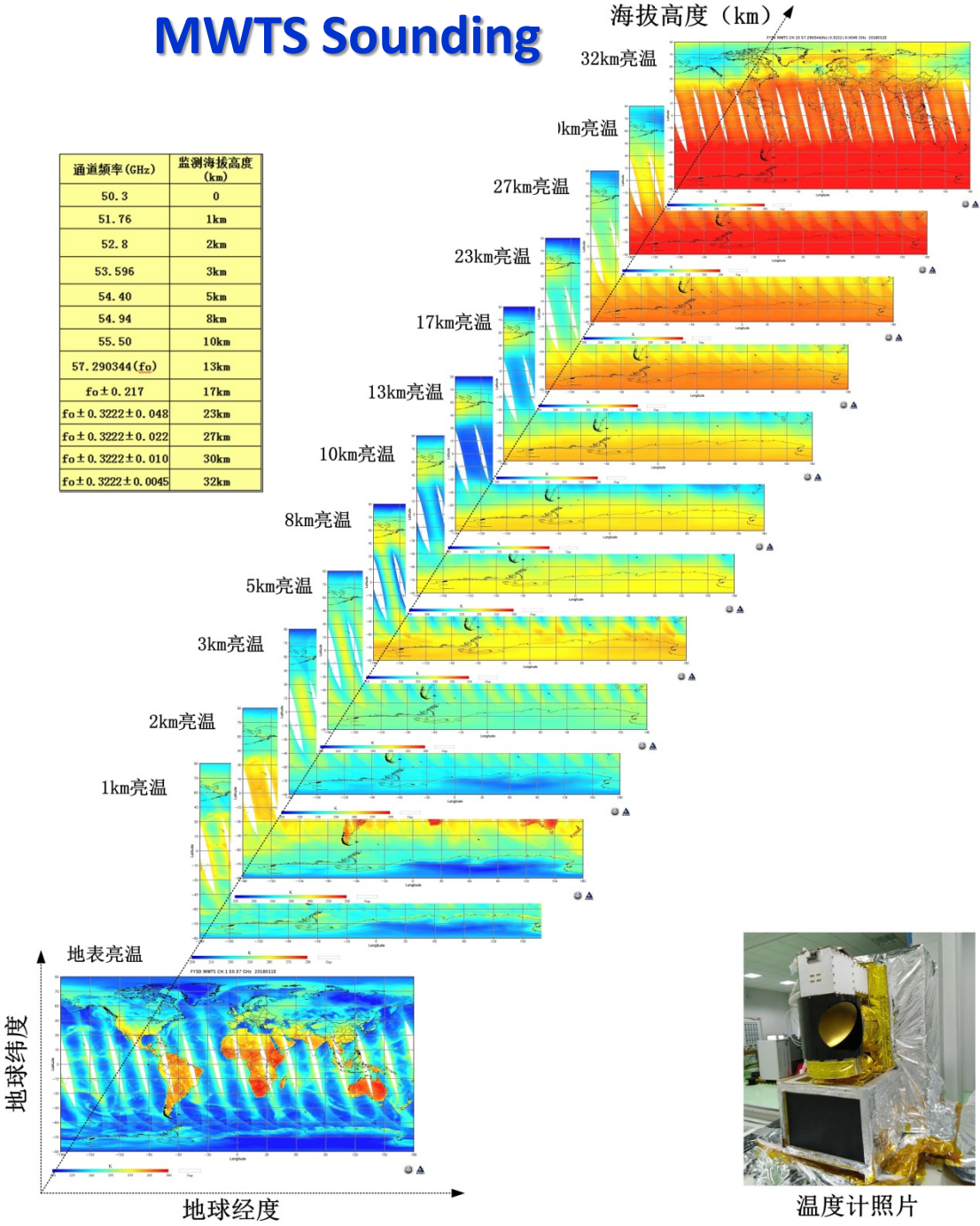


MWRI Imaging



MWTS Sounding

通道频率(GHz)	监测海拔高度(km)
50.3	0
51.76	1km
52.8	2km
53.596	3km
54.40	5km
54.94	8km
55.50	10km
57.290344(fo)	13km
fo±0.217	17km
fo±0.3222±0.048	23km
fo±0.3222±0.022	27km
fo±0.3222±0.010	30km
fo±0.3222±0.0045	32km



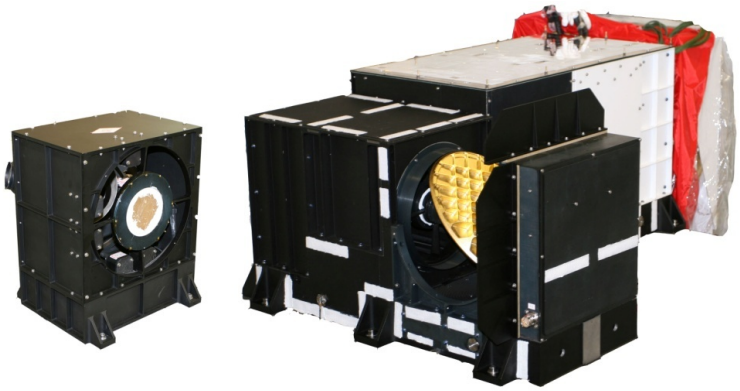
温度计照片

MERSI-1on FY-3A/3B/3C

CHARACTERIZATION SPECIFICATION OF MERSI

Parameters	Specification
Earth scanning	±55.1degree±0.1
Quantization	12 bits
Scanner speed	40 rotation/minute
Scanning stability	<0.5 IFOV (1000m)
Sampling pixel of each scan	2048(1000m bands) , 8192(250m bands)
Scanner Pointing accuracy	120 ±30 arcseconds, 1 (±100m at nadir)
Response Degradation rate	<20%/3 years
Spectral Characterization Accuracy	Bias of Center wavelength< 10%* width, out of band< 3%
Inter-band Co-registration	<0.3pixels
Restore of saturation	≤6 pixels(1000m) within 2 km of entering L*typ* regime
Bright Target Recovery	≤24pixels(250m)
MTF	≥0.27(1000m) , ≥0.25(250m)
Radiometric Calibration accuracy	Visible bands <7%; Thermal band<1k(270k)
Detector consistency within one band	unconsistency≤5-7%

- **20 spectral bands with a total of 350 detectors located on 4 focal plane assemblies (FPA).**
  - 19 reflective solar bands (RSB): bands 1-19, 0.4~2.1um
  - 1 thermal emissive bands (TEB): band 5, 10-12.5 um
- **Two spatial resolutions (nadir): 250 m(1-5), and 1 km(6-20).**
- **Scan angle range: ±55.1° (from nadir)**
  - A swath of 10 km (along-track) by 2900 km (nadir along-scan)
  - Global coverage in 1 day
- **One-sided 45° scan mirror with one K- mirror (de-rotation)**
  - 1.5 second each scan
- **Comprehensive applications**
  - Near 20 science data products for studies of the Earth's land, ocean, and atmosphere properties.



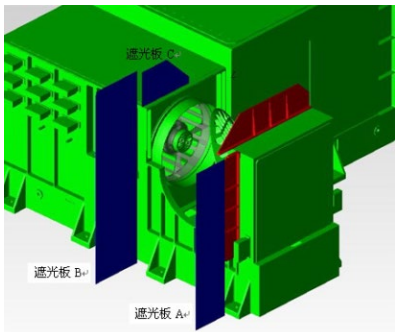
MERSI → MERSI-II Continuity and Evolution

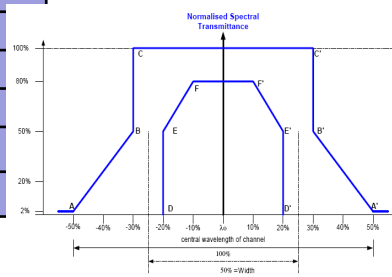
MERSI-II Improvements:

- Cover all bands in FY-3A/B/C MERSI
- Five more IR bands
- Cirrus cloud band 1.38μm
- Water vapor bands In NIR and 7.2μm
- Two IR split windows with 250m spatial resolution
- Higher accuracy from onboard calibration
- Lunar Calibration capability

Band	SNPP VIIRS	FY-3D MERSI-II	FY-3A/B/C MERSI
1	DNB	0.470	0.470
2	√	0.550	0.550
3	√	0.650	0.650
4	√	0.865	0.865
5	×	1.03	11.25
6	√	1.64	1.640
7	√	2.13	2.130
8	√	0.412	0.412
9	√	0.443	0.443
10	√	0.490	0.490
11	√	0.555	0.520
12	√	0.670	0.565
13	√	0.709	0.650
14	√	0.746	0.685
15	√	0.865	0.765
16	×	0.905	0.865
17	×	0.936	0.905
18	×	0.940	0.940
19	√	1.38	0.980
20	√	3.8	1.030
21	√	4.05	
22	×	7.2	
23	√	8.550	
24	√	10.8	
25	√	12.0	

250 m
1000m



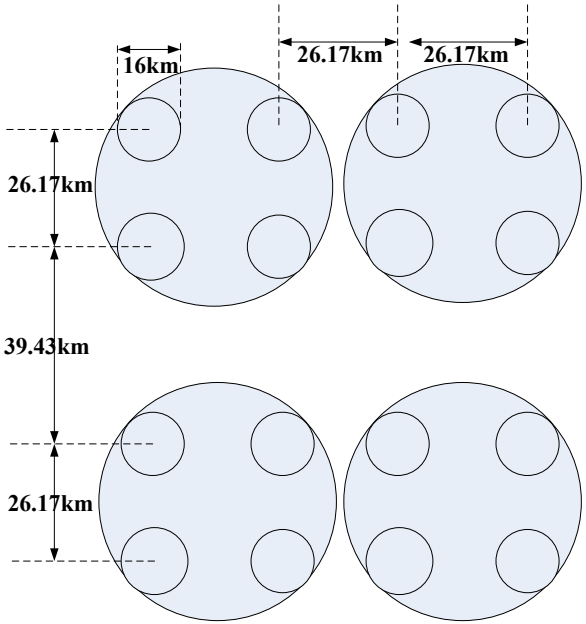


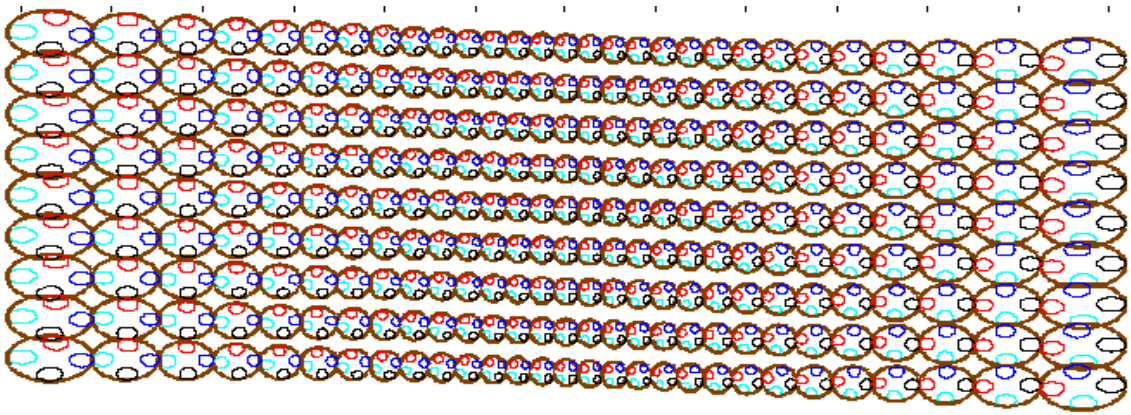
HIRAS Hyperspectral sounder

-- comparable with CrIS & IASI

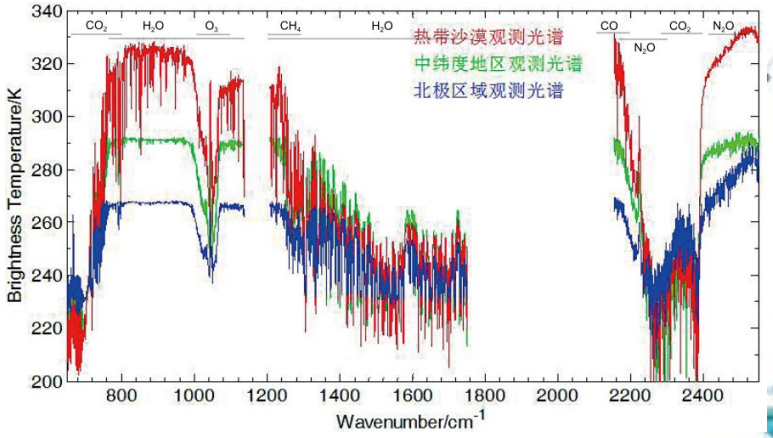
Items	Specification
Scanning cycle	10 s (33 FORs)
FOV	1.1° (16Km)
Scanning Line	29*4 FORs
Max Scanning Range	± 50.4°

Band	Spectral range (cm-1)	Resolution (cm-1)	NEΔT @250K	chs
Longwave	650 *– 1136 (15.38 μm-8.8 μm)	0.625	0.15K	778
Midwave1	1210 – 1750 (8.26μm-5.71 μm)	1.25	0.1K	433
Midwave2	2155-2550 (4.64μm-3.92 μm)	2.5	0.3K	159





HIRAS



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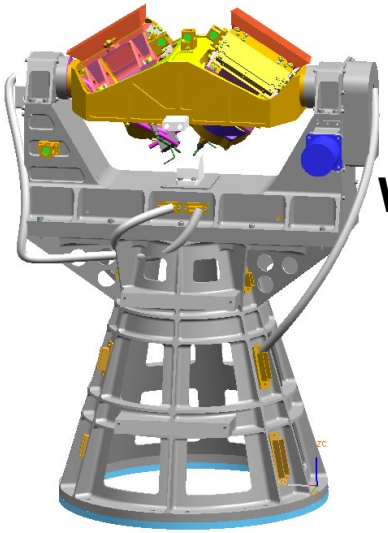
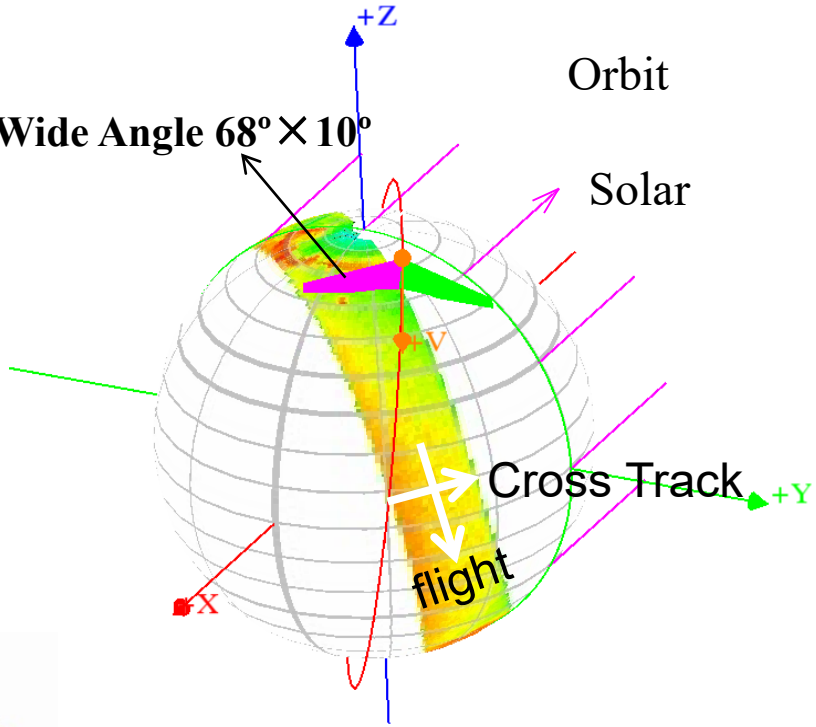
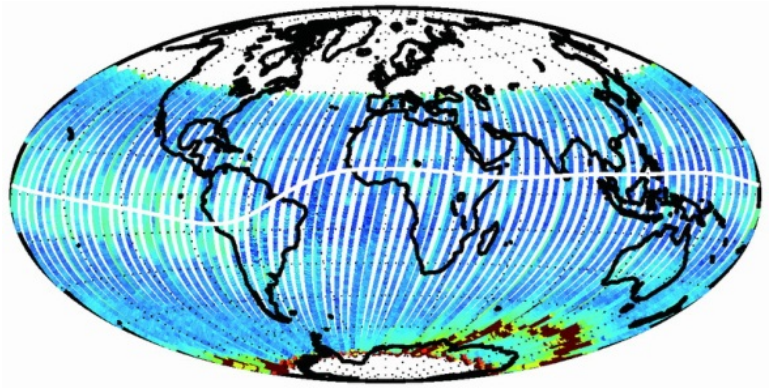
FY-3D Space weather enhancement

WAI: Wide-angle Aurora Imager (for space weather)
IPM: Ionospheric Photometer (for space weather)



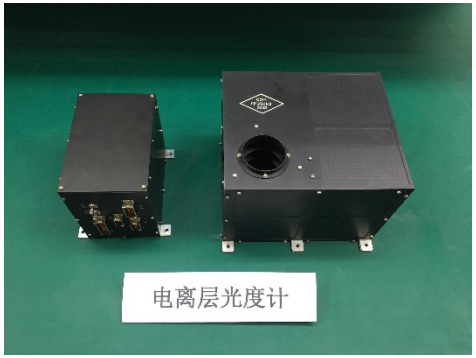
WAI

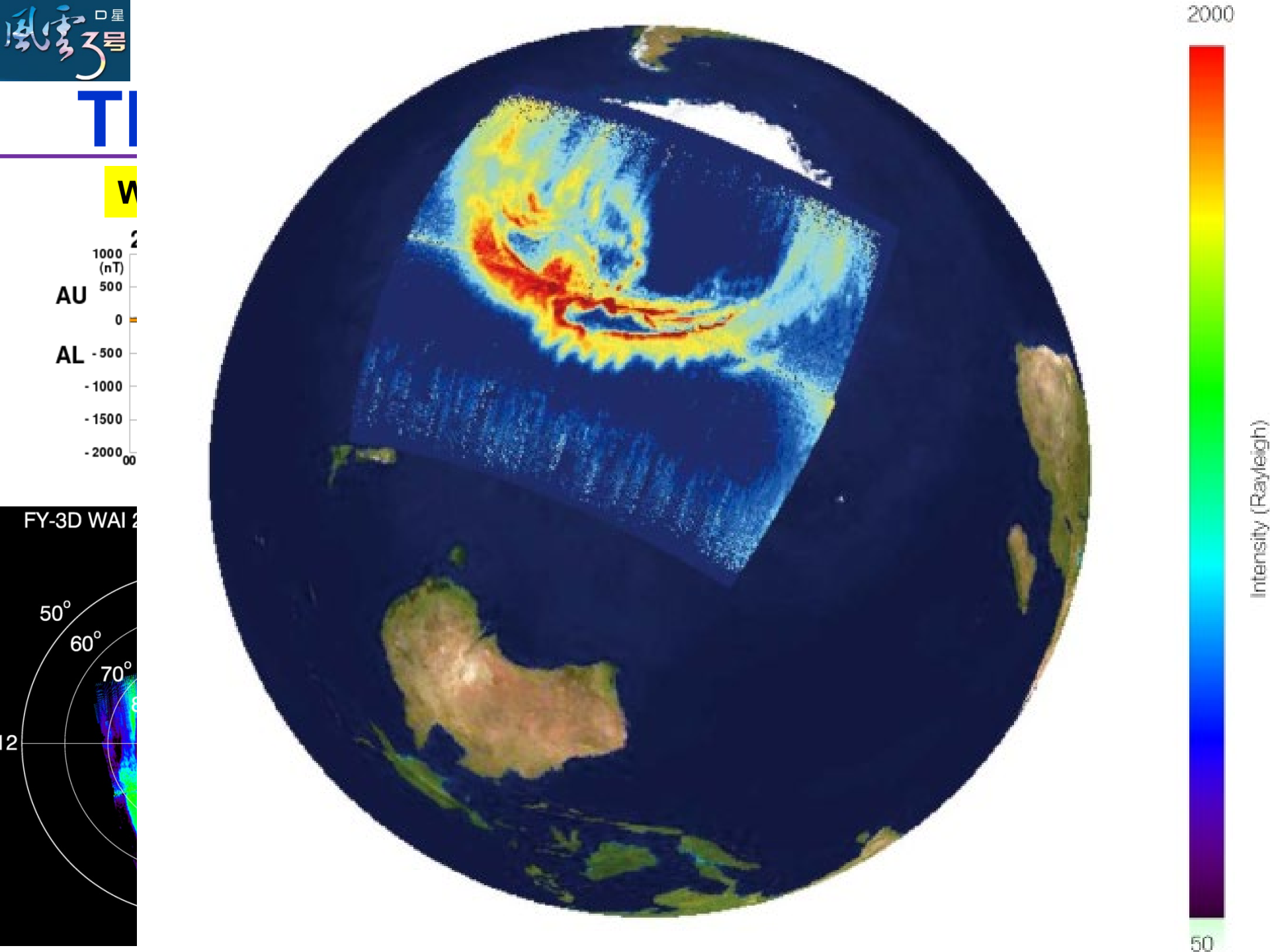




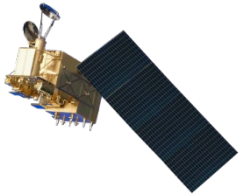
Global airglow from IPM

IPM




2000
50
Intensity (Rayleigh)
1000
(nT)
500
0
AU
AL
- 500
- 1000
- 1500
- 2000
FY-3D WAI
50°
60°
70°

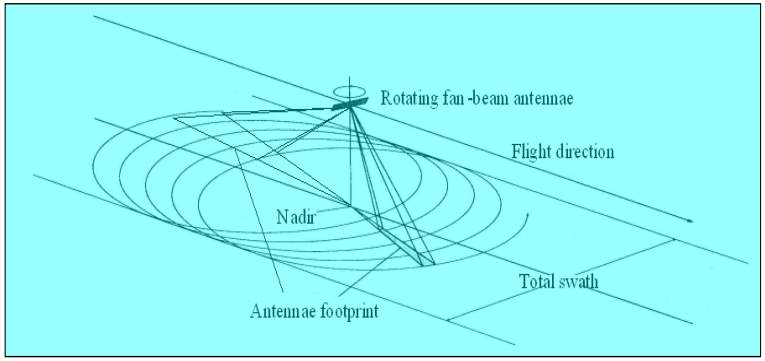
Coming FY-3E Early Morning satellite



-- will be Launched at the end of 2020

MERSI-LL, EM Low light Imager

- Keep all IR bands observation with MERSI-II
- Stray light restriction is key design for Low light imager on EM orbit.
- Stray-light simulation and Shuttle design
- Solar contamination removement
- New topic: how to apply the low light band



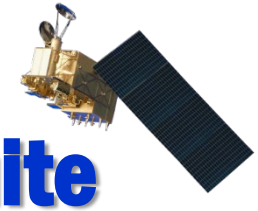
WindRAD ON FY-3E

The four antennae (two polarization of each frequency) of Wind Radar rotate slowly around the vertical axis of spin platform, and each pixel within the swath will be illuminated from more azimuth directions than the existing spaceborne scatterometers due to the low rotation rate. It will be the first dual frequency and dual polarization radar compared with the existing payloads.

Expected performance of the Wind Radar

- Better spatial resolution than other scatterometers;
- High wind retrieval capability ;
- Nearly all-weather capability .

