AOMSUC-15 2025 FYSUC

THE 15TH ASIA-OCEANIA METEOROLOGICAL SATELLITE USERS' CONFERENCE (AOMSUC-15)

2025 FENGYUN SATELLITE USER CONFERENCE (2025 FYSUC)

Meteorological Satellite Data Application Solution

Beijing Huayun Shinetek Science and Technology Co., Ltd

Company Background Introduction

Company Background Overview

With professional technique in meteorological research and application fields

Guided by China Huayun Corporation under CMA to fulfill service requirements

Beijng Huayun Shinetek Company

NSMC

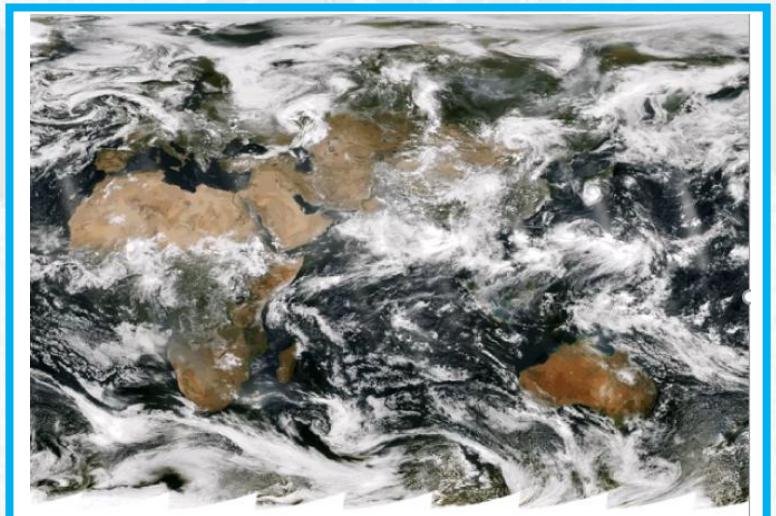
China Huayun Group

Shanghai Satellite Engieering Research Institute

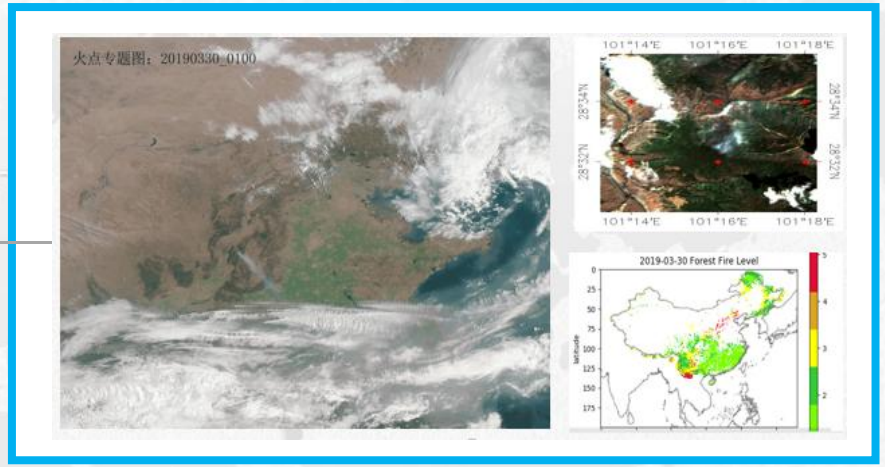
Technically supported by NSMC with strong research force for creative production

Core techniques supported by Shanghai Satellite Engieering Research Institute with widely application upgrade for advanced technology.

Company Background Introduction-Business Scope



- Fengyun Satellites
- International Satellites
- Chang'e Lunar Probe Program
- Mars Exploration
- Marine Satellite Series
- Earth System Numerical Simulation Facility
- .....



Remote Sensing Application in weather, marine, civil aviation, environment, ecological, forestry and traffic, etc.

Company Background-Business Scope

Providing remote sensing ground systems and software including data processing, data archiving, system integration.

Remote Sensing Industry

- Meteorological Satellite
- Moonlet Satellite
- Remote Sensing

- Multi-source Satelllite Remote Sensing Application
- Moonlet satellite industry: telemetry and receiving ground station network
- Intellegent Satellite Data Service System Real-time Monitoring
- Research and Data Simulation Services
- Intelligent Data Services

Business Scope-Satellite Ground Station

Geostationary Satellite

Including FY-2, HimawariCast, GK2A and FY-4 Geostationary Data Receiving Systems.