Payloads	Operator	band	polorization	Scanning System	Swath	Spatial Resolution
QuikSCAT SeaWinds	NASA/JPL	Ku	VV/HH	Pen beam conical scanning	1600km	25km
ASCAT	ESA	C	VV	Fixed fan beam	550km×2	Standard Quality:25km
WindRAD	**NSMC,CMA**	**Ku/C**	**VV/HH**	**Cone beam scanning**	**1200km**	**C-band:25km Ku-band:10km**



FY-3E Enhanced Space Weather Sensor Suite

Solar Irradiance Monitor-II

This instrument is designed to measure Total Solar Irradiance at average sun-earth distance over 0.2um-20um band for supporting solar activity, earth radiation budget and climate research.

Solar Spectral Irradiance Monitor

This instrument is designed to measure solar spectral irradiance from 165nm to 1650nm for recording spectral character of solar energy change and providing high accuracy continuous data for solar, atmospheric and climate research.

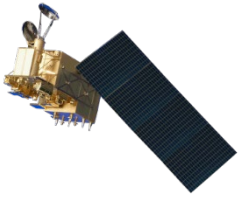
Solar X-EUV Imagers

The effective combination of the EUV imaging and X-ray imaging is beneficial to better understand the solar eruption process, so as to provide more accurate references to space weather forecast.

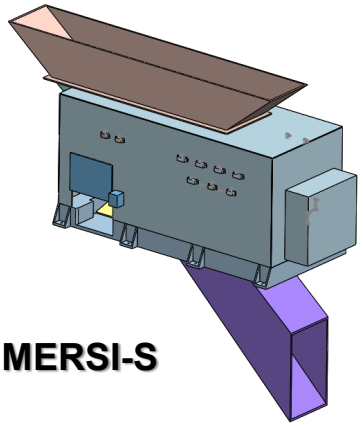
Tiny Ionospheric Photometer II

The Tiny Ionospheric Photometer II (TIP-II) is used to remote sensing the ionospheric environment and neutral atmospheric composition. Observations from TIP-II can also be used to correct the inversion errors of radio occultation. In the polar region, TIP-II can be used to determine the boundaries of auroral oval.

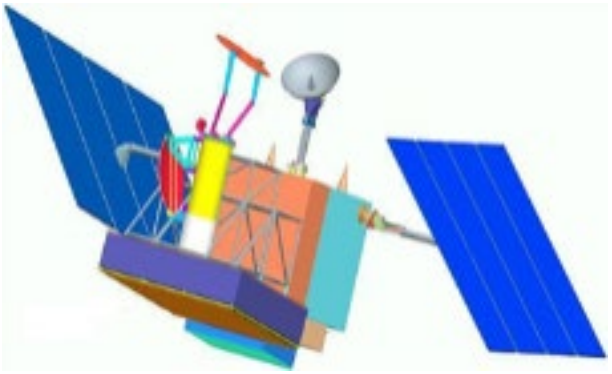
FY-3RM Rainfall Mission

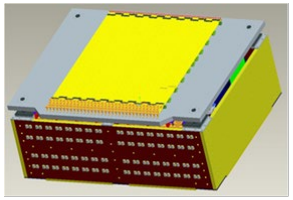


- Consist a Global observation constellation system with FY-3 satellites, as well as GPM satellite
- Improve the severe convective system monitoring ability in china together with GPM satellite
- Provide 3D precipitation structure over both ocean and land
- Improve the sensitivity and accuracy of precipitation measurement over china and surrounding area
- The first scheduled launch of FY -3RM is in 2020, life time 5 years.



MERSI-S





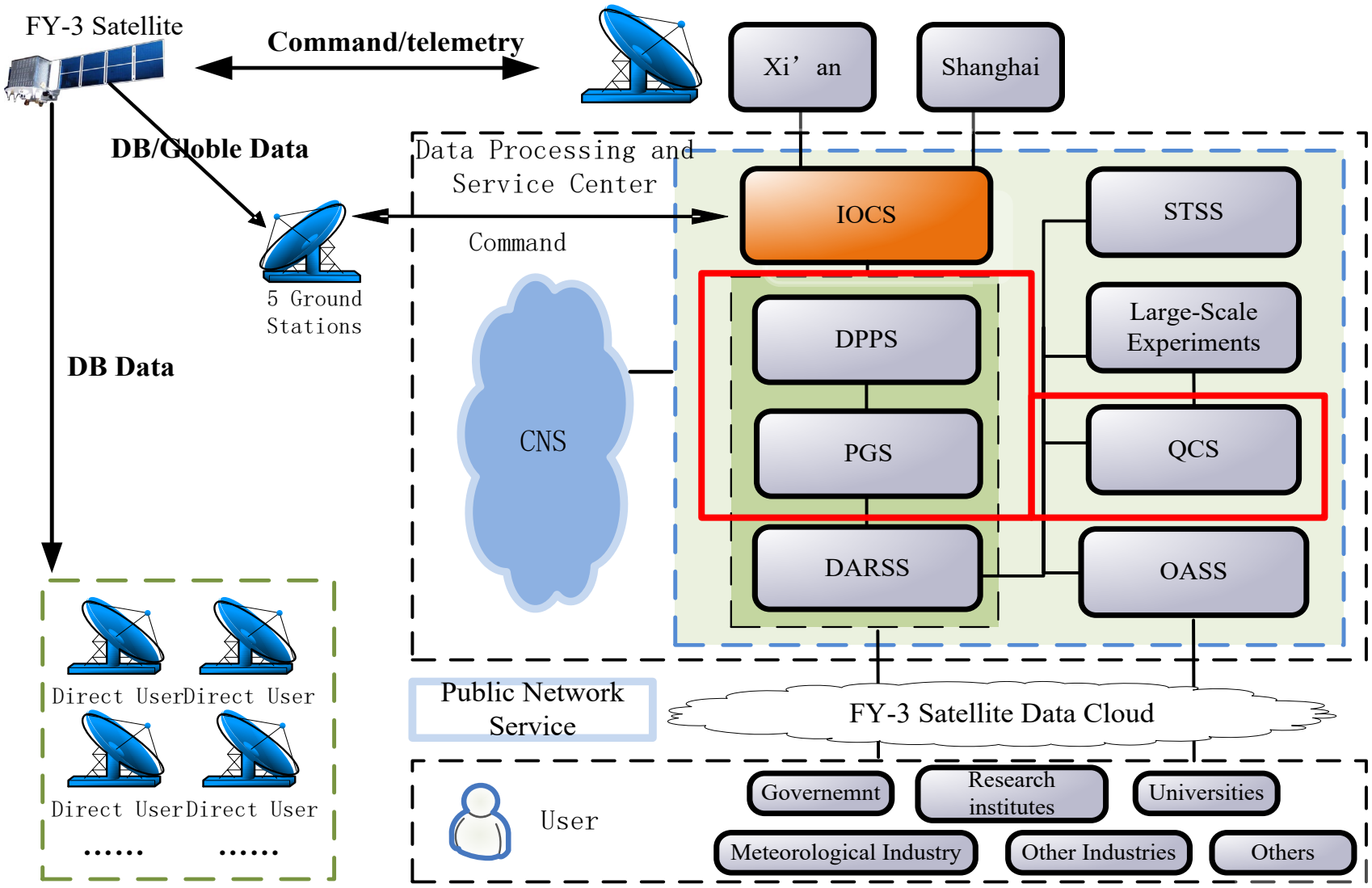
KaPR

KuPR

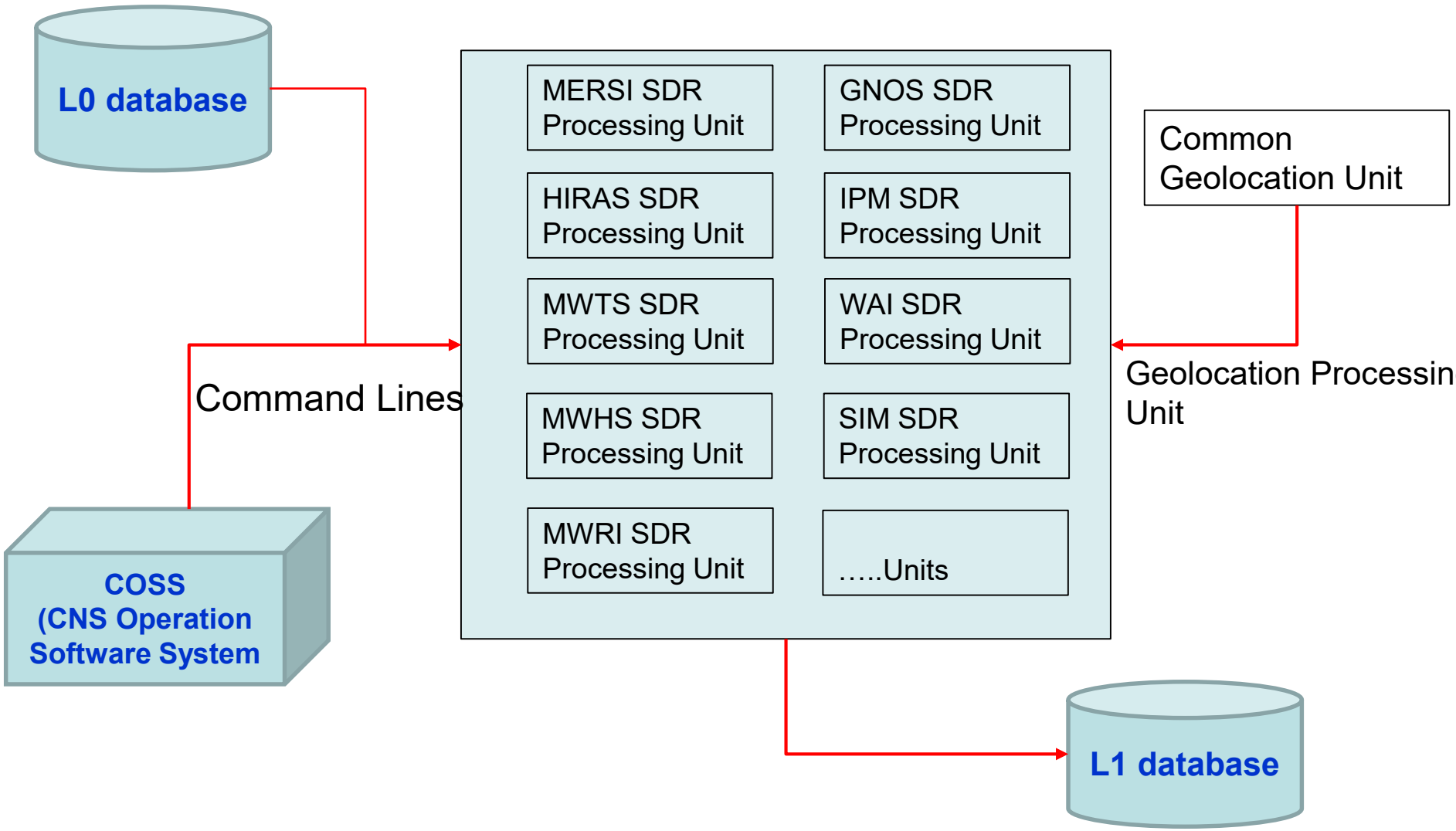
MWRI

Composition of FY-3 ground segment

(Telemetry/control, data receiving and Processing, Service)



Level 1 Products Generation: Data PreProcessing System(DPPS)



FY-3 Cal/Val Integrated system(FYCV)

L1 Online Cal Preprocessing System

(DPPS/CVS)
BB Cal，Onboard Calibrator
Cal Coeff Update

Recalibration System For Archive data

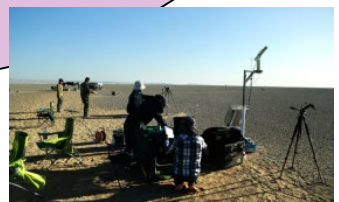
Cal Algorithm Update
GSICS Correction
Multi-sensor unified Cal

Near Real-time Cal Monitoring System

IPM、PICS sites、
Inter-Cal，O-B

Cal/Val Campaign

Ground-based measurement Autom
Data sharing and application

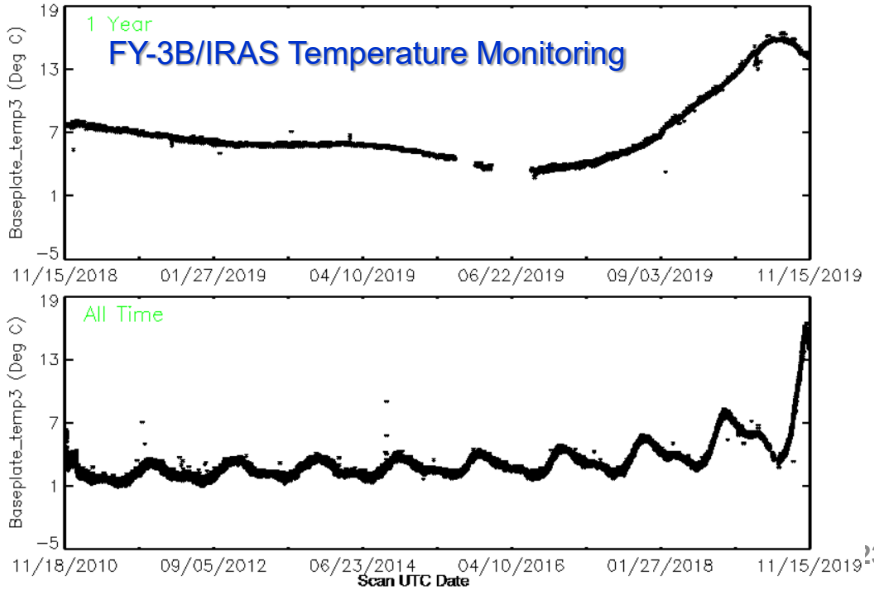


QCS

Quality control system

FY-3 L1 Cal/Val Activities

- Operational Instrument Performance Monitoring for long term based on OBC complete telemetry parameters
- GSICS SNO or SNOx monitoring using reference instruments (IASI, CrIS, MODIS,VIIRS) and Intercomparison with EUMETSAT sensors such as Sentinel 3 OLCI/+SLSTR, GOME-2.
- MERSI-II Calibration trend monitoring using PICS sites and ground-based automatic measurements at Dunhuang site
- Integrated calibration system which combines earth targets, moon, DCC and RT simulation



Solar Reflective Band Calibration:

Integrated Calibration using Wide Dynamic Targets

Method: **Combined with Wide dynamic Multi-targets**

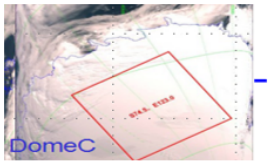
Cal Model: **Linear、fixed Offset using SV**

$$\rho_i = k1*DN_i + k0 \approx k1*(DN_i - SV_{Daily\_fix})$$

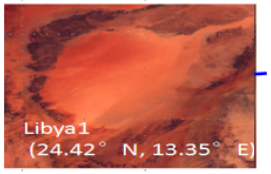
亮度能级

Cloud >90%

Snow 50-80%

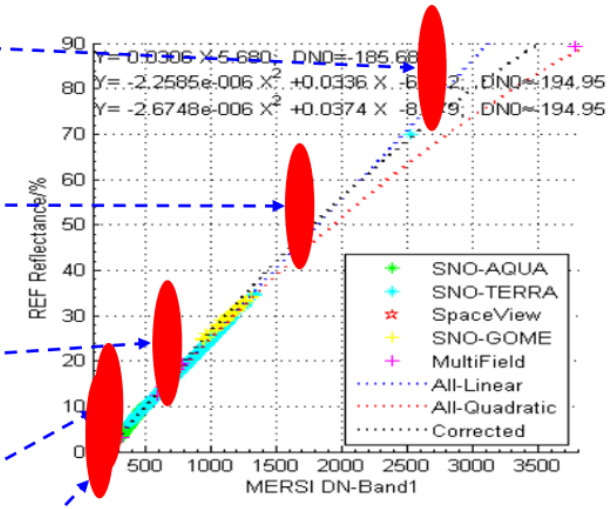


Desert 20-30%



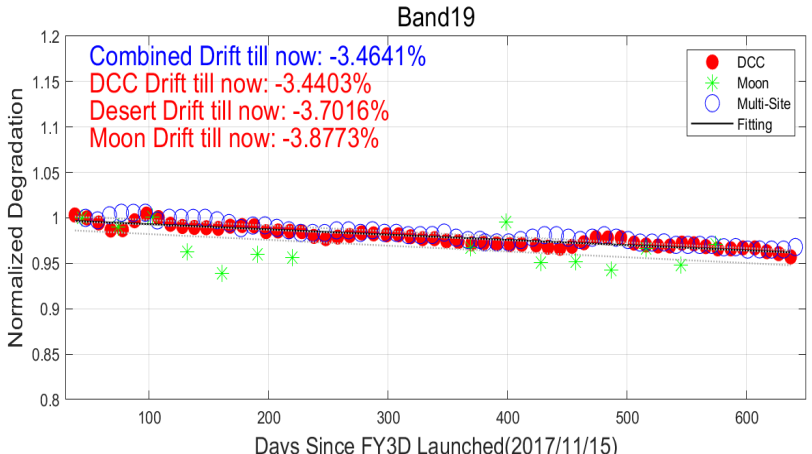
Moon 5-10%

Ocean <5%



$$\rho = D(t)^{-1} * \rho_{t_0}$$

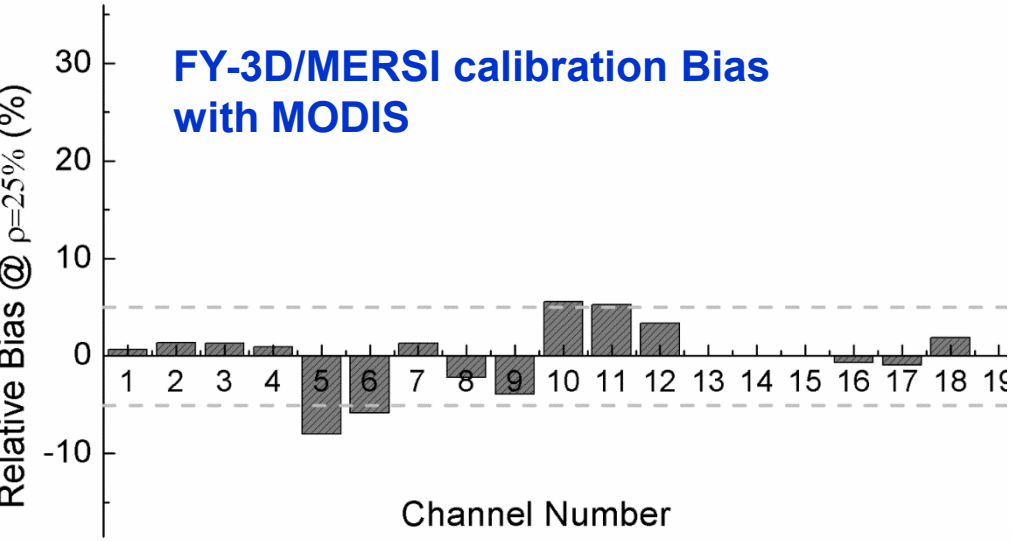
$$D(t) = 1 - k*(t - t_0)$$

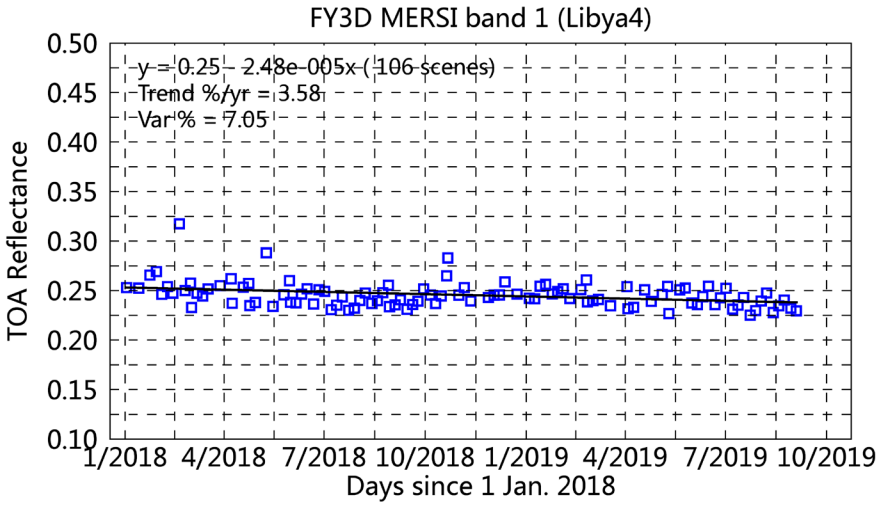


Calibration Uncertainty Evaluation

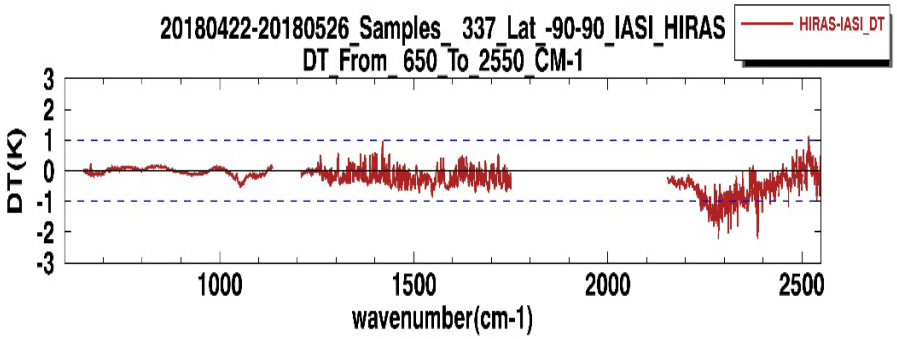
- *3-5%@VisNIR 0.3~0.5K@IR*

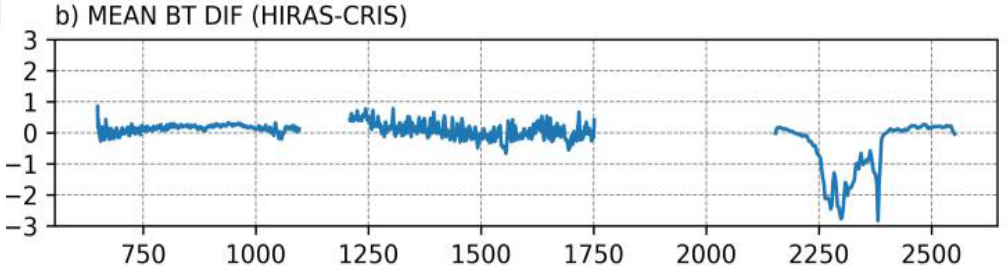
MERSI Calibration monitoring using PICS





FY-3D/HIRAS Calibration bias with IASI an CrIS





Level 2 Products Generation: Products Generation System(PGS)

DPPS

Level1(SDR) data from Level 0

Geophysical Parameter Retrieval Algorithm Developing and Testbed(FYLAT)

PGS

Level2(EDR) Daily data On Granule/Orbit

Mean/CMG Processing

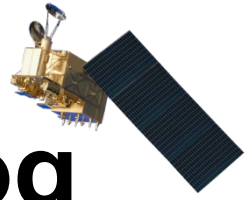
Level3(CDR) Monthly data On Regional/Global

ARSS

Cloud	Atmosphere	Ocean	Land	Space weather	Ecology

FY-3 Baseline L2 Products

Cloud & Radiation	Atmosphere	Land Surface	Sea Surface	Space Weather
Cloud mask, Cloud amount, Cloud type, Cloud phase, Cloud top temperature, Cloud top height, Cloud optical depth, Cloud physical parameters, Cloud water content, Cloud liquid water, Ice water path, OLR	Atmospheric total Precipitable water, Dust storm index, Aerosol optical depth, Rain detection, Atmospheric Temperature/humidity profile (GNOS,VASS), Precipitation, Microwave rain rate, Fog detection	Global fire detection, Land cover, Land surface reflectance, Land surface temperature, Soil moisture, NDVI, Snow cover, Snow cover fraction, LAI, FPAR, NPP, Albedo, Snow depth	SST, Sea-Ice cover, Ocean color, Chlorophyll, Sea surface wind speed	Radiation flux of high energy particles, Surface electric potential radiation dose, GNOS Electron Density Profile, Ionospheric O/N2 Column Ratio, Aurora Mapping Products

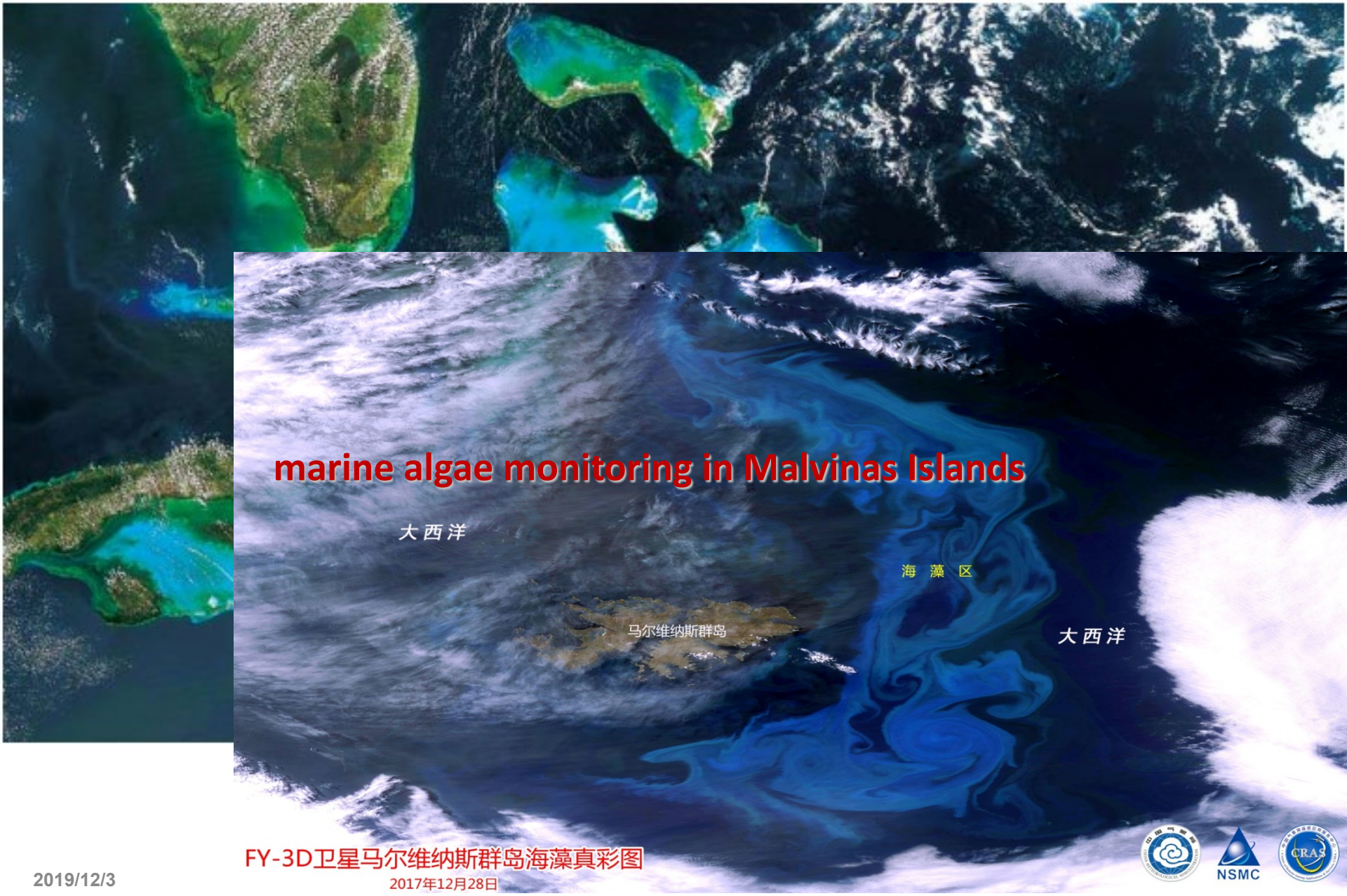


FY-3D Latest Products Catalog

- Level 1 Products: **MERSI, HIRAS,MWTS,MWHS,MWRI,GNOS, GAS,WAI, IPM, SEM.**
- Level 2 Products: **Atmosphere, Land, Ocean, Space weather**

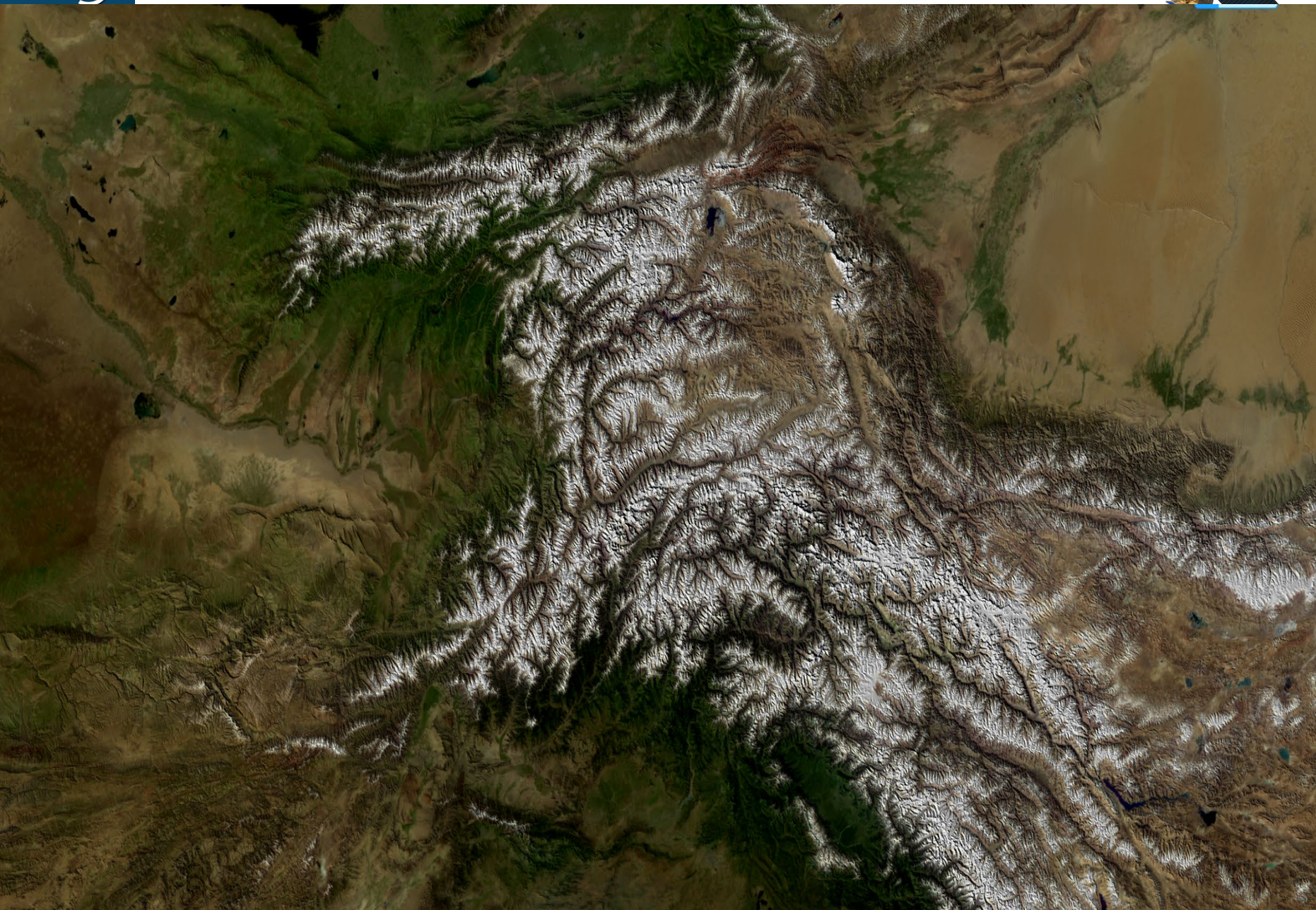
No.	Cloud	Atmosphere	Ocean	Land	Space weather	Ecology	Assimilation
1	Cloud Mask	Aerosol Depth	SST	LST	High energy particle	NPP	MWRI L1C
2	Cloud Fraction	MWRI Precipitation Over sea	Sea Ice	Active Fire	Space Radiance Flux	LAI	HIRAS L1C
3	Cloud Classification	MERSI PWV over Land	Sea Wind	NDVI	Surface Electronic potential	Land Cover	MWTS L1C
4	Cloud Top Temp and Height	MERSI IR TPW	Water Matter	Snow Cover	F2 Electronic density(night)	fPAR	MWHS L1C
5	Polar Wind	OLR	Leaving Water Radiance	Dust	N/O Ratio(day)	Flood/Drought Index	
6	Cloud Optical Depth and Particle size	Fog monitoring	Sea Ice Depth	Reflectance	Total Electronic content	Soil moisture	
7	Cloud water content	Atmosphere Temp/Humidity Profile		MWRI Precipitation	Electron Density Profile		
8		CO2/CO		MWHS Precipitation	Aurora Mapping Products		
9		CH4/o2					

MERSI-II image

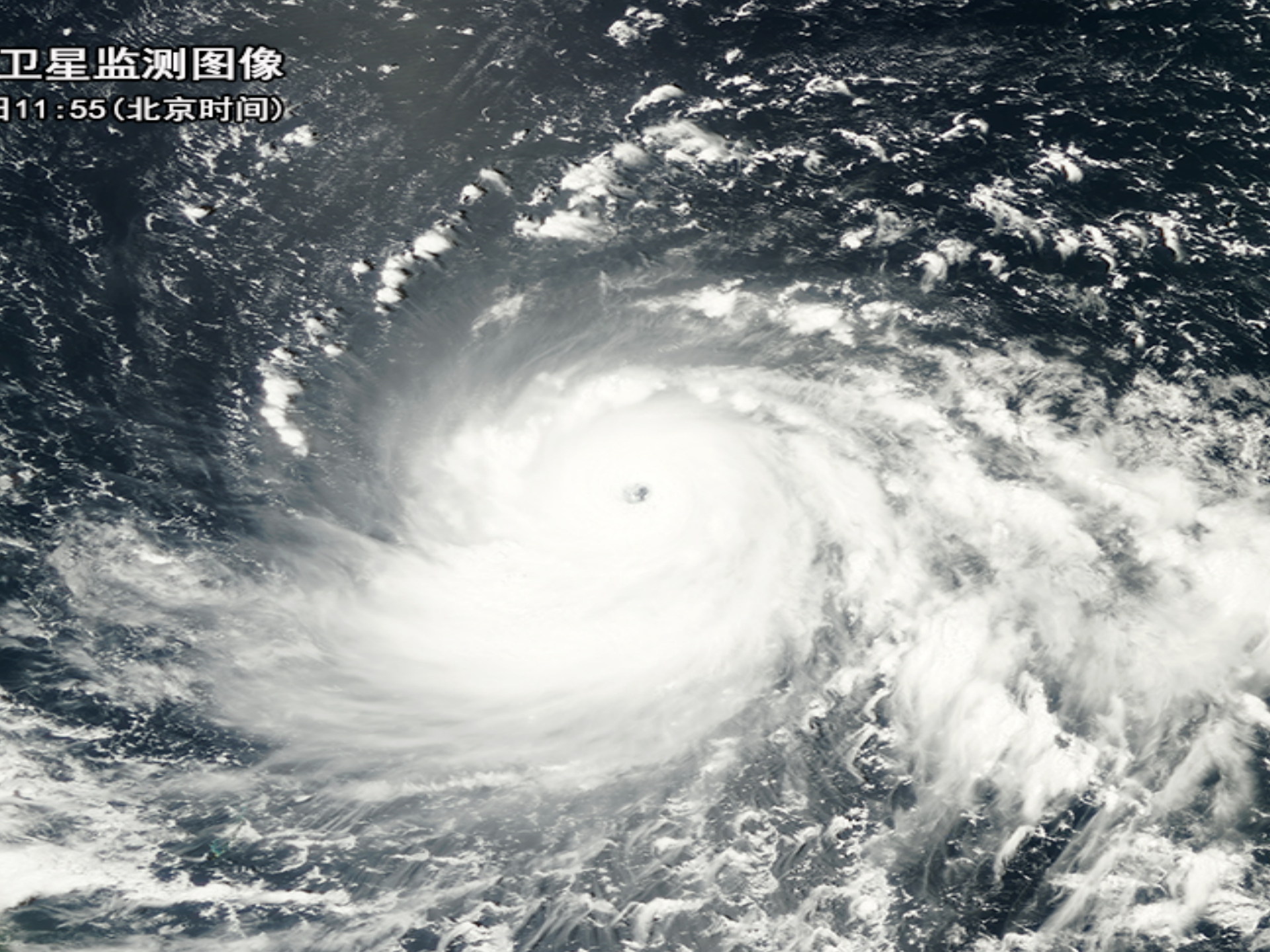


FY-3D卫星马尔维纳斯群岛海藻真彩图
2017年12月28日

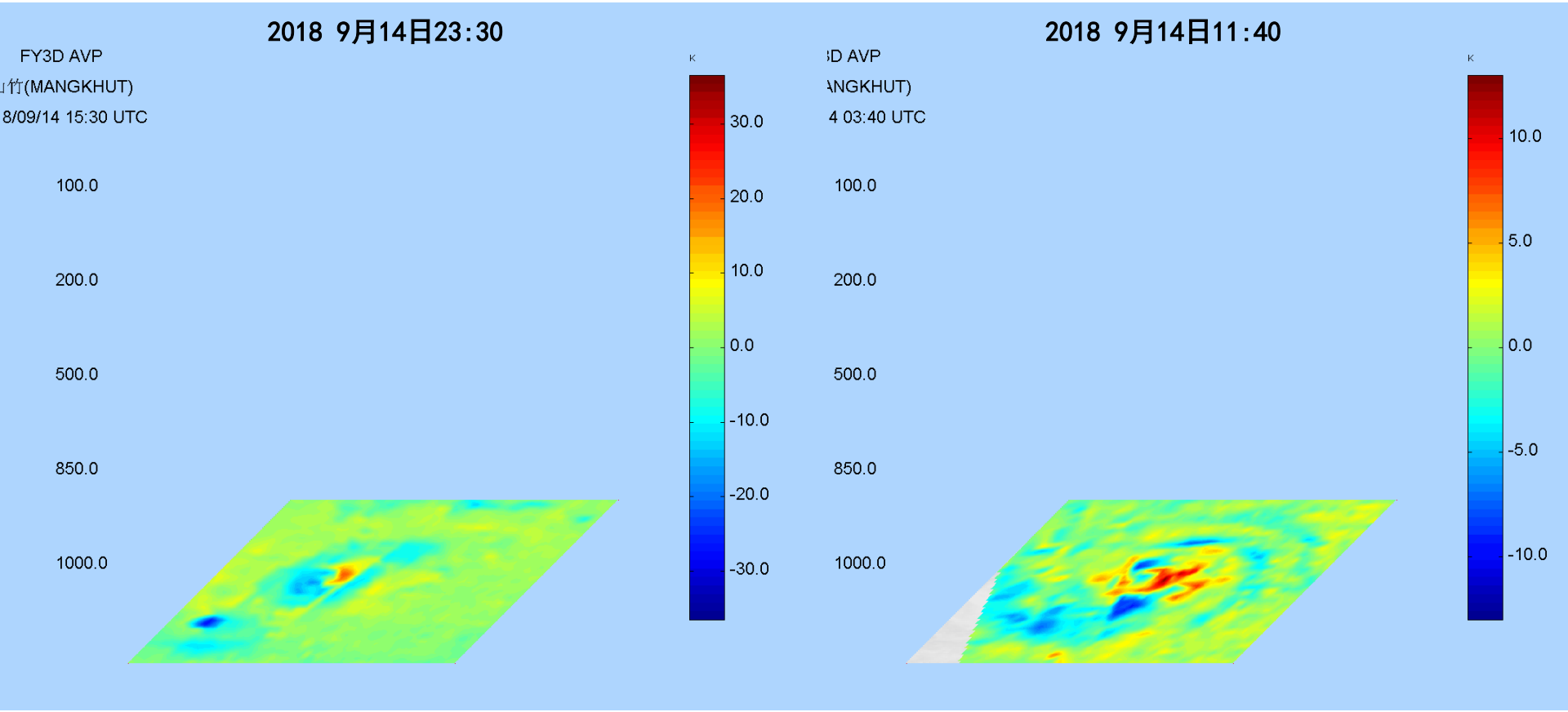
MERSI-Blue Marble: Clear Sky Image



Alps Mountains


卫星监测图像
日11:55(北京时间)

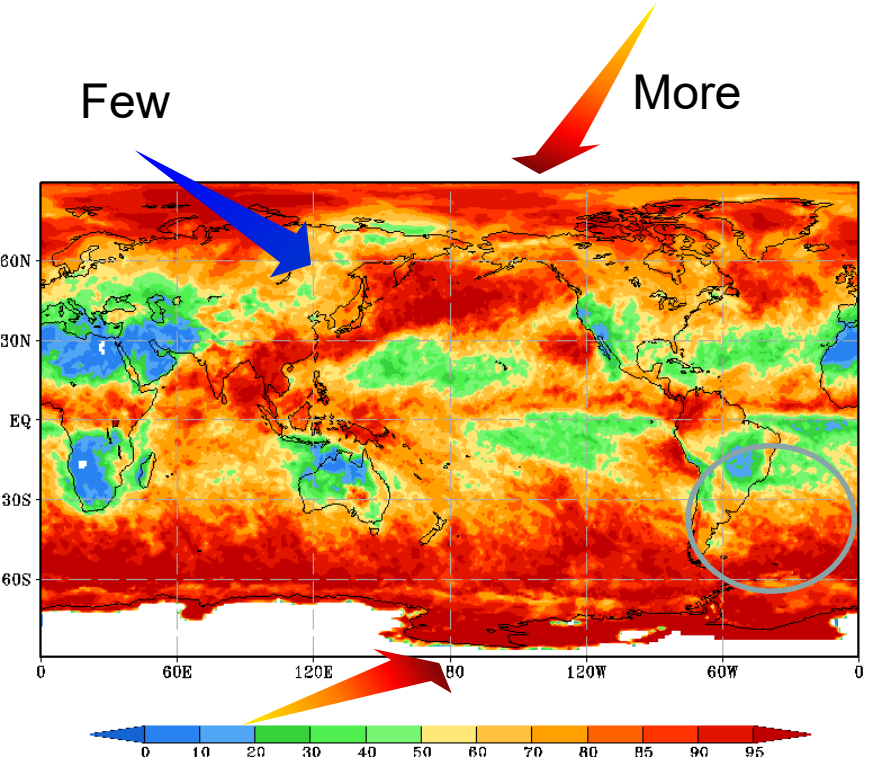
Temperature Profile from HIRAS-MWTS-WMHS

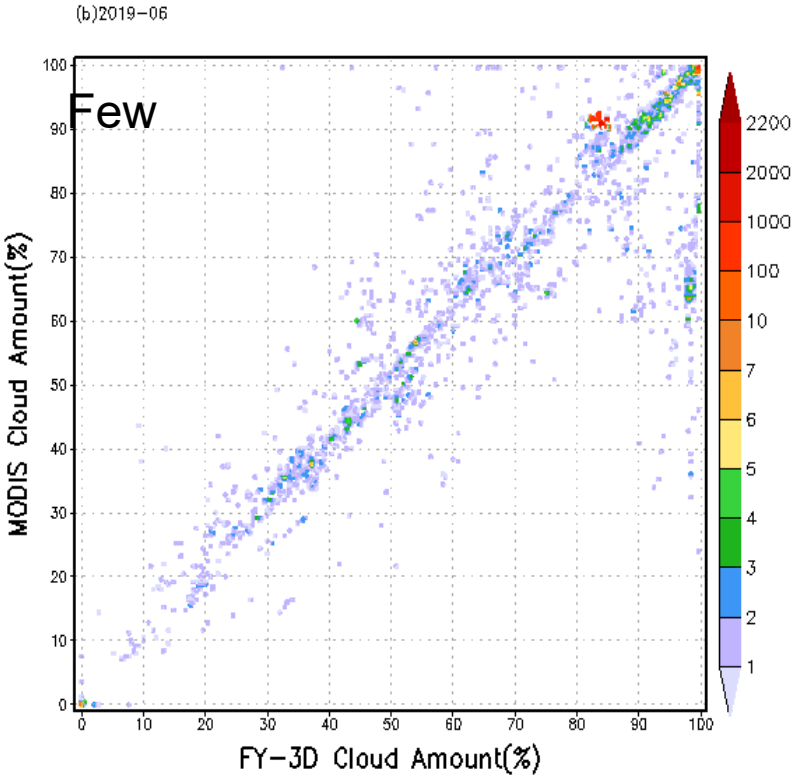


Typhoon Mangkhut (1822) 2 hour before landing

FY-3D/MERSI Cloud Amount

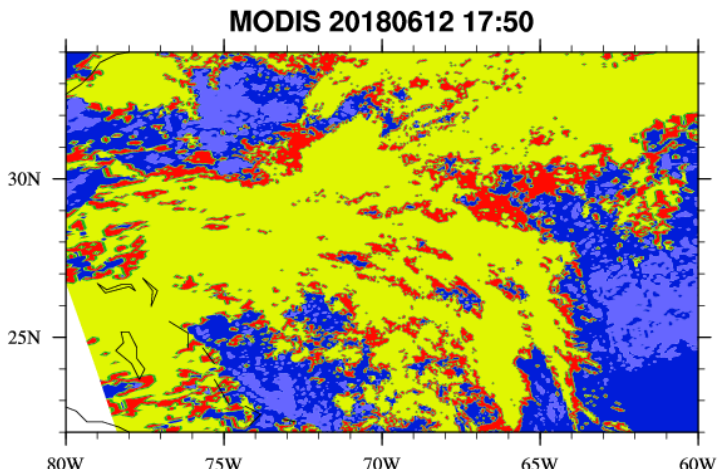
Monthly June, 2019

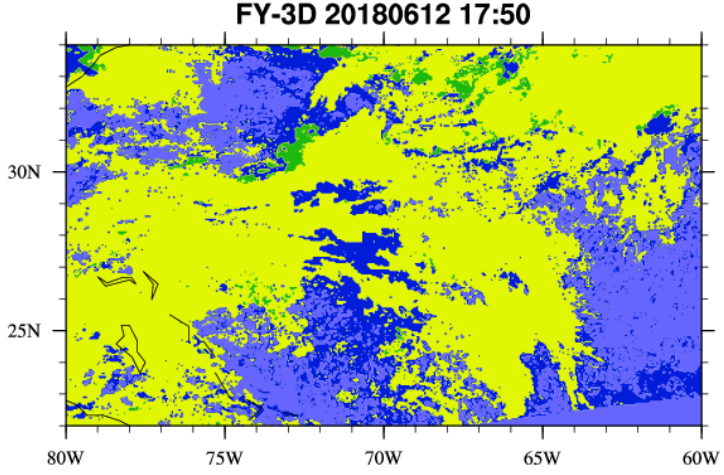




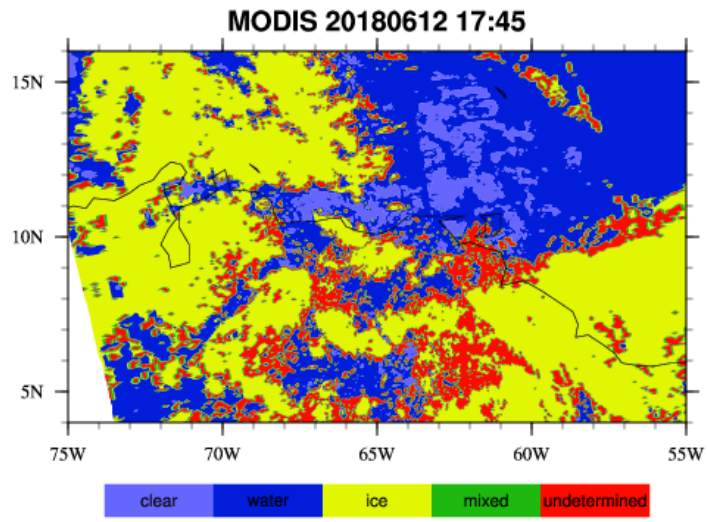
Cloud amount Patten consistency with MODIS