Polar-Orbiting Satellite

Including data receiving system for domestic and abroad polar-orbiting satellite and high-resolution satellite.

Broadcast Satellite

Including CMACast Broadcast and EUMETCast Broadcast Satellite Data Receiving Systems.

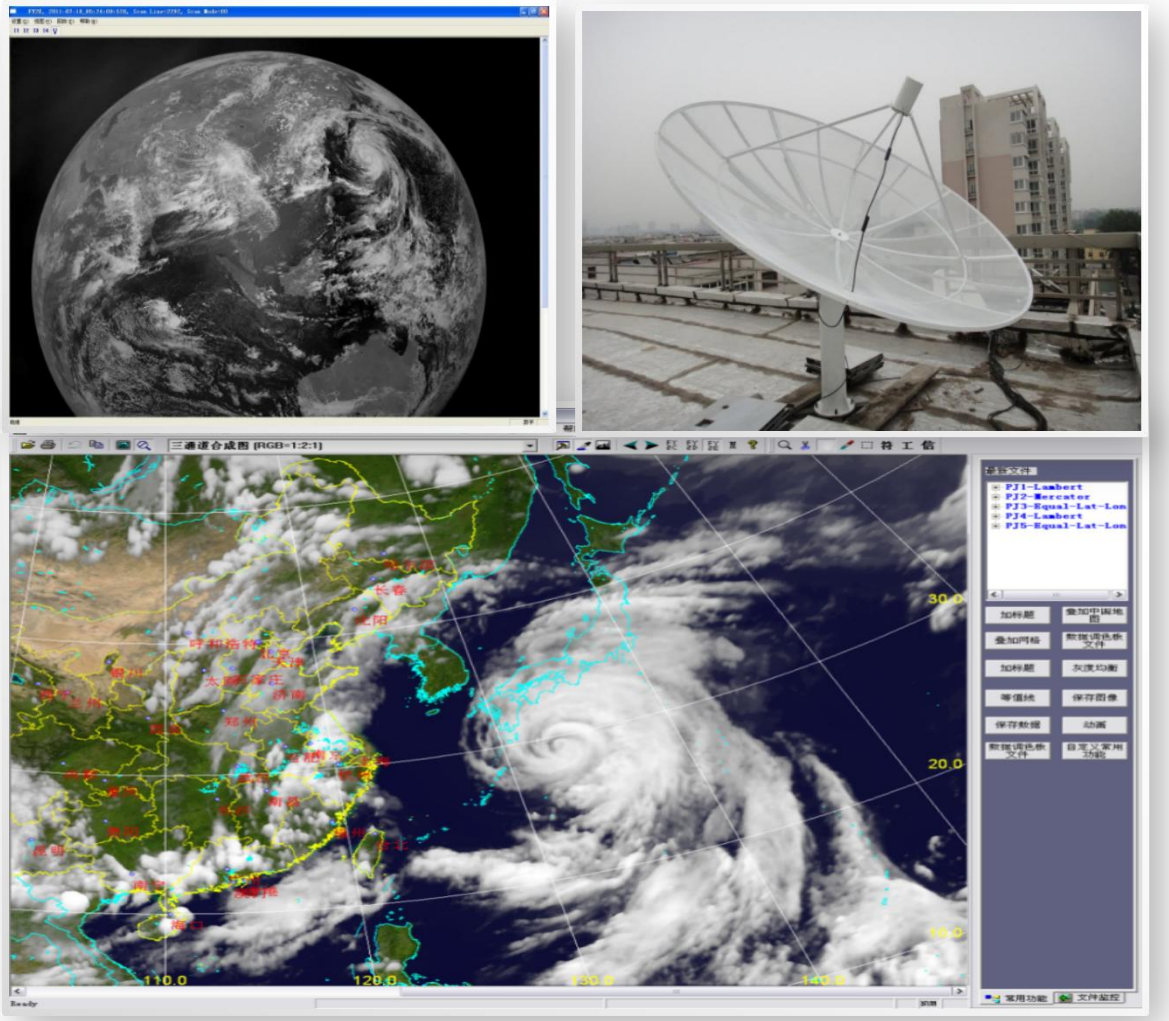
Data Source--Satellite Ground Station

Ground Station User List (Till 2025)