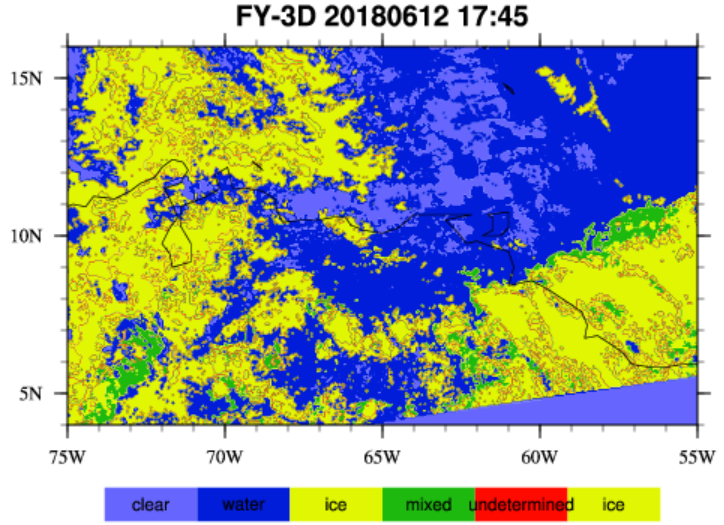
FY-3D/MERSI Cloud Classification/Phase





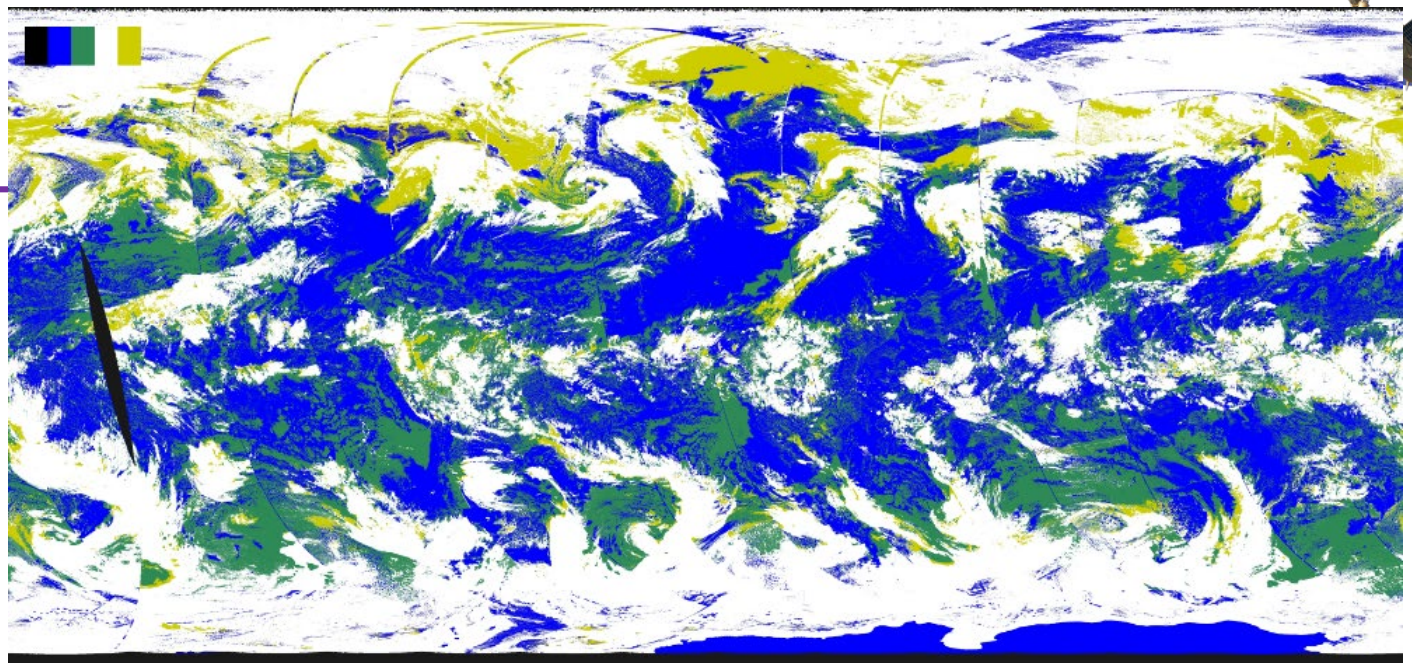
Ice cloud detection rate：82.97%，Few Water cloud



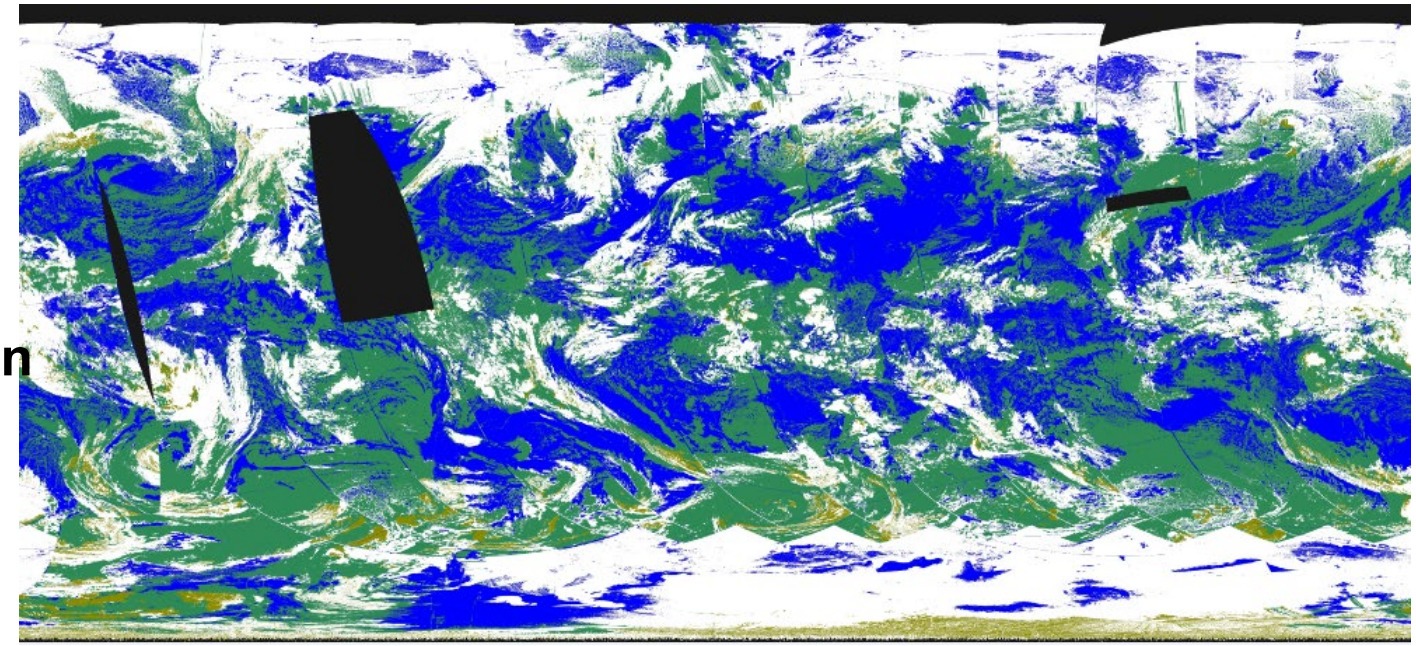


Water cloud：73.02%， Ice cloud: 78.5%

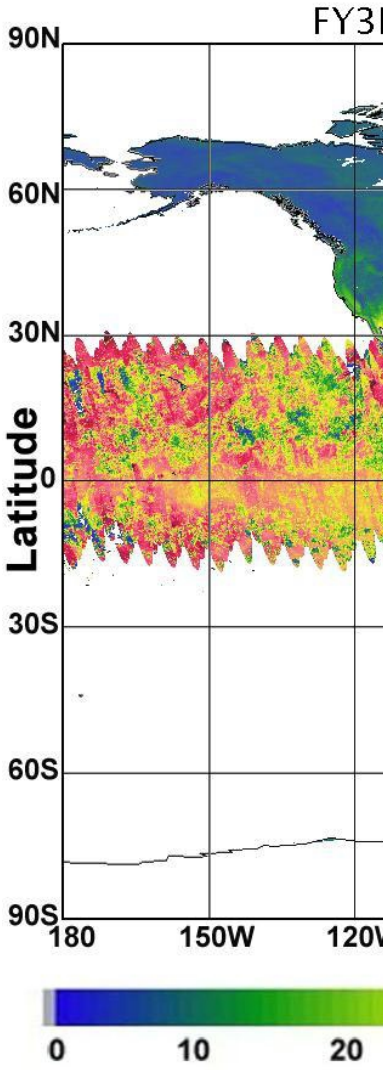
Cloud Phase

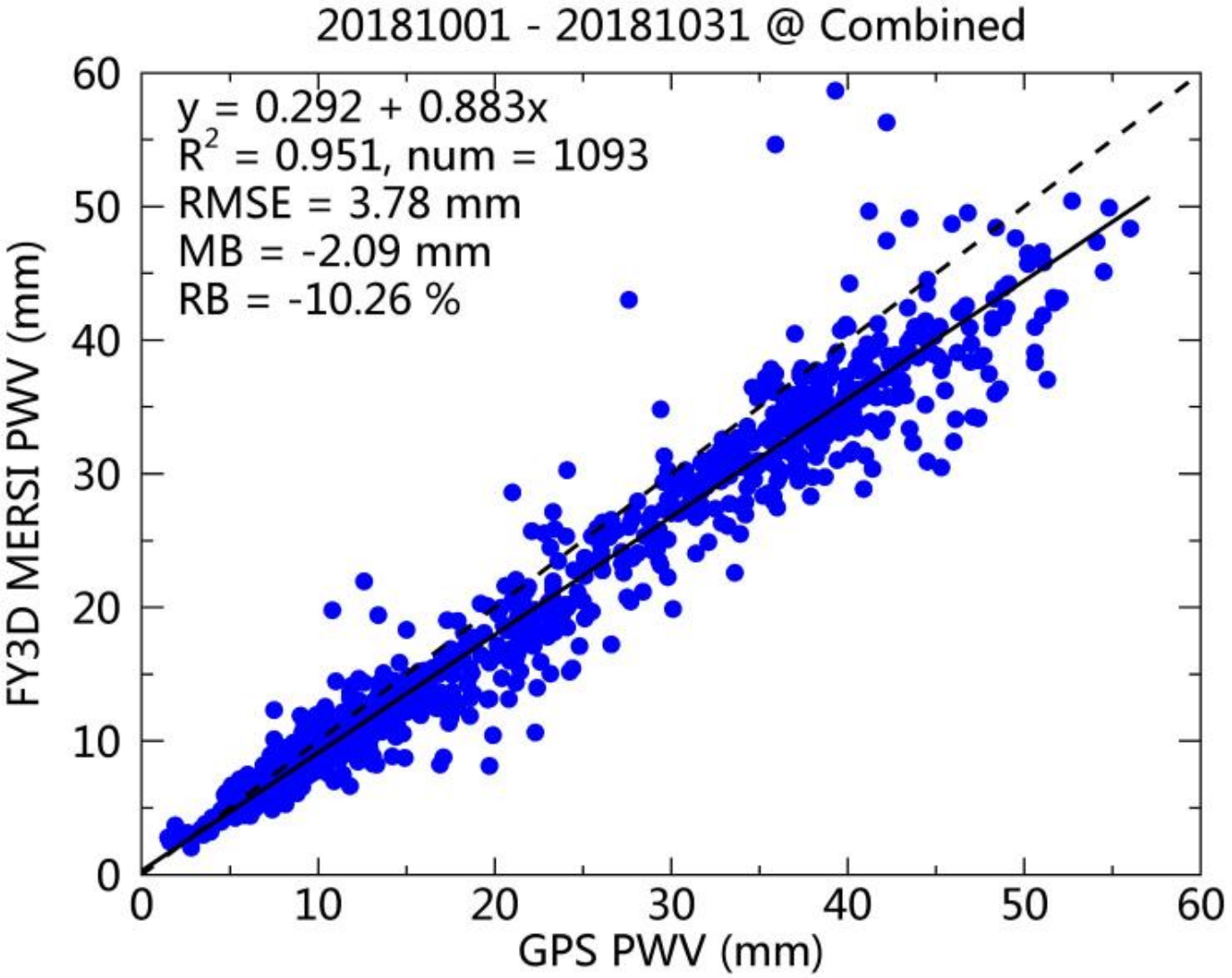


Cloud Classification



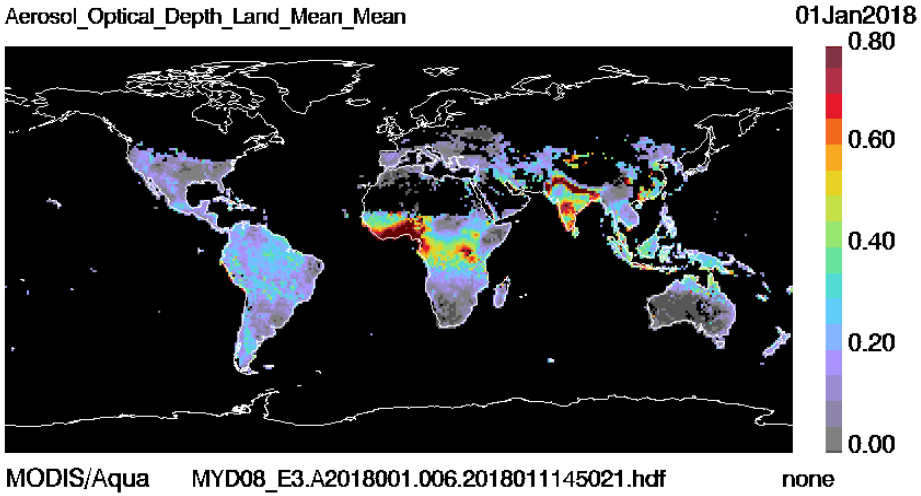
Precipitable Water Vapor(PWV) from NIR



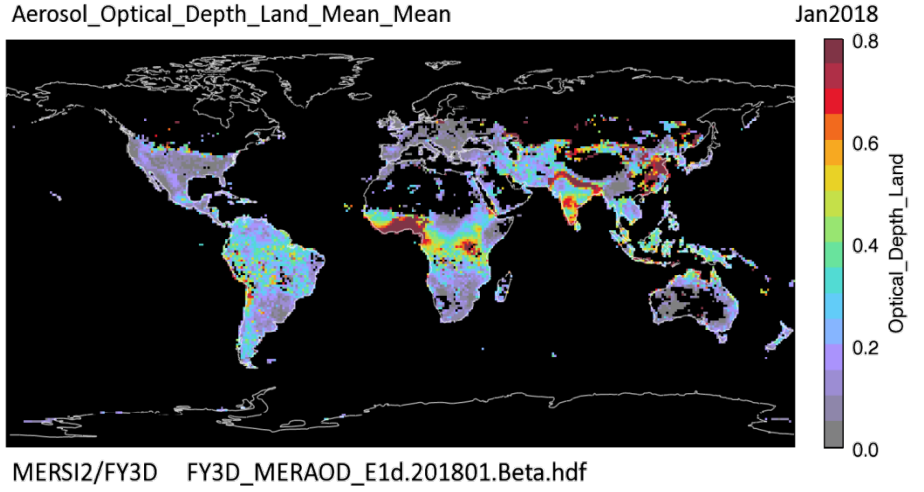


Aerosol Optical Depth (AOD) over Land

Global 8-day-mean product : MERSI II and MODIS land aerosols

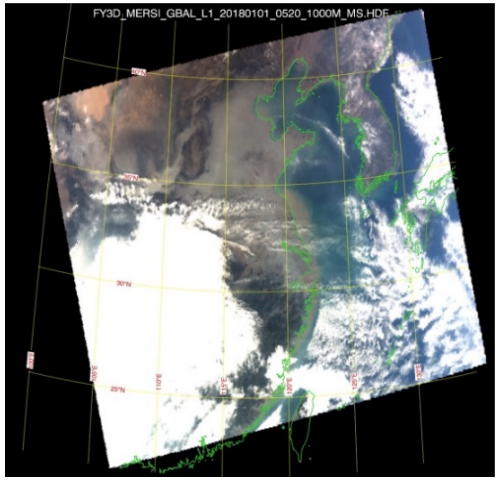


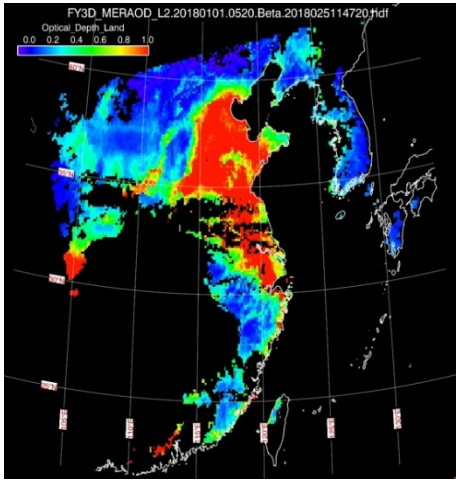
MODIS/Aqua

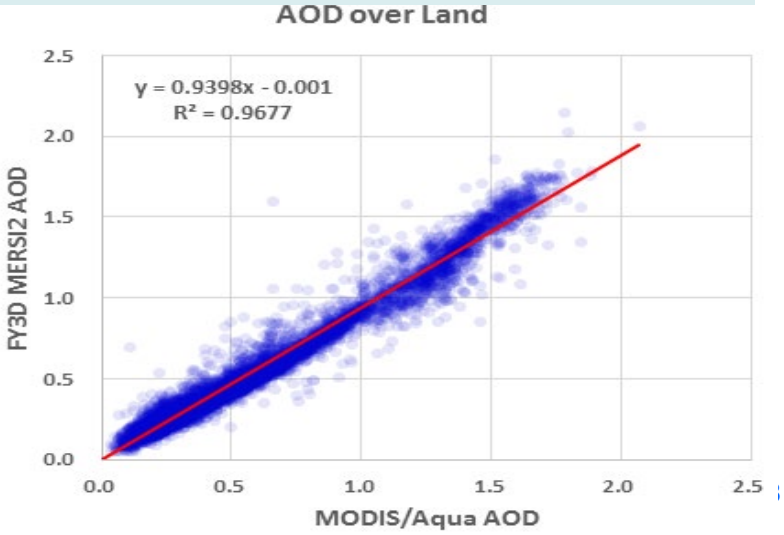


MERSI2/FY3D

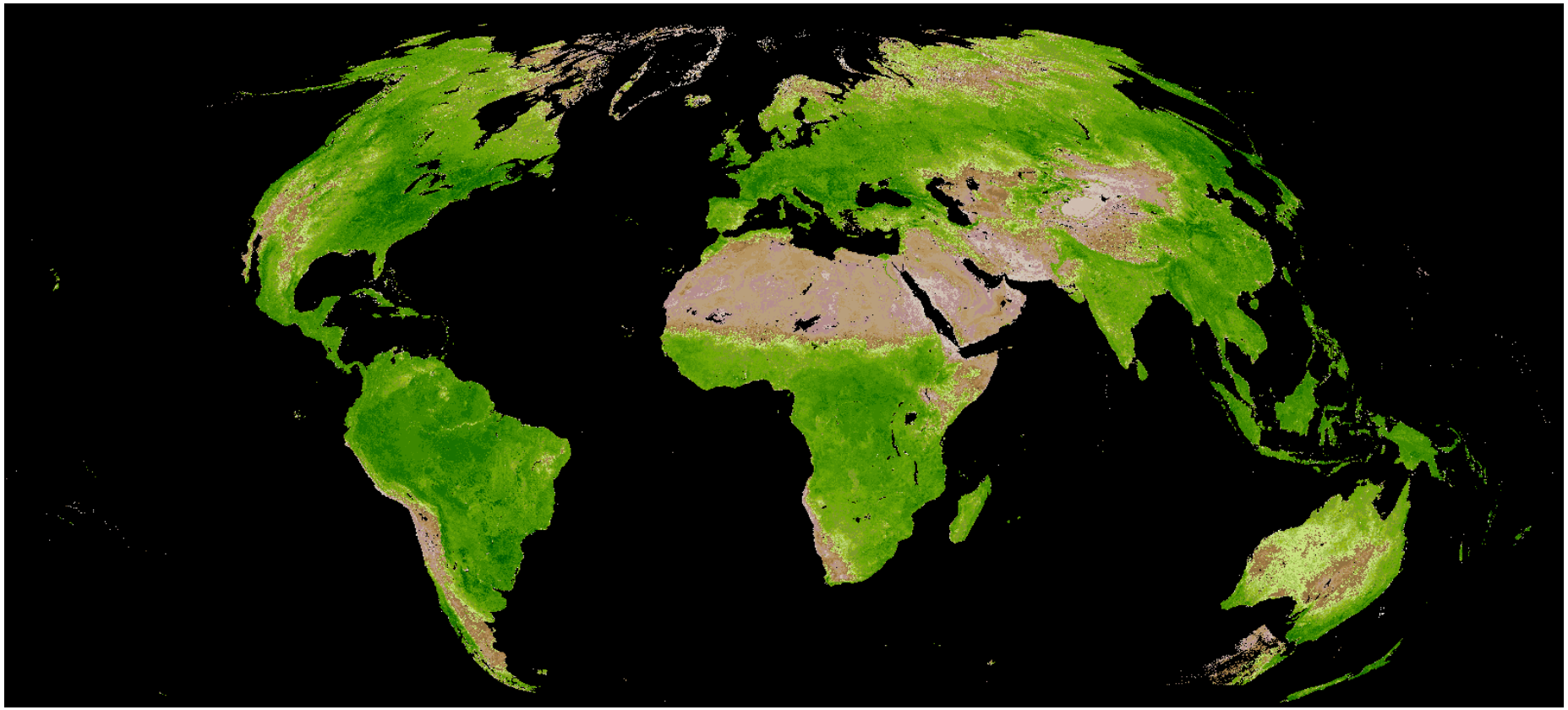
Good consistency in global distribution and AOD of pollution sources.







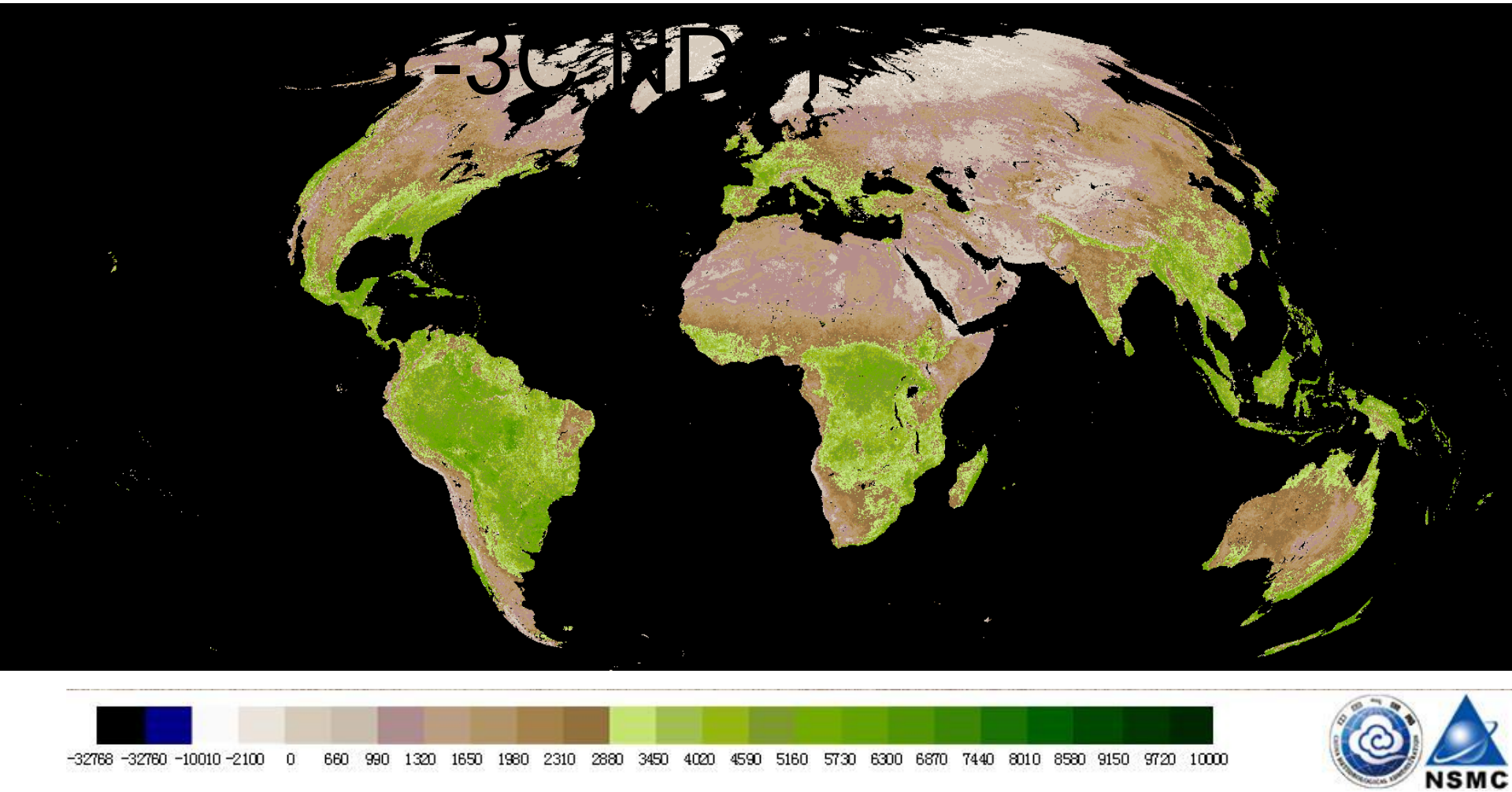
FY-3C/VIRR NDVI



NSMC

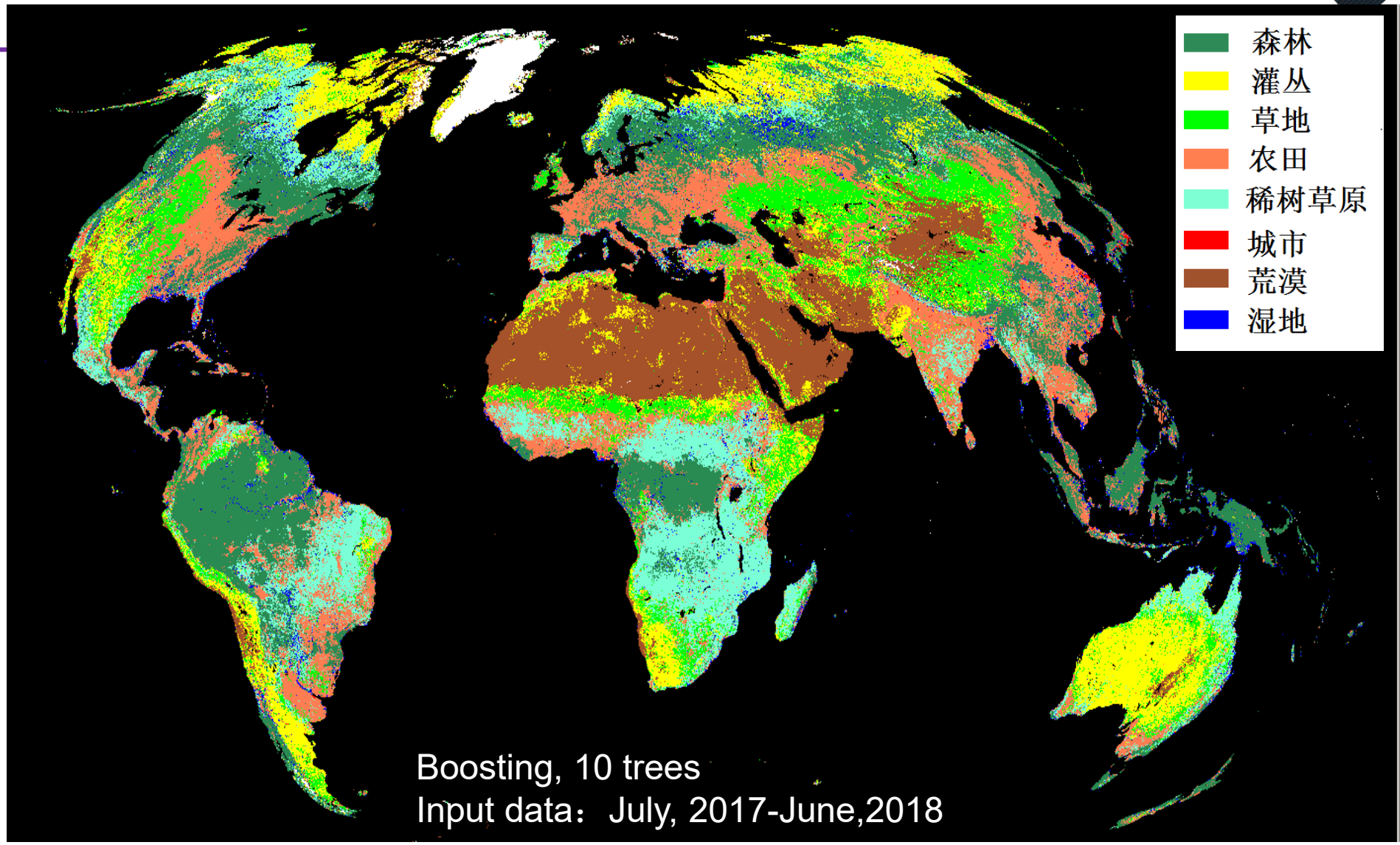
Maximum NDVI within one year

FY-3C/VIRR NDVI

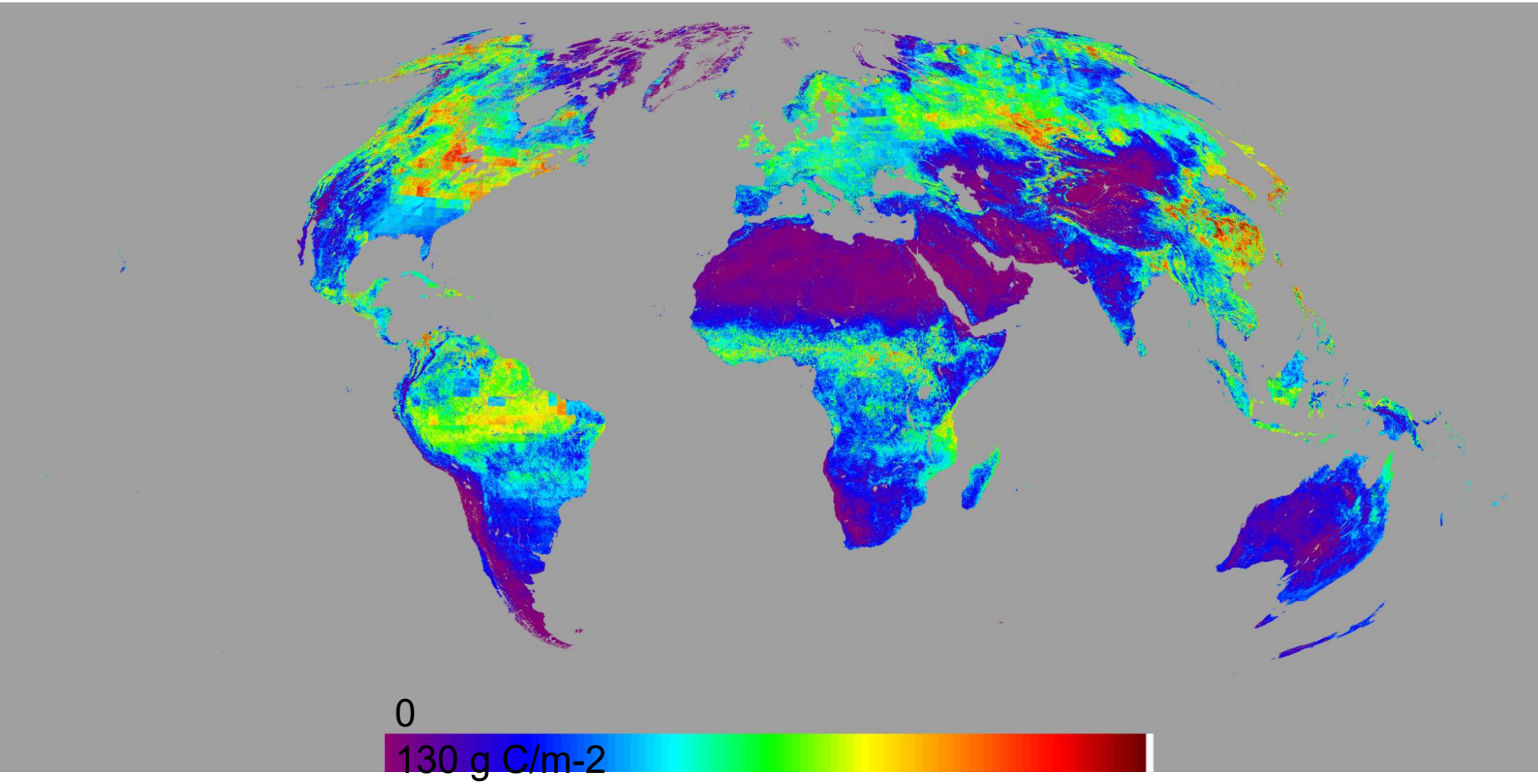


Minimum NDVI with one year

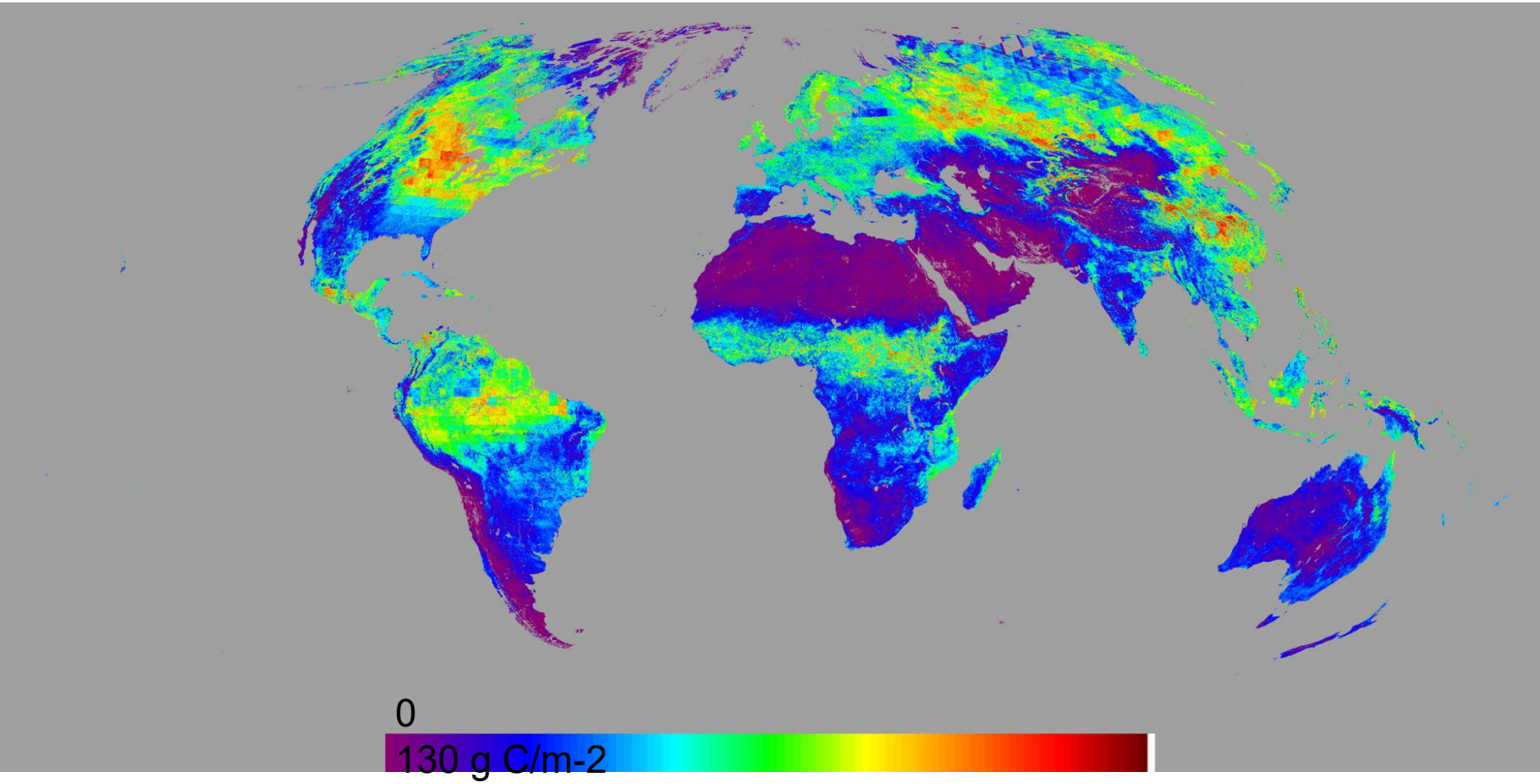
FY-3C Land cover classification



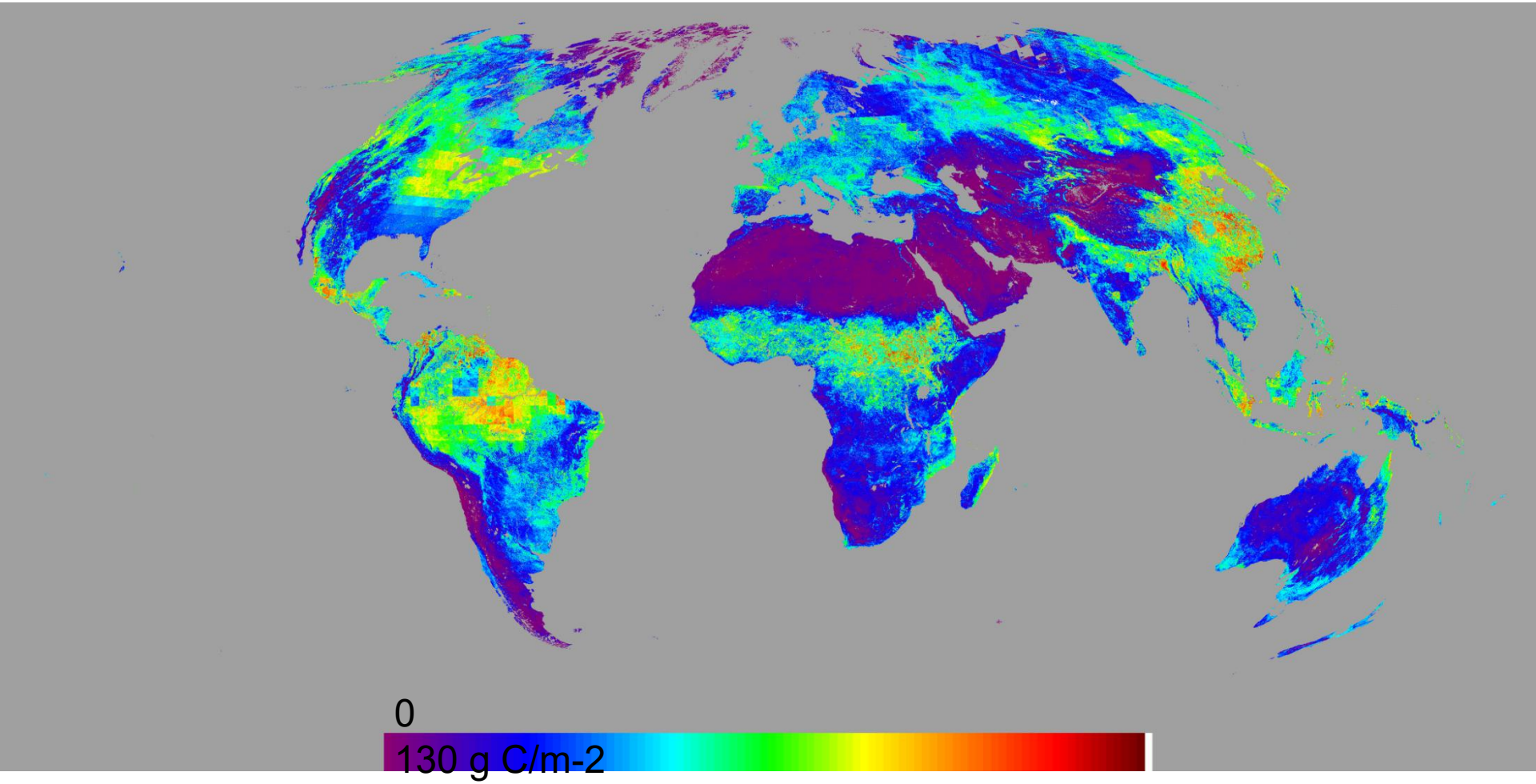
FY3D/MERSI NPP(June, 2019)



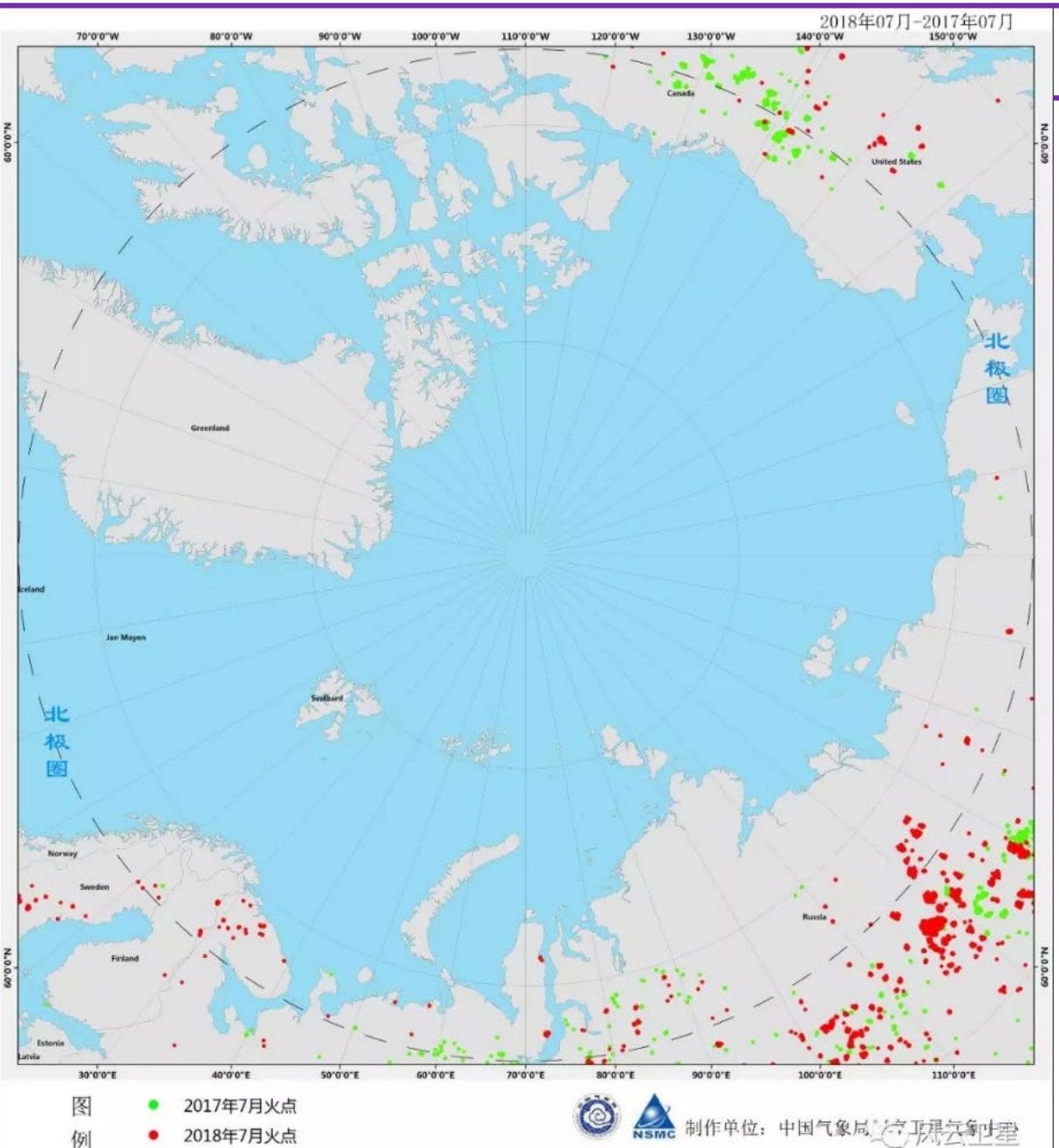
FY3D/MERSI NPP(July, 2019)