Serial No.	System Type	Country
1	CMACast	Maldives
2		Pakistan
3		Malaysia
4		Myanmar
5		Philippines
6		Mongolia
7		Iran
8		Sri Lanka
9		Uzbekstan
10		Nepal
11		Kyrgyzstan
12		Laos

Serial No.	System Type	Country
1	FY-2H	Mozambique
2		Oman
3		Kyrgyzstan
4		Bangladesh
5		Mongolia
6		Iran
7		Pakistan
8	FY-3	Zimbabwe
9		Namibia
10	FY-4	Laos

Satellite Ground Station-FY-2 Geostationary System



Integrated with software and hardware for:

- ✓ Data receiving
- ✓ Image display
- ✓ Product processing
- ✓ Data distribution through network

Widely applied in meteorological, marine, aviation, hydrology, electrical, scientific research and military fields, acting as main method for real-time monitoring of typhoon and other severe weather conditions.

With 412 users in domestic and worldwide range.

Satellite Ground Station-FY-3 Polar-Orbiting System

Satellite	Country	Resolution
F-3D/E/F/G	China	250m
NPP/JPSS	USA	375m
EOS-AQUA	USA	250m
METOPA/B/C	Europe	1000m

Outdoor/Indoor Devices

Integrated with software and hardware for:

- ✓ Satellite signal tracking,
- ✓ Data receiving,
- ✓ Data processing
- ✓ Product generation

Operating automatically with high reliability as new generation of meteorological satellite data application ground station system.

With 98 users totally in domestic and wordwide range.

FY-3 System-Outdoor Equipment

Radome: protects antenna from damage by wind, rainfall, snowfall and dust weather conditions

Antenna： tracks satellite orbit for signal receiving during satellite passing period

FY-3 System-Indoor Equipment

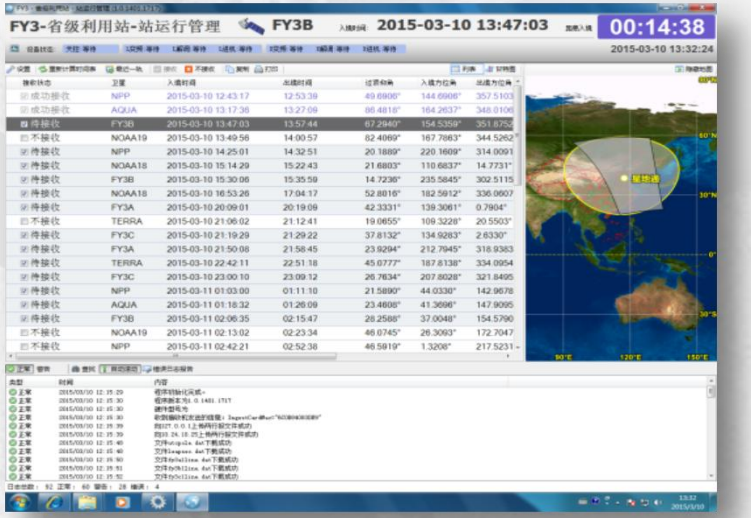
01

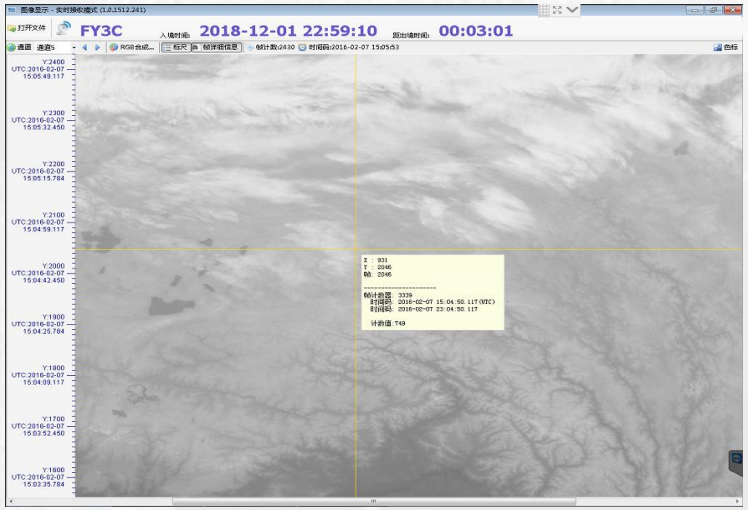
Data Receiving Cabinet: devices within cabinet convert satellite signal frequency and demodulates signals for data ingestion and later data processing hence to generate standard HDF format products.

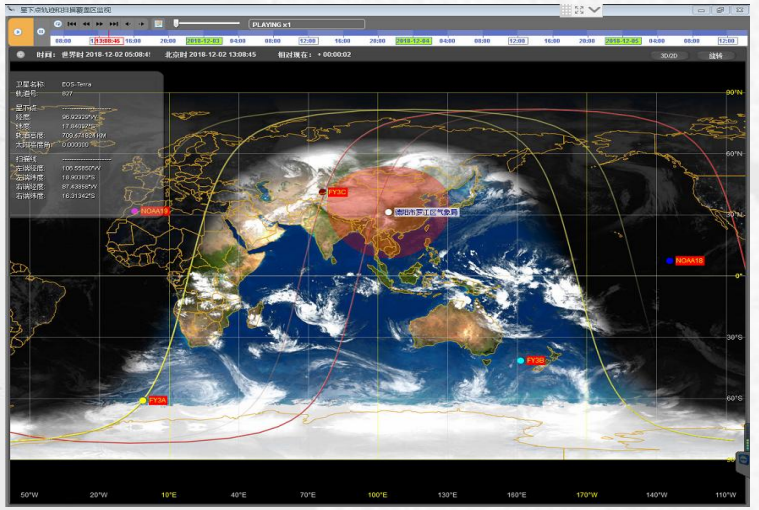
02

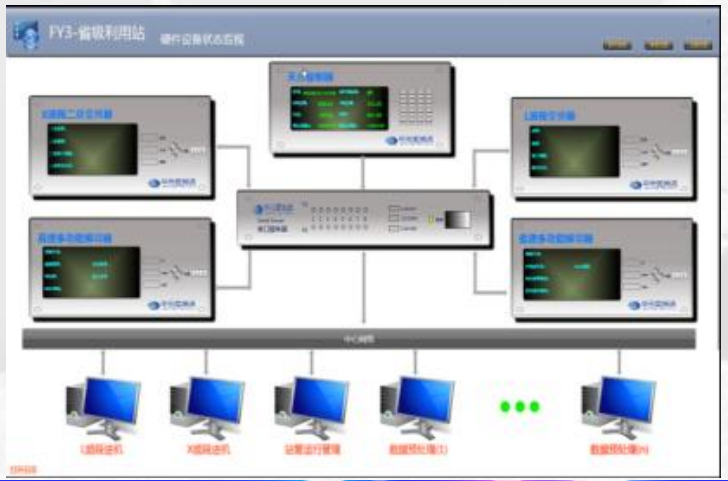
System Operation Monitoring and Product Analysis Platform: monitors operation status and workflow for the whole system; generates ecological monitoring products by satellite data including dust, vegetation, land surface temperature and sea ice temperature monitoring products, etc.