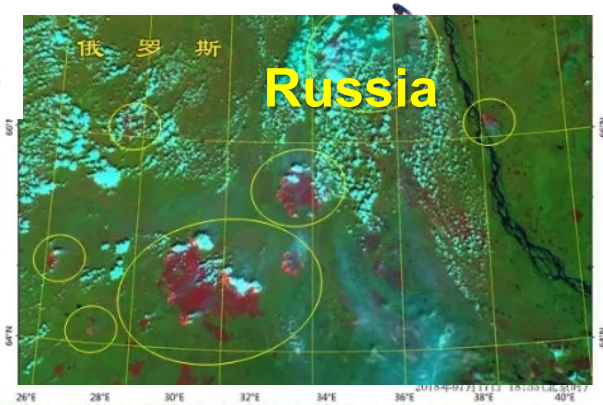


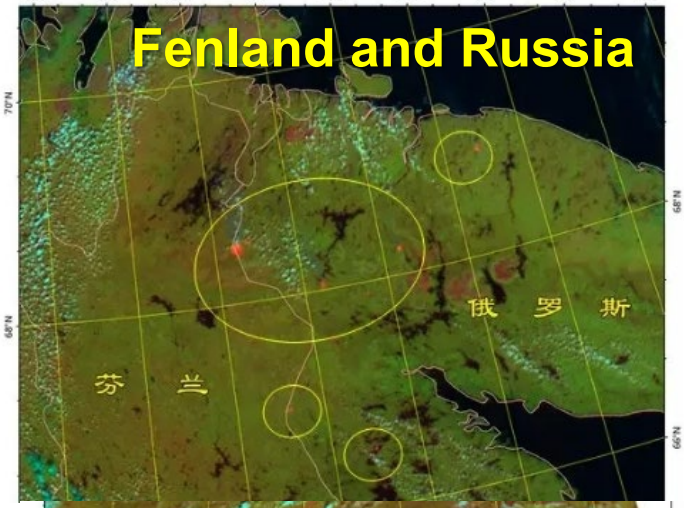
FY3D/MERSI NPP(August, 2019)

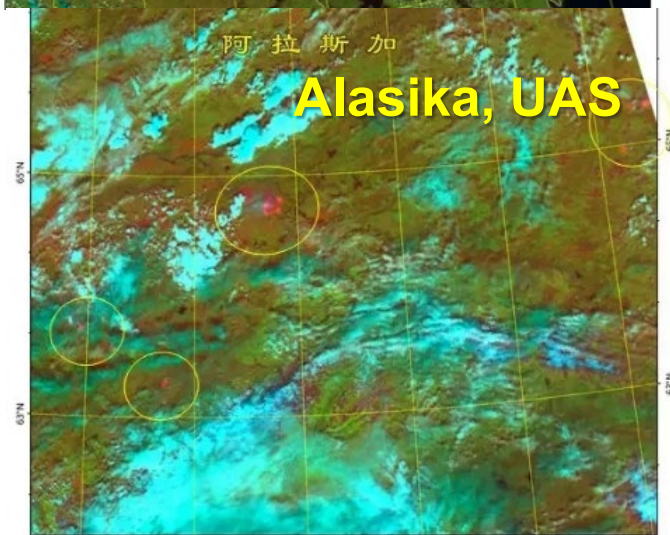


Active Fire monitoring around Arctic



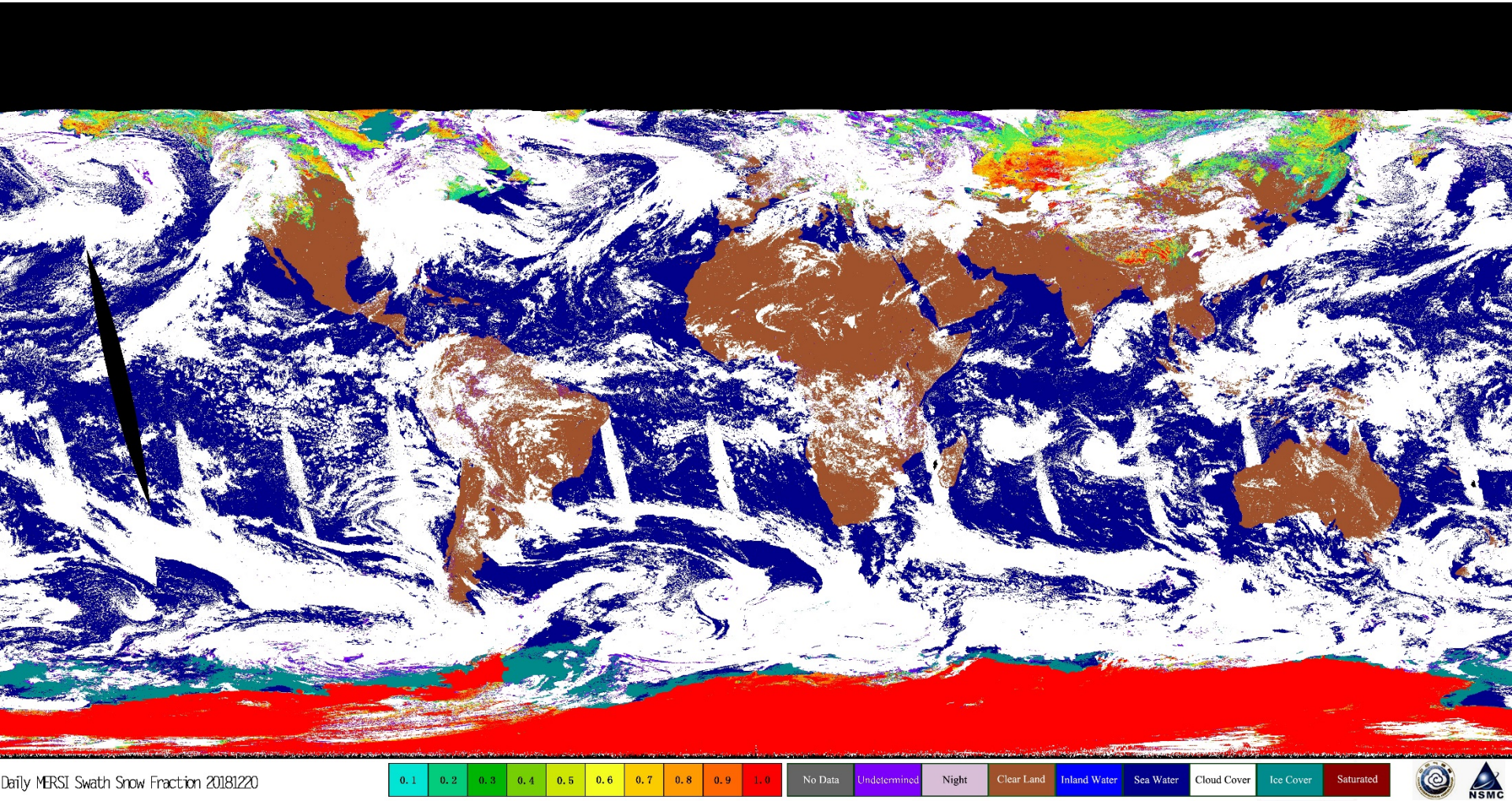






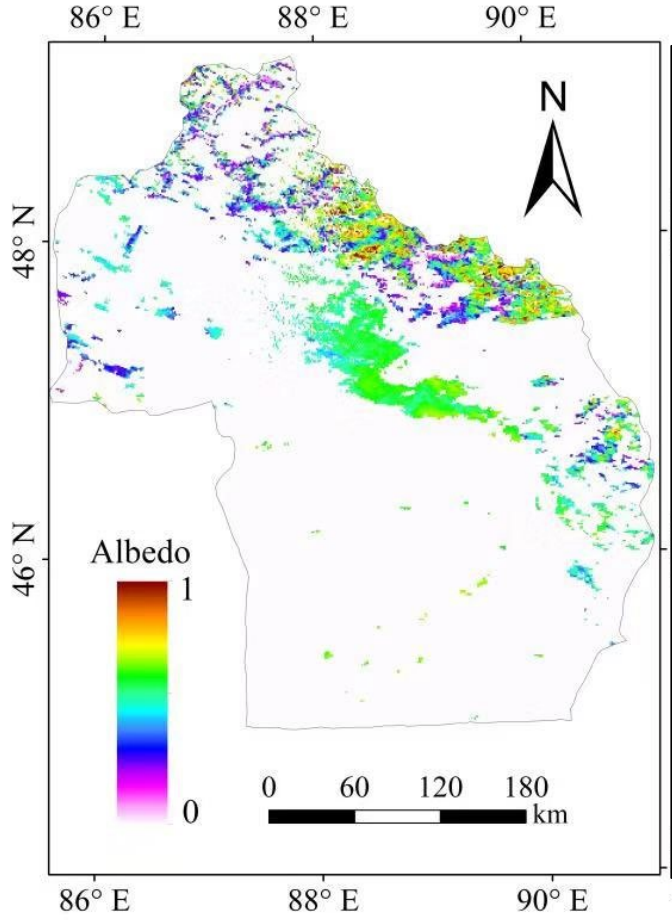
Snow Cover Fraction

$0.01^0 \times 0.01^0$

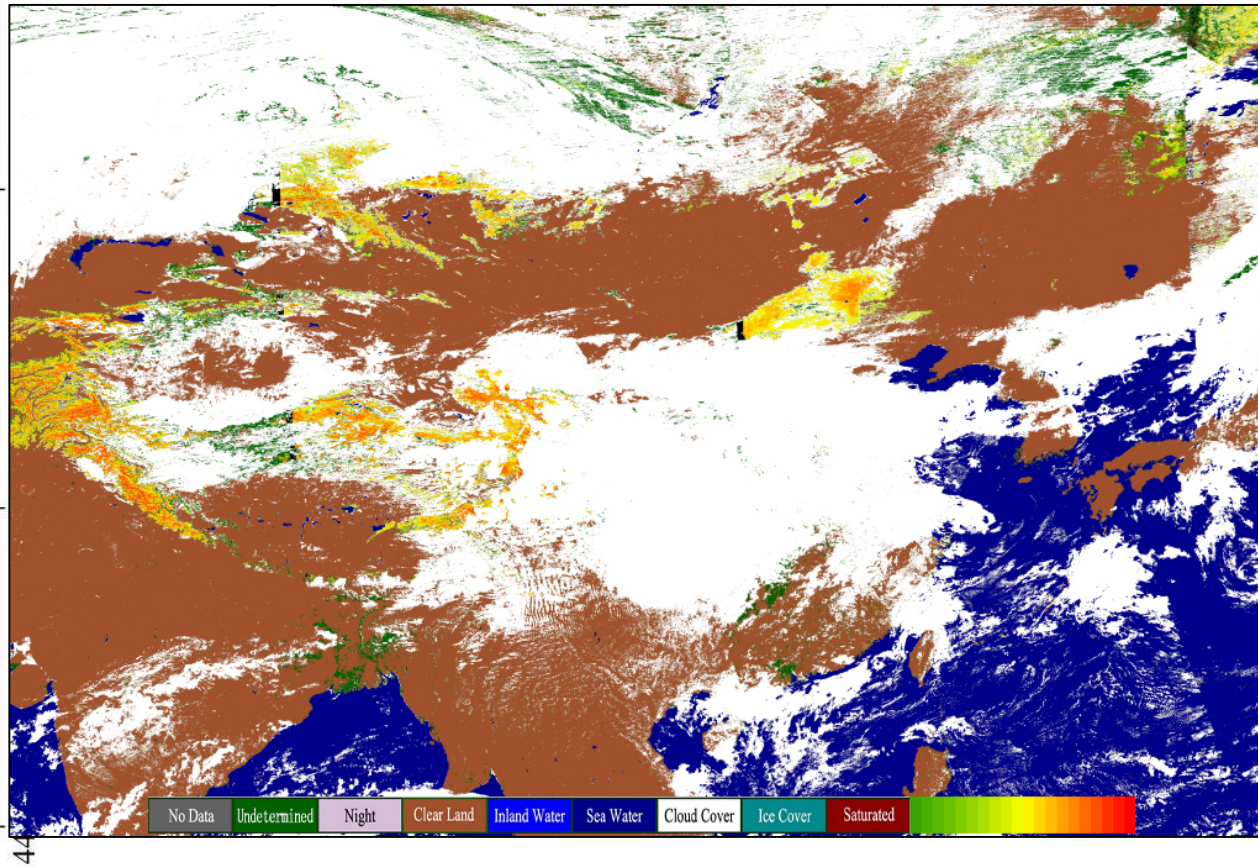


Snow Surface Albedo

$0.01^0 \times 0.01^0$



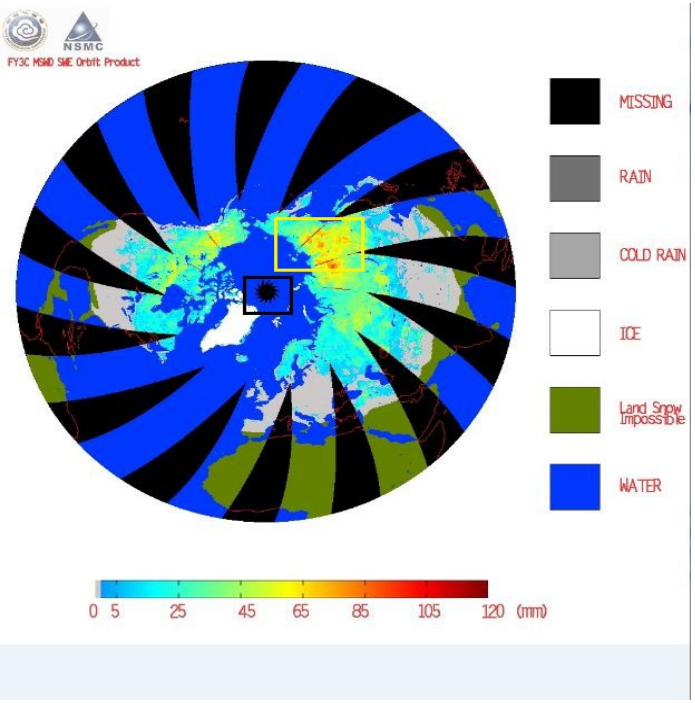
Altay Region (2018.1.5)



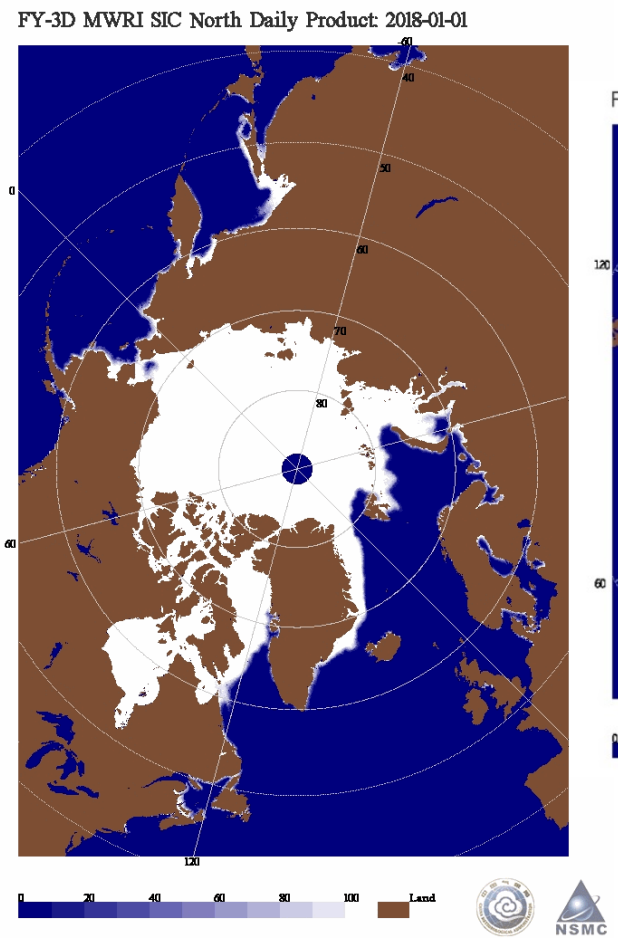
Snow Albedo in China (2018.11.05)

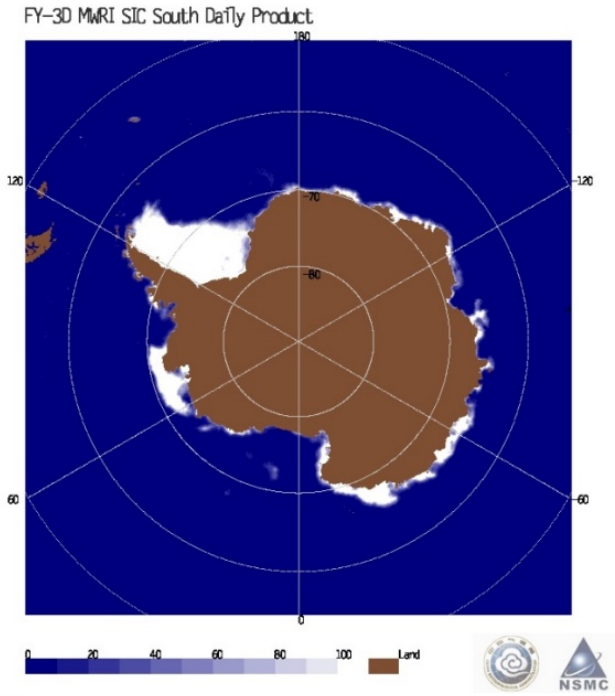
Polar Snow/Ice

Snow depth/SEW



MWRI Sea ice

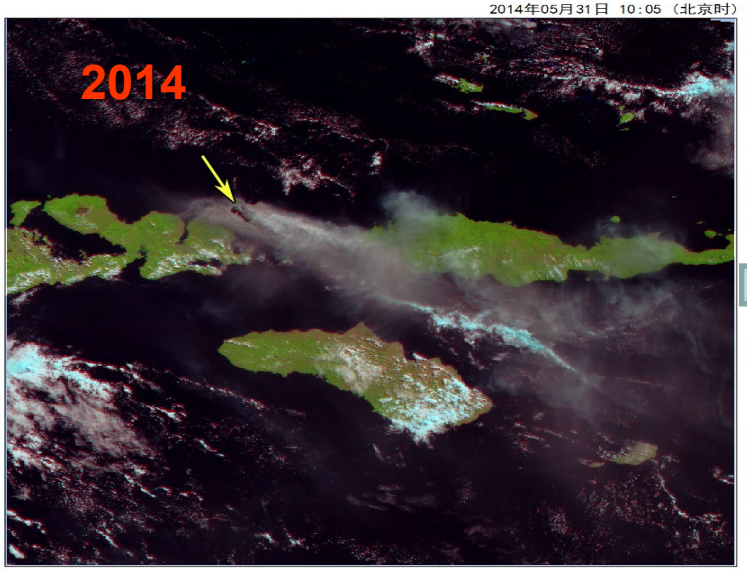




FY-3B and FY-3C data were used together to monitor dynamic change of Indonesia's Sangeang Api volcanic ash (with 250 m spatial resolution)