FY-3 System Software

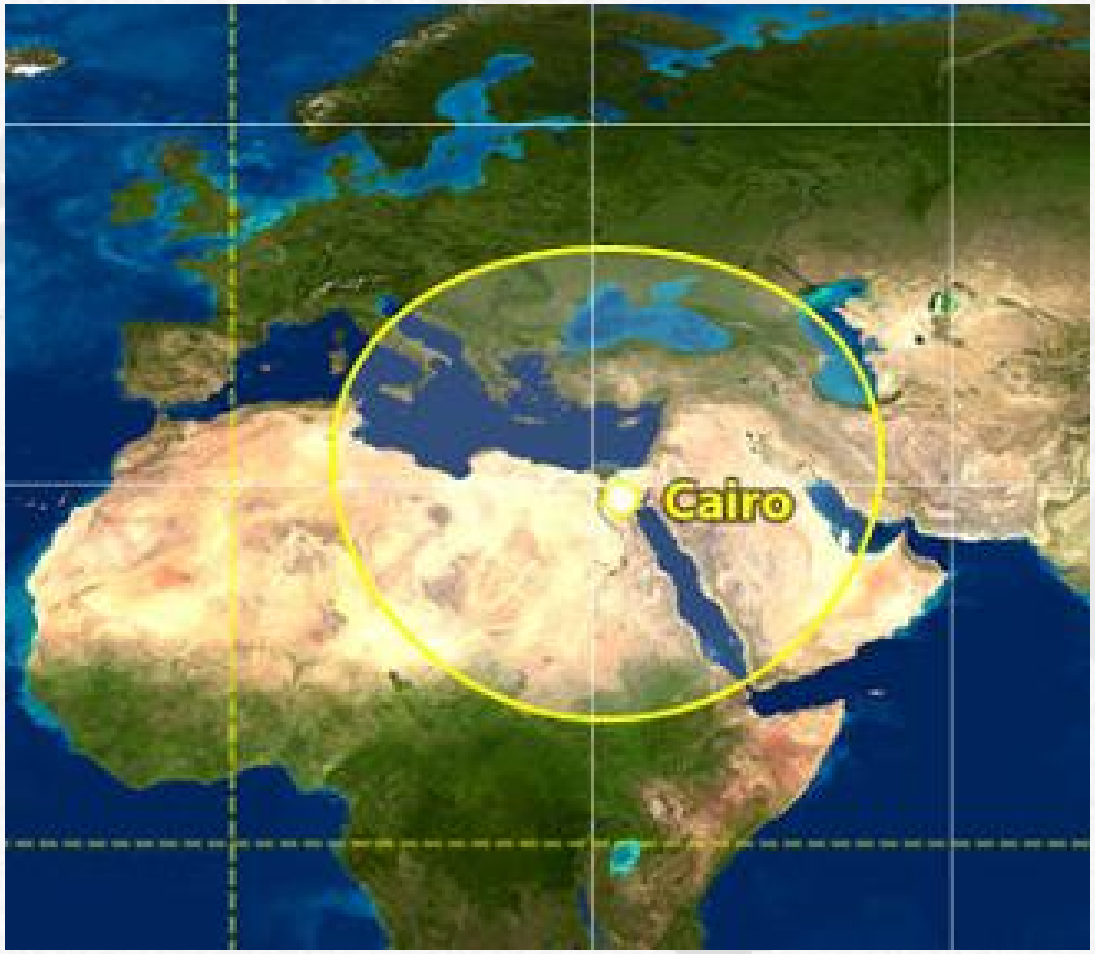






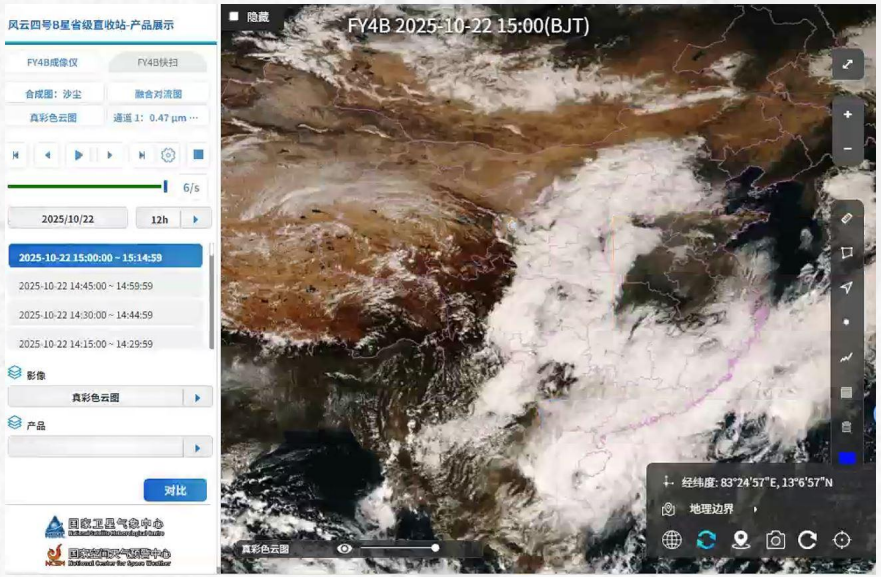


FY-3 System-Signal Receiving Area (For Reference)



1. Construction Location: Cairo
2. Longitude/Latitude: 30.04°N，31.24°E
3. Satellite Data Coverage Area: Within Yellow Circle
4. Maximum Spatial Resolution: 250m
5. Time Interval: 1 satellite orbit every hour approximately
6. Daily Data Amount: 150GB

Satellite Ground Station-FY-4 Geostationary System



Integrated with software and hardware for:

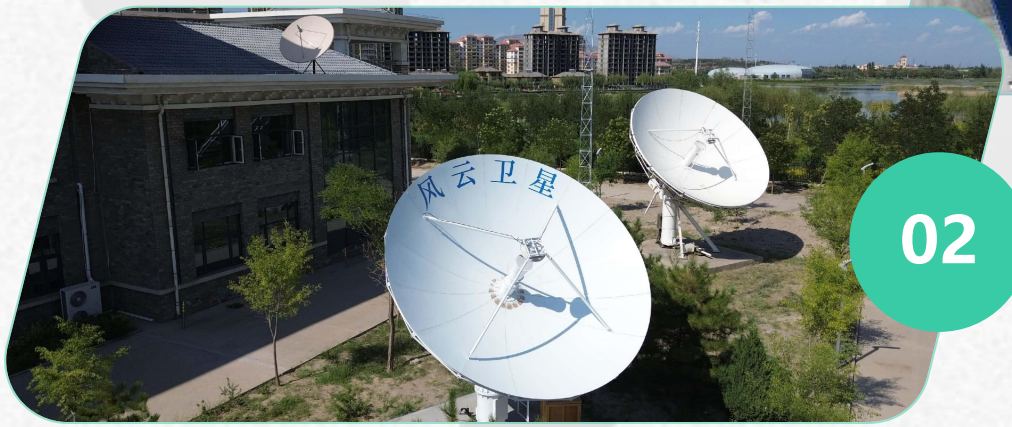
- ✓ Satellite signal tracking,
- ✓ Data receiving,
- ✓ Data processing and Product Display on browser,
- ✓ Product data archiving and distribution

Operating automatically as new generation of meteorological geostationary satellite data receiving and application ground station system.

FY-4 System Overview

01

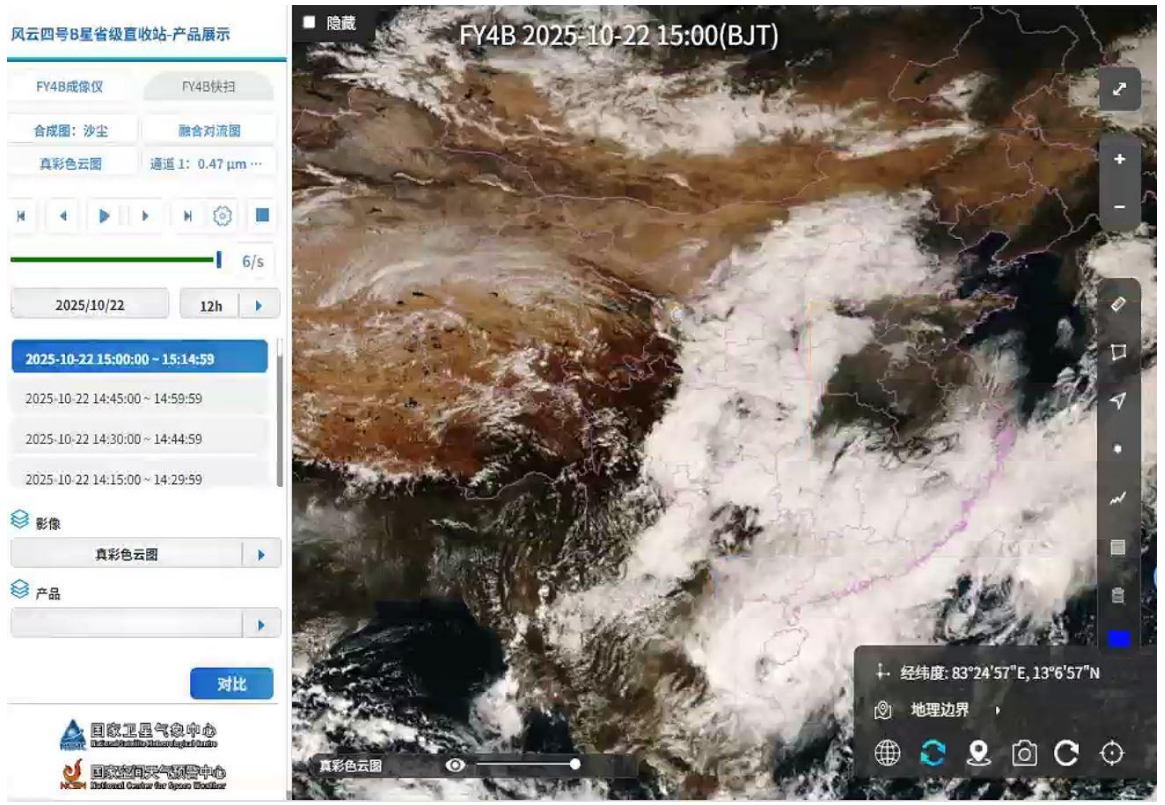
Indoor Devices: signal demodulation, data ingestion, product generation and image display