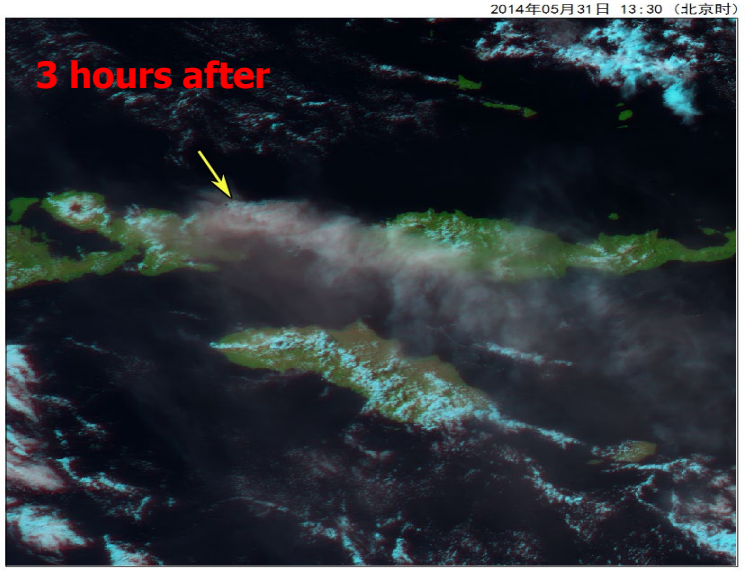
FY-3C/MERSI 印尼桑吉昂火山监测多通道合成图

2014年05月31日 10:05 （北京时）



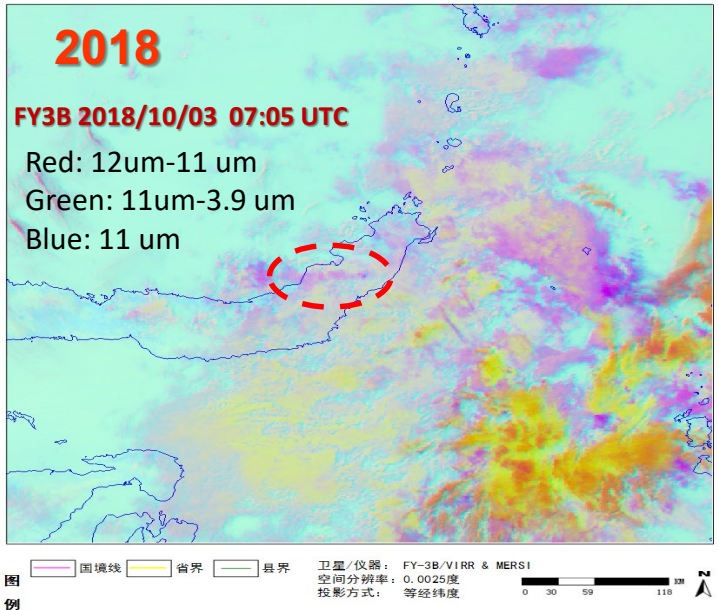
FY-3B/MERSI 印尼桑吉昂火山监测多通道合成图

2014年05月31日 13:30 （北京时）



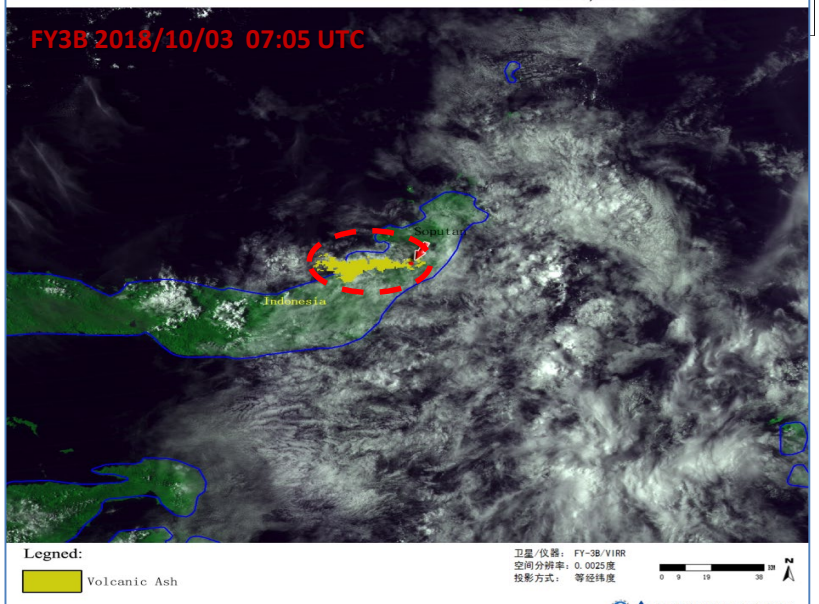
FY-3B 印尼索普坦火山监测多通道合成图

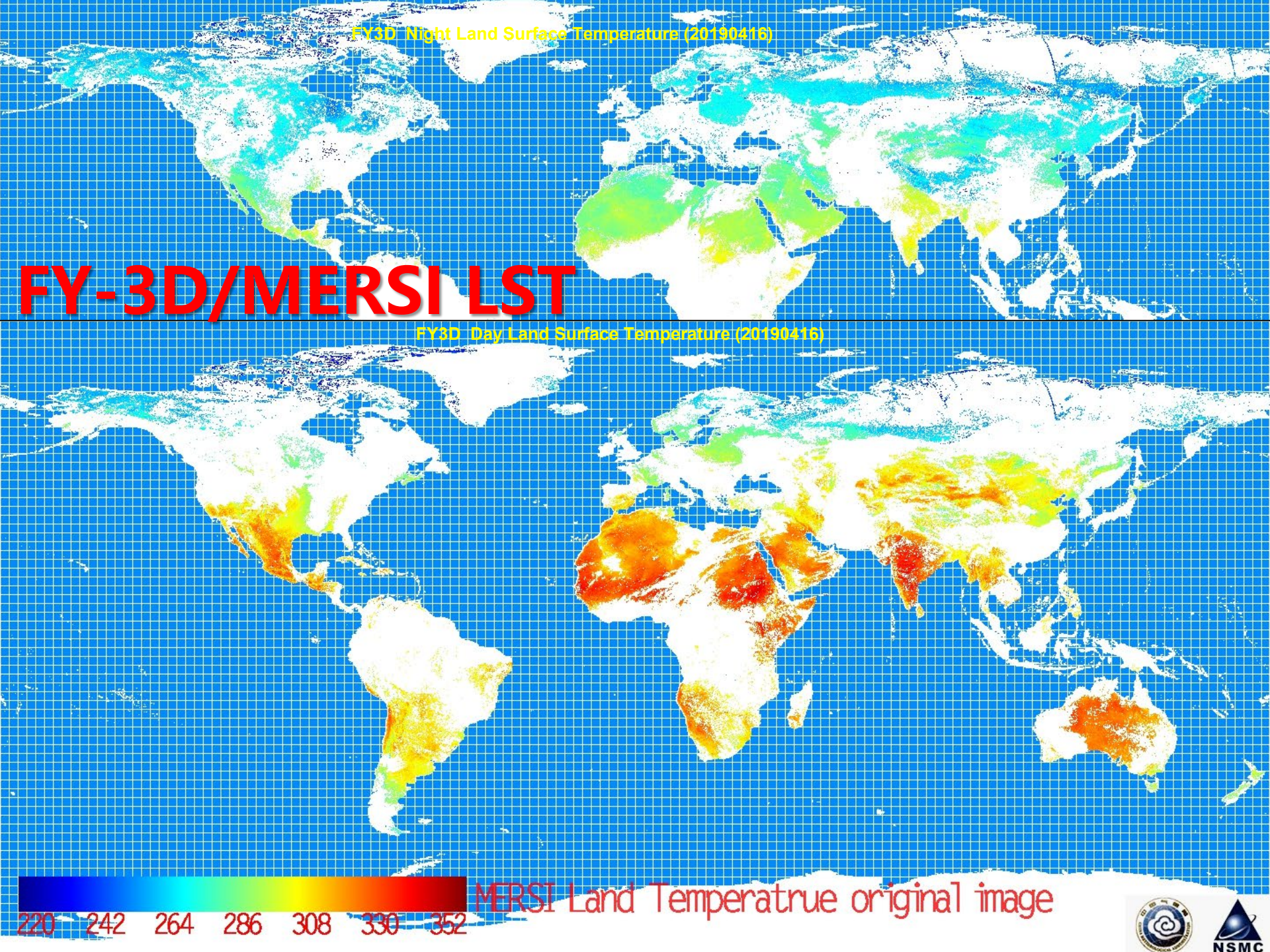
2018年10月03日 15:05 （北京时）



Volcanic Ash Monitoring using FY-3B MERSI and VIRR data

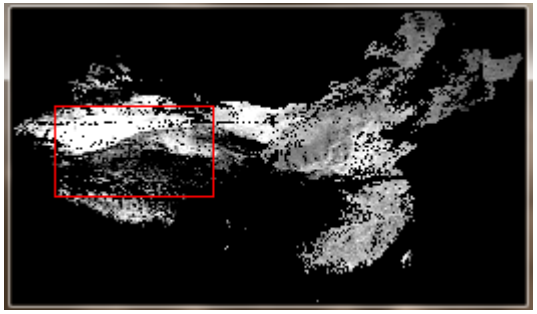
Oct. 3, 2018 7:05 UTC

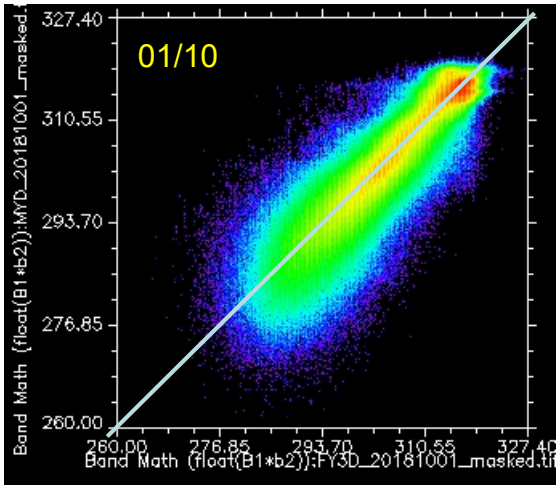


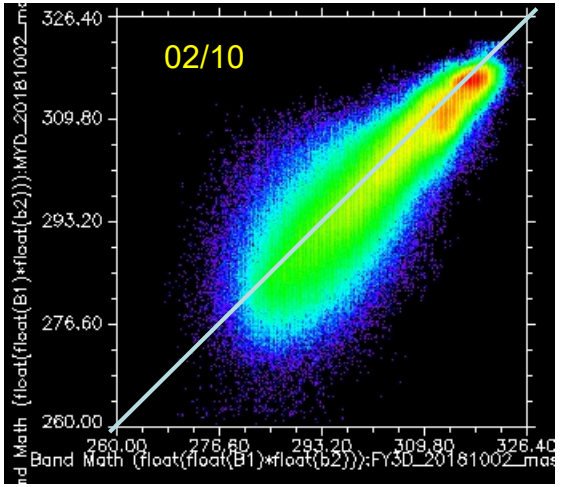

FY3D Night Land Surface Temperature (20190416)
FY-3D/MERSI LST
FY3D Day Land Surface Temperature (20190416)
220 242 264 286 308 330 352
MERSI Land Temperatrue original image
NSMC

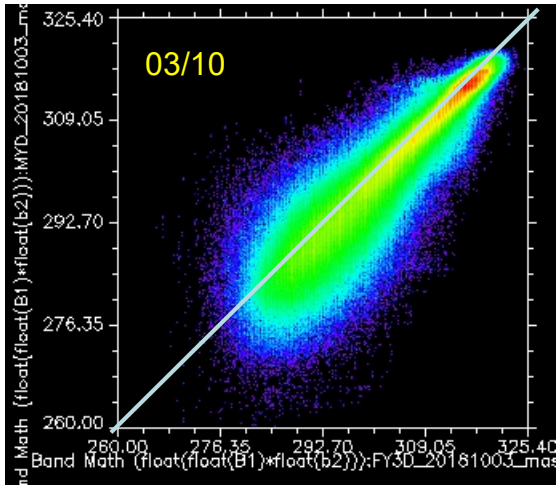
LST Validation in NorthWest China

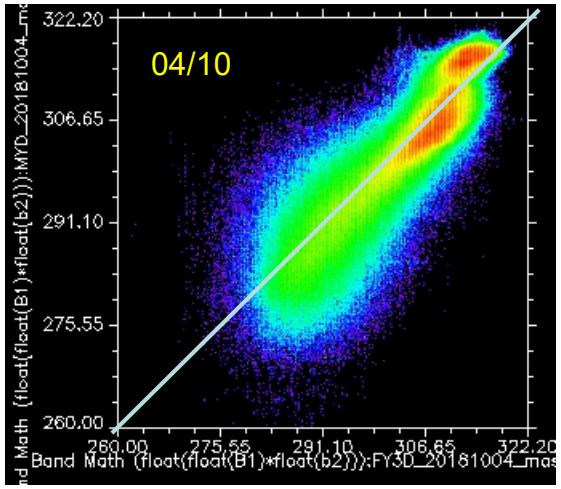
(DAY-Northwest)

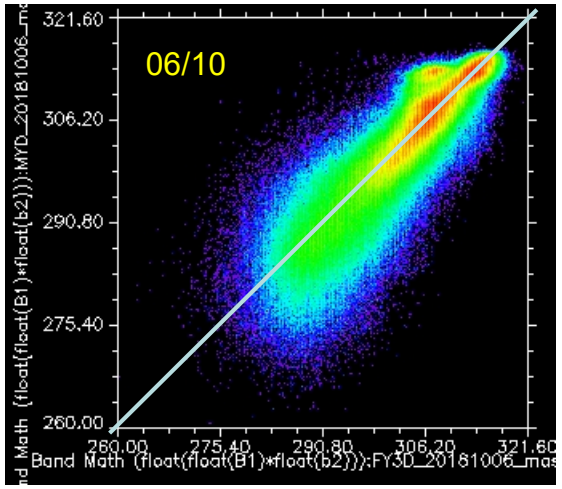






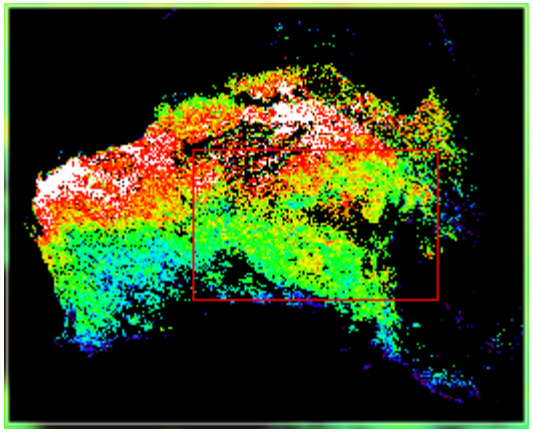




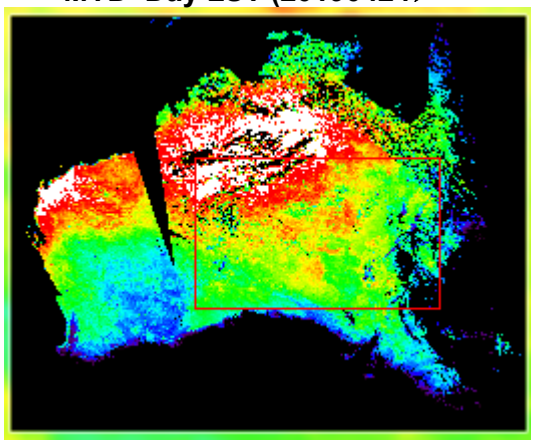


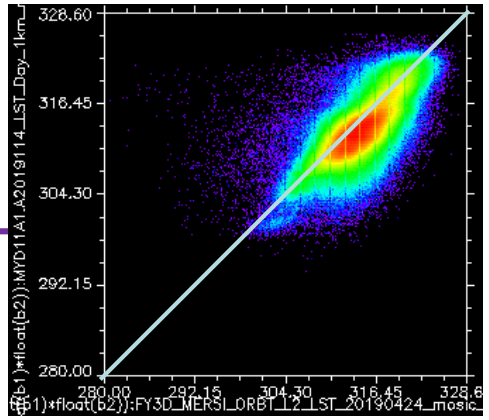
LST Validation in Australia

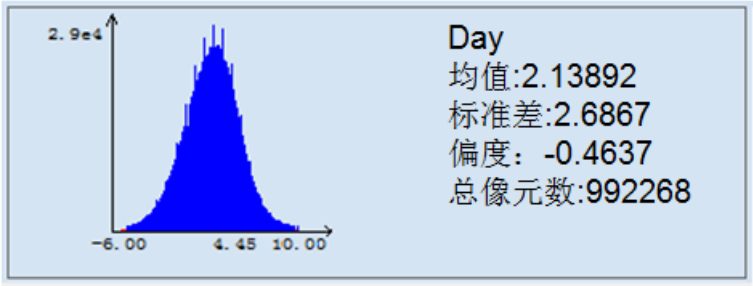
FY3D Day LST (20190424）



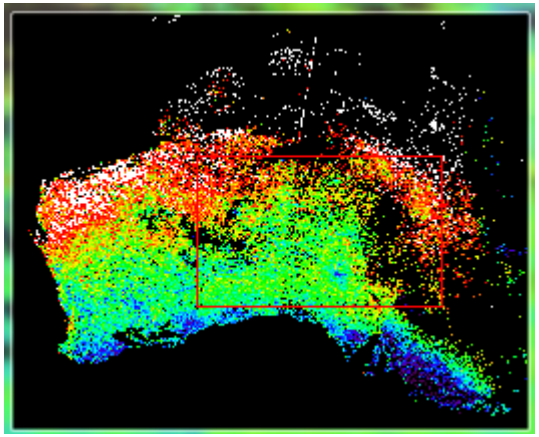
MYD Day LST (20190424）



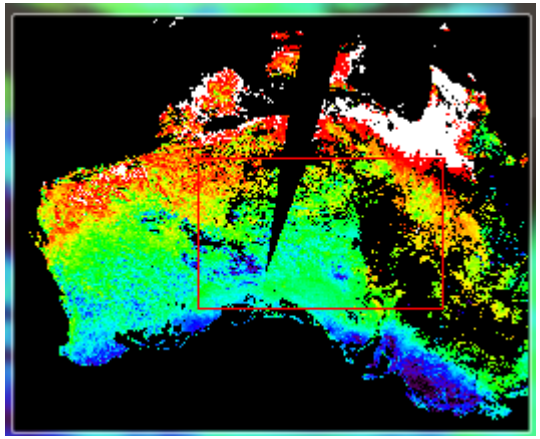


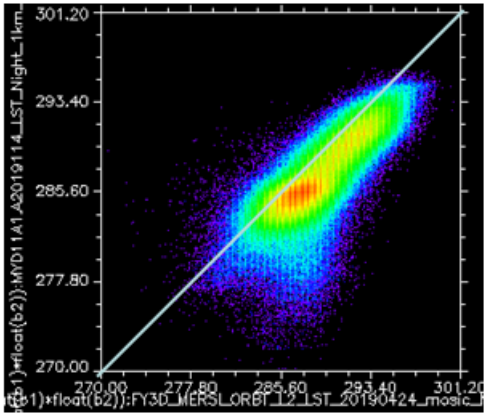


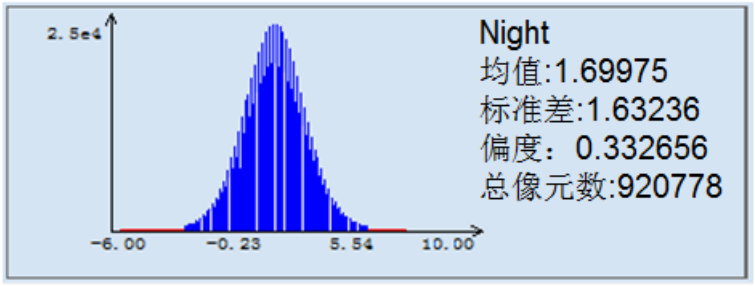
FY3D Night LST (20190424）



MYD Night LST (20190424）







FY-3D Polar Wind

Processing Flowchart:

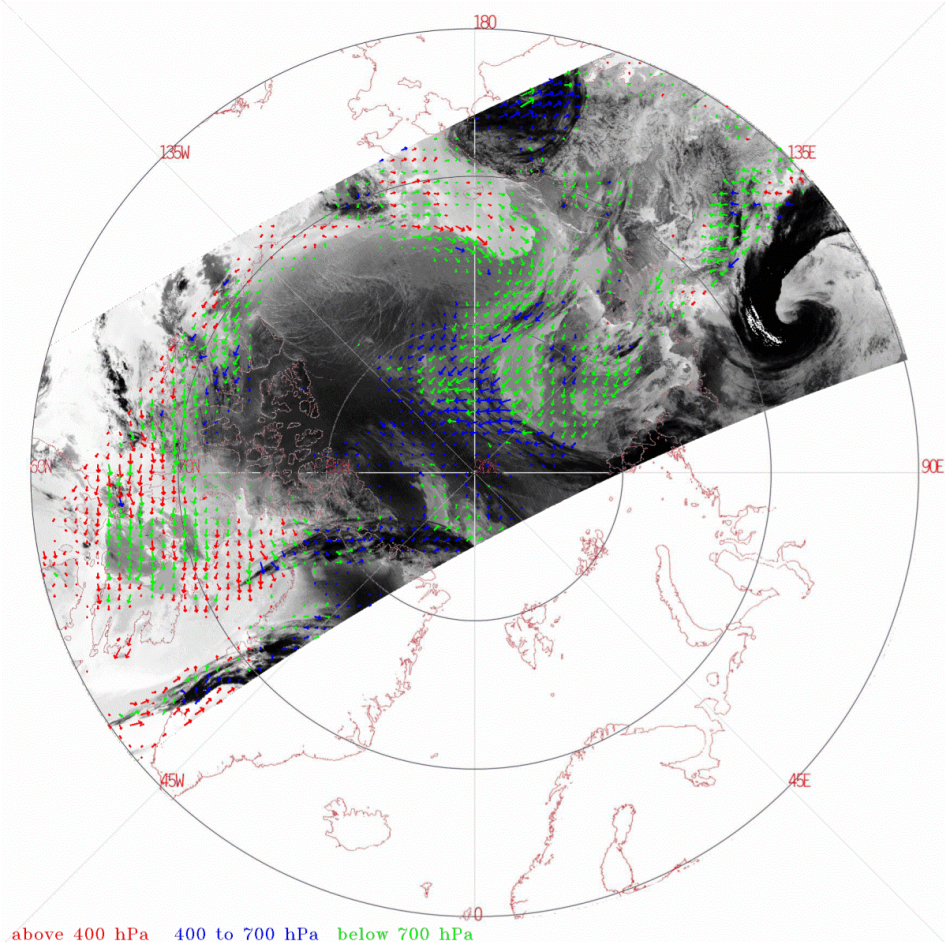
- Data Inputs (Dependencies)
- Target selection
- Feature Tracking； Target height assignment
- Quality Flag assignment

Tracking Algorithm

1） Sum of Squared Differences (SSD)
2） Nested Tracking
3 ） Dense/ Sparse Optical flow method
4 ） k-means clustering algorithm

Products Improvement

1） AMV not just from cloud
2） AMV also from Water vapor in Clear sky



Polar Wind Validation using ERA-Interim

Wind Vector Compare with ERA-Interim， during March, April and May, 2019

（QI>=2）

Height	Mean bias（m/s）	RMSE（m/s）
High（<400hPa）	4.053	7.146
Middle（400~700hPa）	2.443	6.257
Low（>700hPa）	0.908	4.007

（QI>=4）

Height	Mean bias（m/s）	RMSE（m/s）
High（<400hPa）	2.903	6.135
Middle（400~700hPa）	1.513	4.533
Low（>700hPa）	0.728	3.561

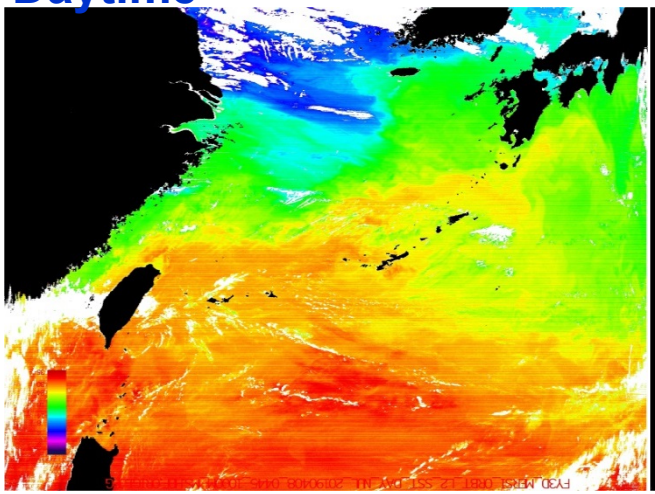
Applied in NOAA-19 on April 29, 2019

Height	Mean bias（m/s）	RMSE（m/s）
High（<400hPa）	3.703	6.357
Middle（400~700hPa）	2.413	5.678
Low（>700hPa）	0.711	3.899

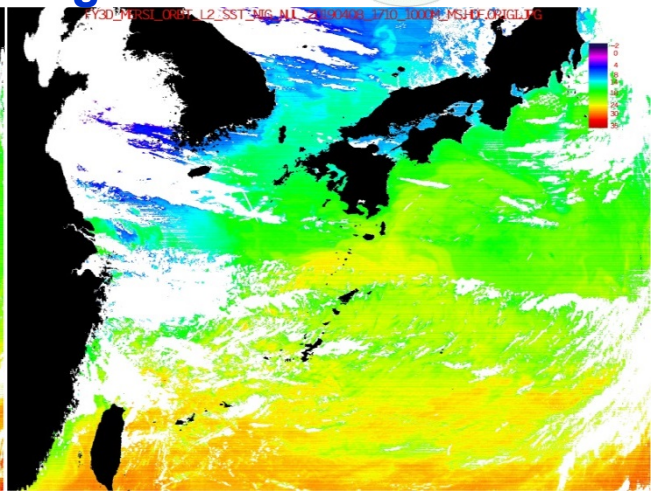
FY3D/MERSI SST

- 5 minute Granule SST(1Km)

Daytime

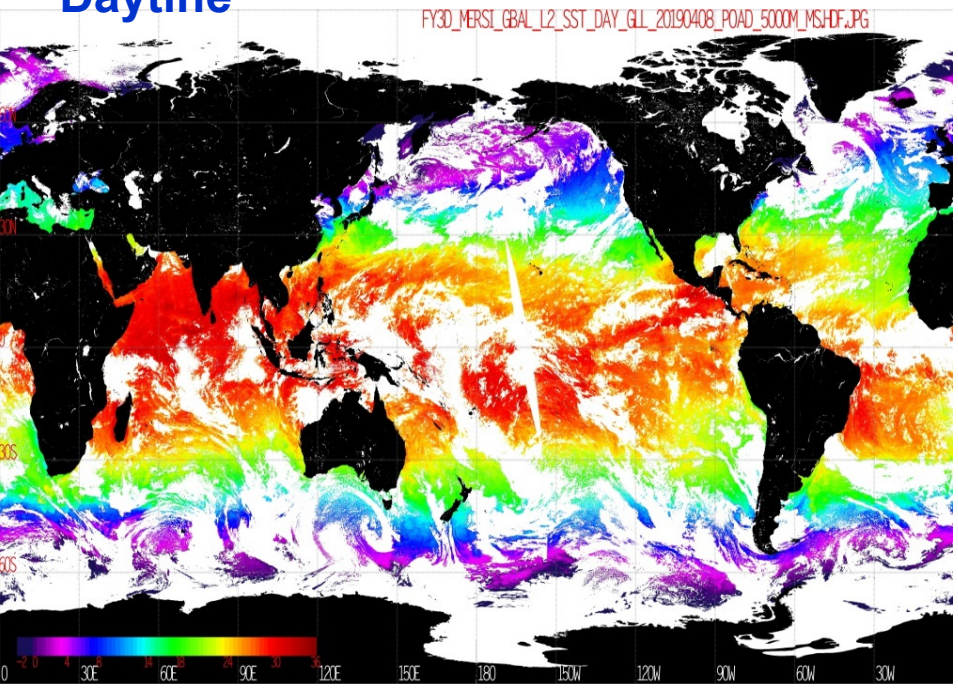


Nighttime

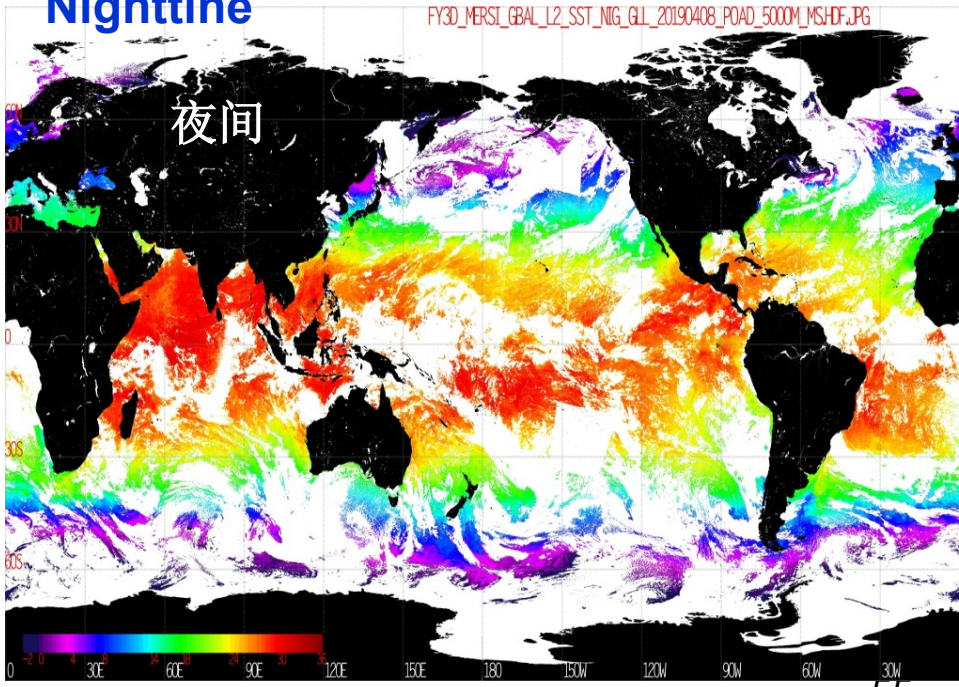


- Daily SST(5Km)

Daytine

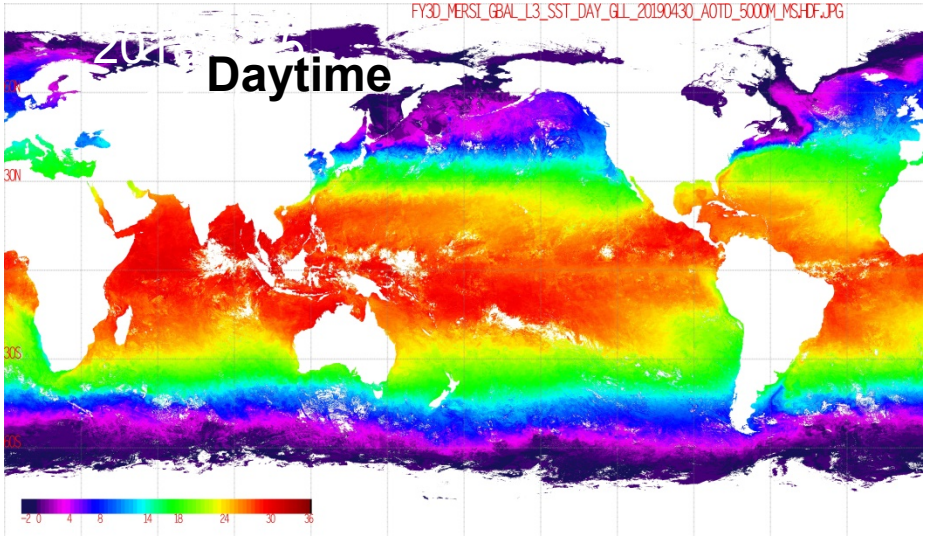


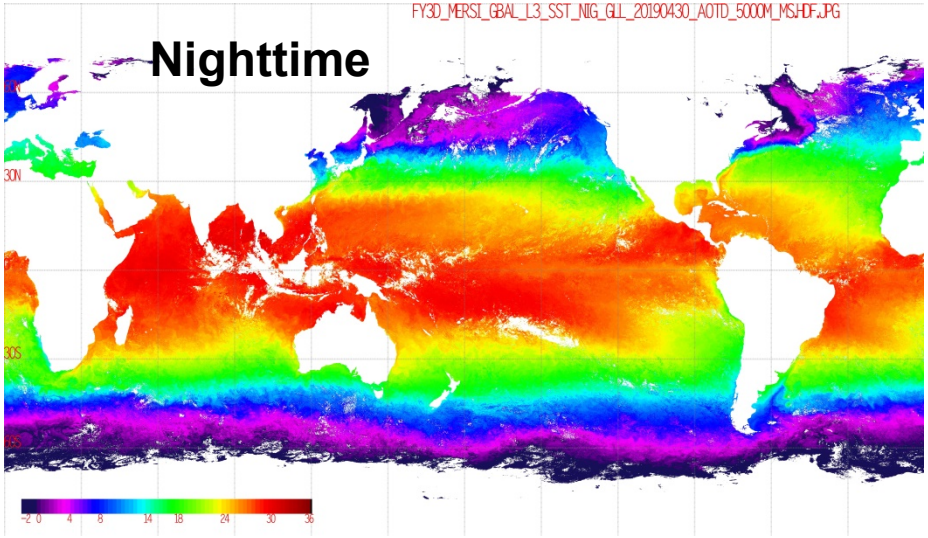
Nighttine

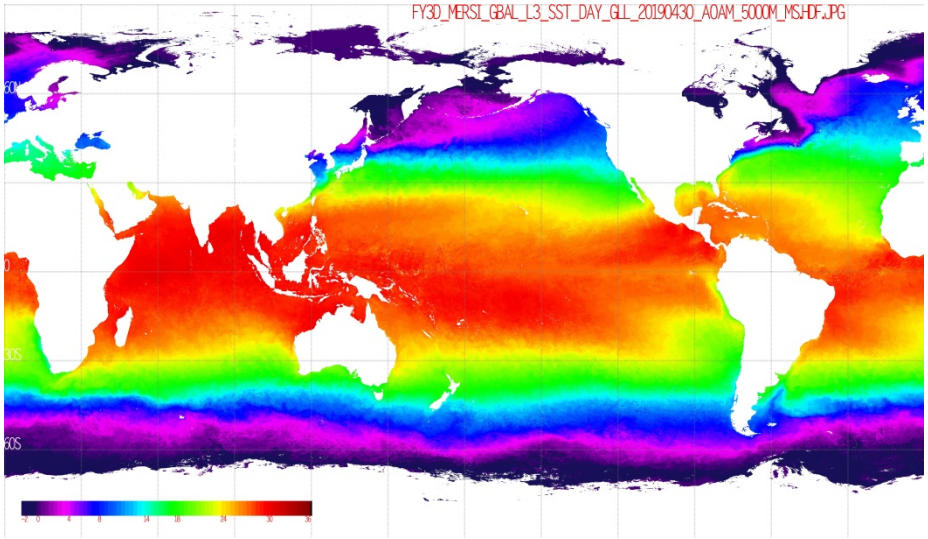


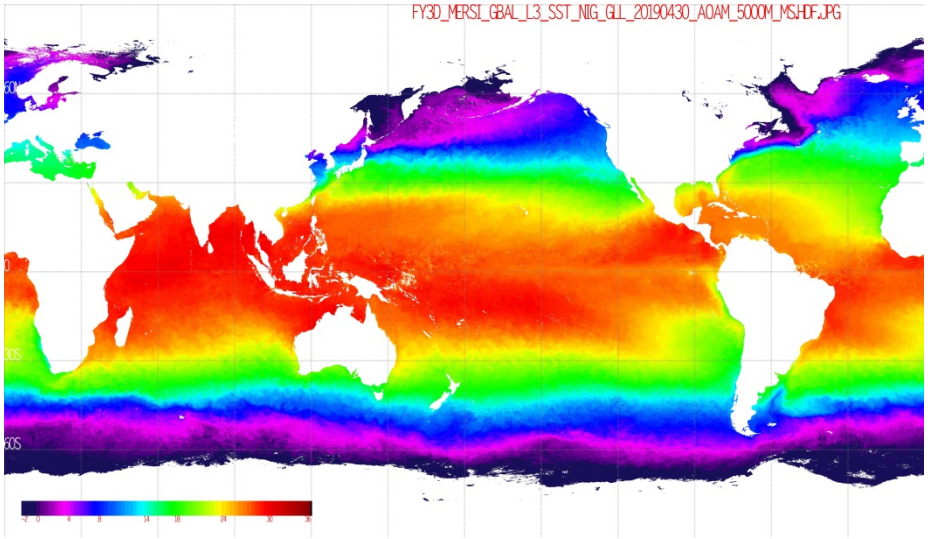
FY3D/MERSI CDR Products

FY3D Ten days April, 2019





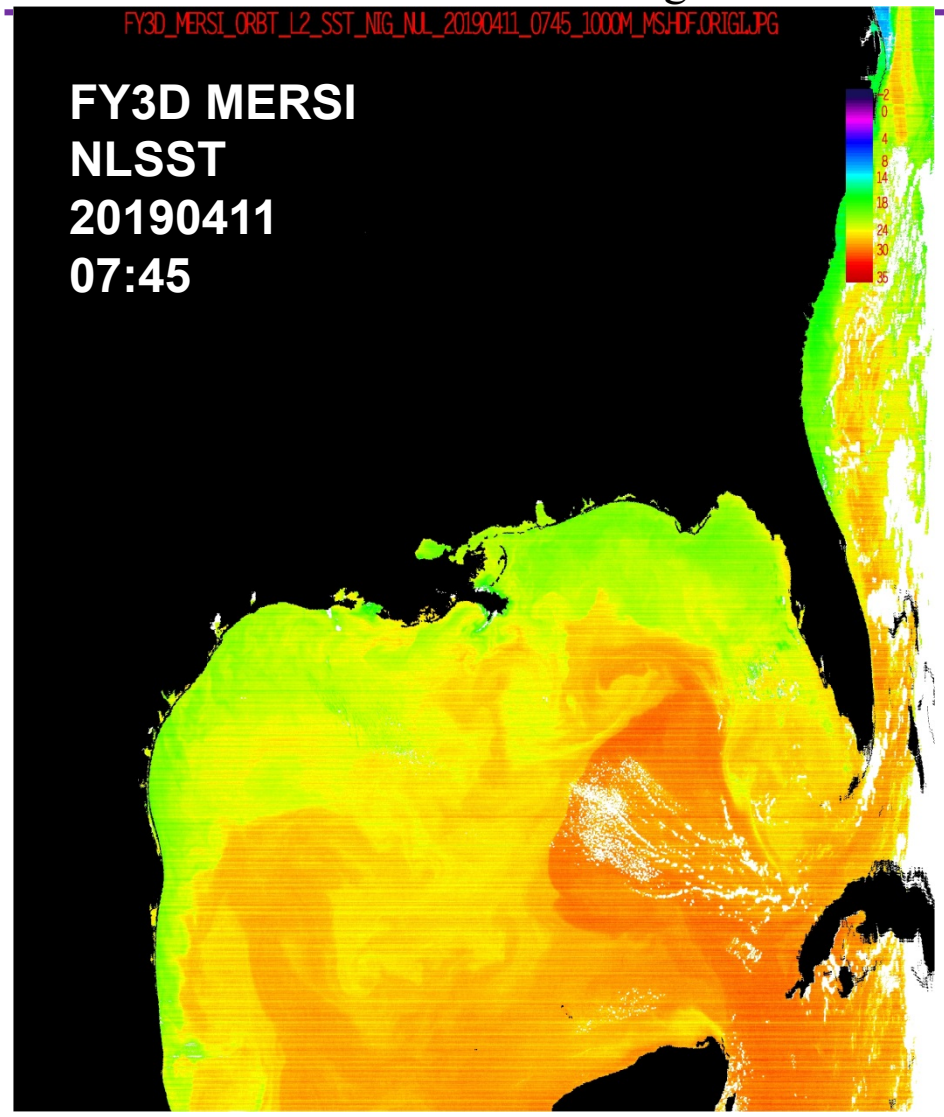




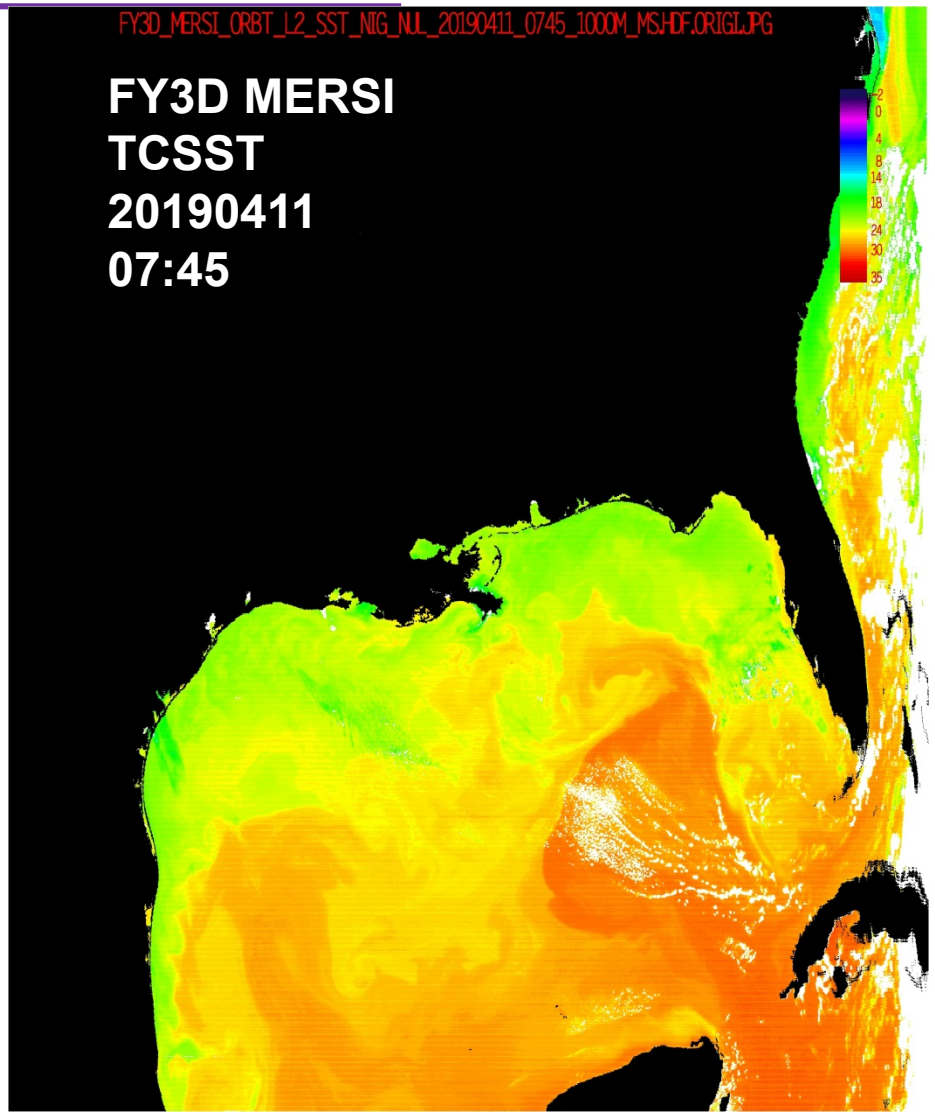
FY3D Monthly April, 2019

FY3D SST Compared with different Method

- TC is better than NL at Nighttime with 3.8μm, More Detail Appearance



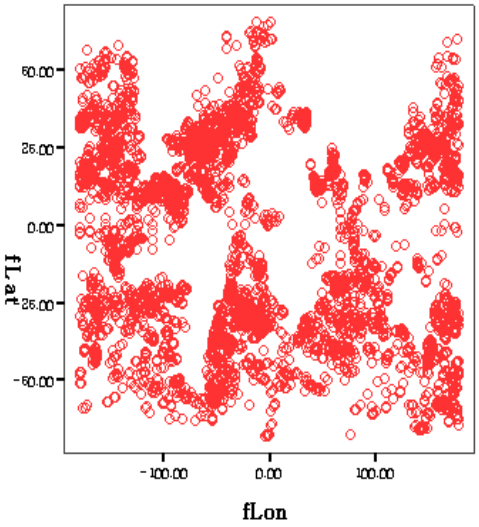
NLSST(IR Splid Window)

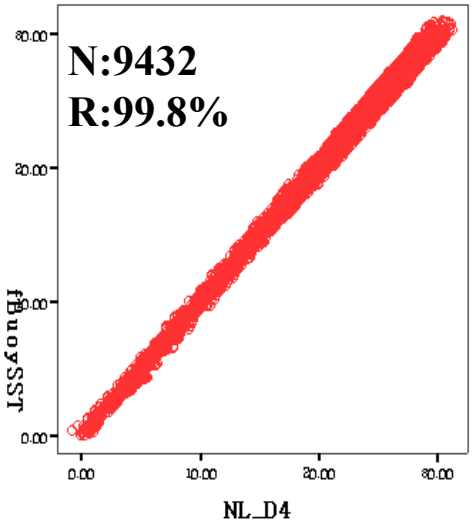


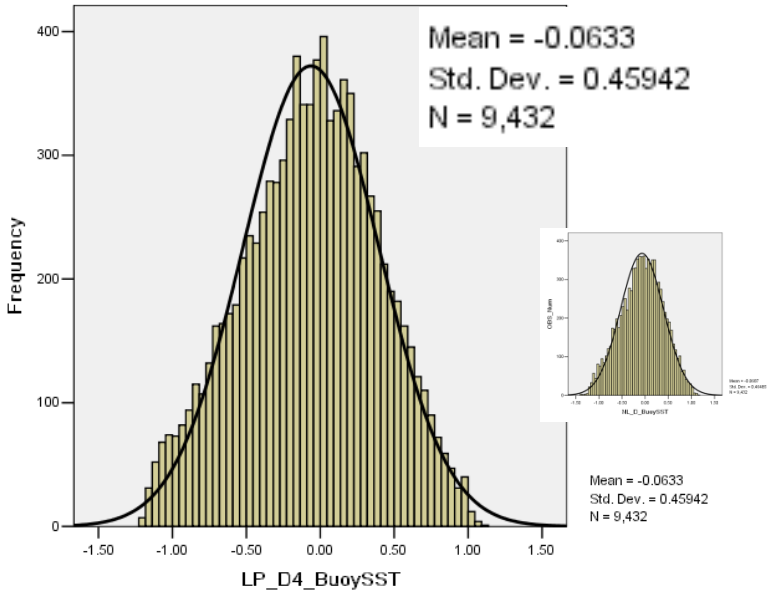
TCSST(IR Splid Window+**3.8** μm)

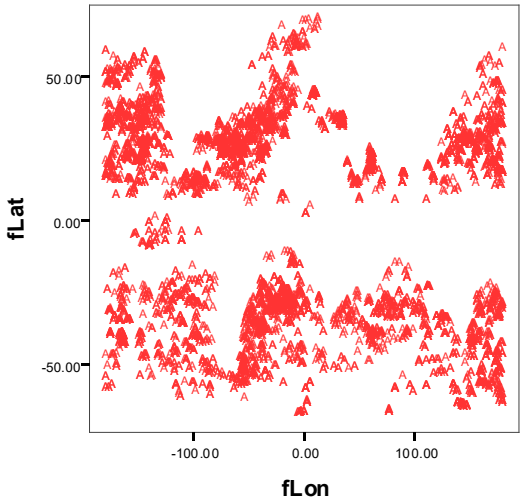
FY-3D SST Validation with Buoy Measurement

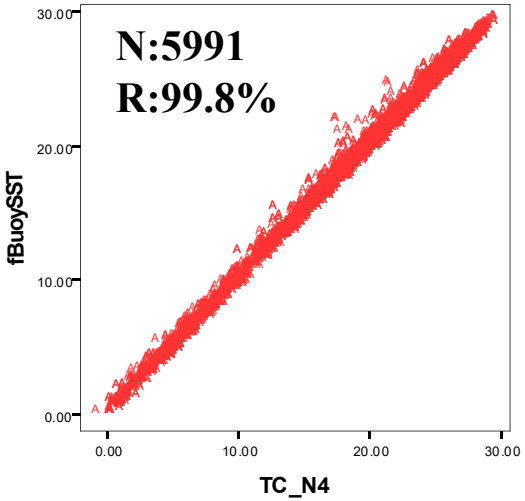
(Jan.- Feb., 2019)

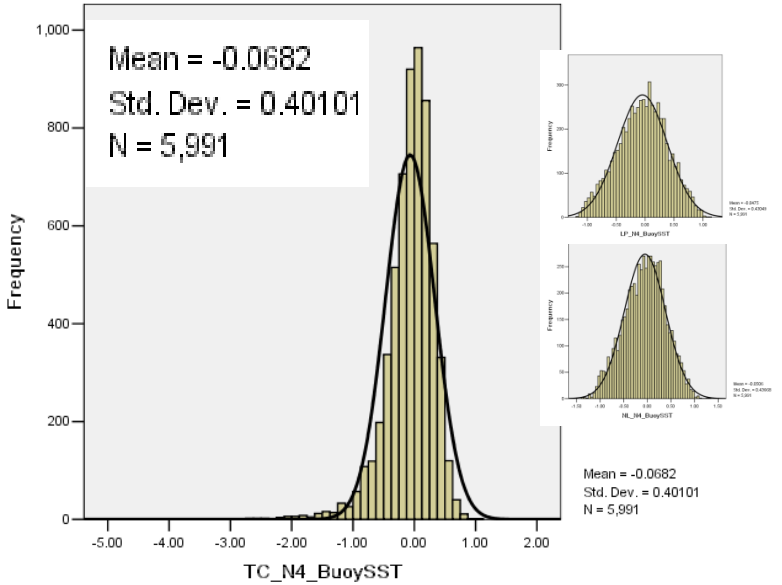












- Daytime：LP_N -0.06±0.46° C
- Nighttime： TC_N -0.07±0.40° C

Summary

- FY-3 L1/L2 processing and generation System are matured and running operationally at real time. The validation of the data and products provide good support for remote sensing application and decision making.
- Good quality of these products provide a lots of opportunities of its global application not just in China but also in Belt and Road countries.
- Novel and innovation algorithm for new products based on FY LEO L1/L2 data are welcome. AI and big data processing will be applied to FENGYUN LEO data including real time and long term historical data.
- FENGYUN Science Algorithm Innovation Competition was conducted in the last year with significant achievement and will attract more scientists and researches focus on FY satellite data application.

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风云气象卫星科学算法创新大赛

Thanks !

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