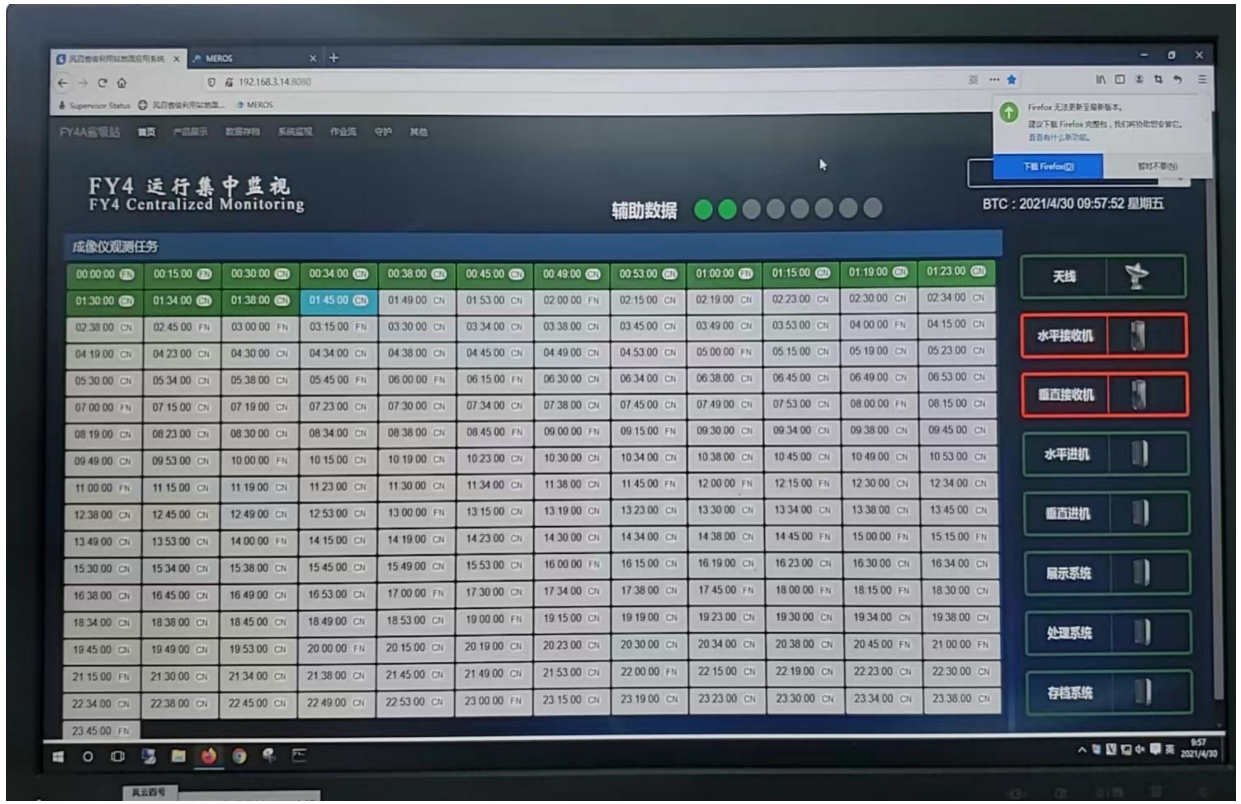
02

Outdoor Antenna: FY-4 satellite signal tracking and receiving for FY4A/FY4B satellite signals and data

FY-4 System Software



Product Display Platform



System Monitoring Platform

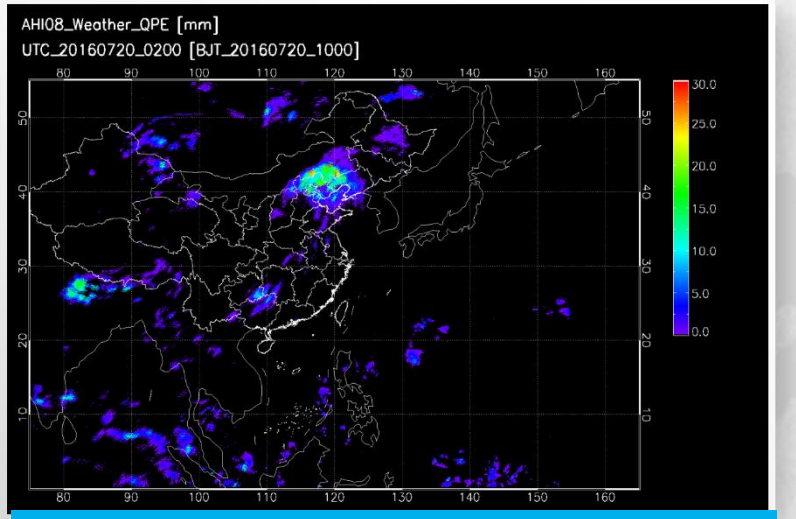
Satellite Ground Station-Satellite Broadcast System

CMACast System

China Meteorological Administration adopts DVB-S2 standard with a C-band commercial satellite to broadcast data including meteorological, air sounding and rador data.

Hence to greatly enhance variety and amount of meteorological broadcast data with high efficiency and reliability.

72 users in global range.



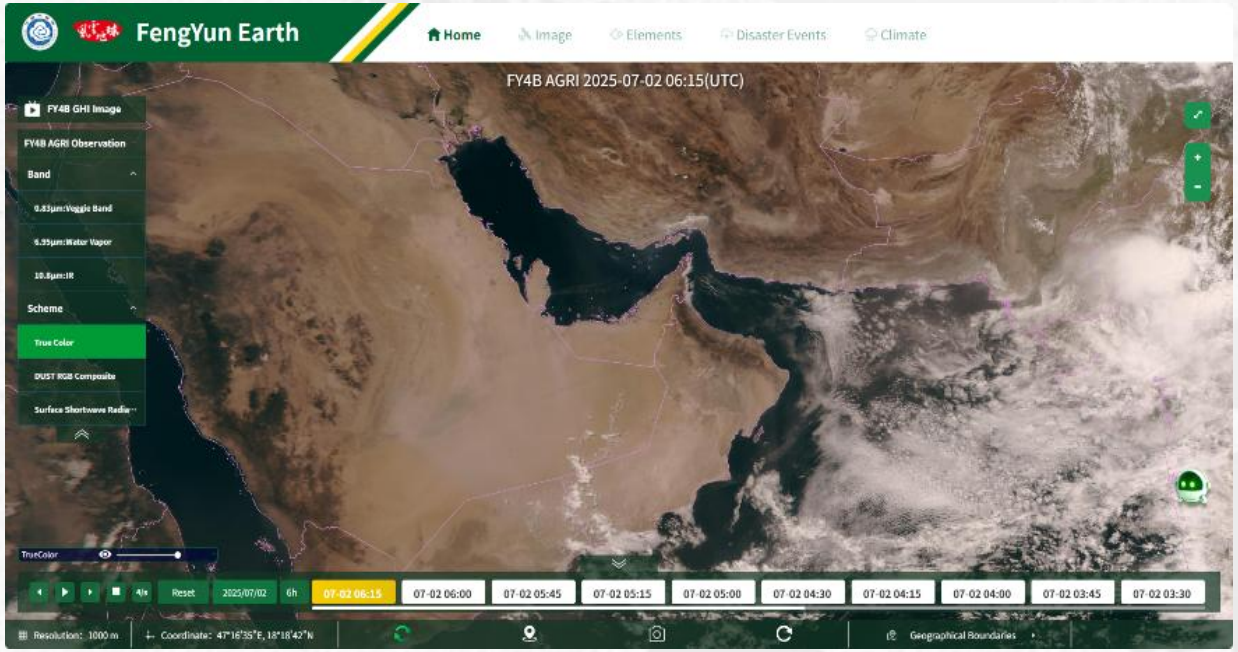
GK2A System

GK2A Satellite Data Receiving and Processing System developed by our company automatically receives Korean GK2A satellite data in 16 channels including 4 visible channels with resolution of 0.5-1km and 12 infrared channels with resolution of 2km.

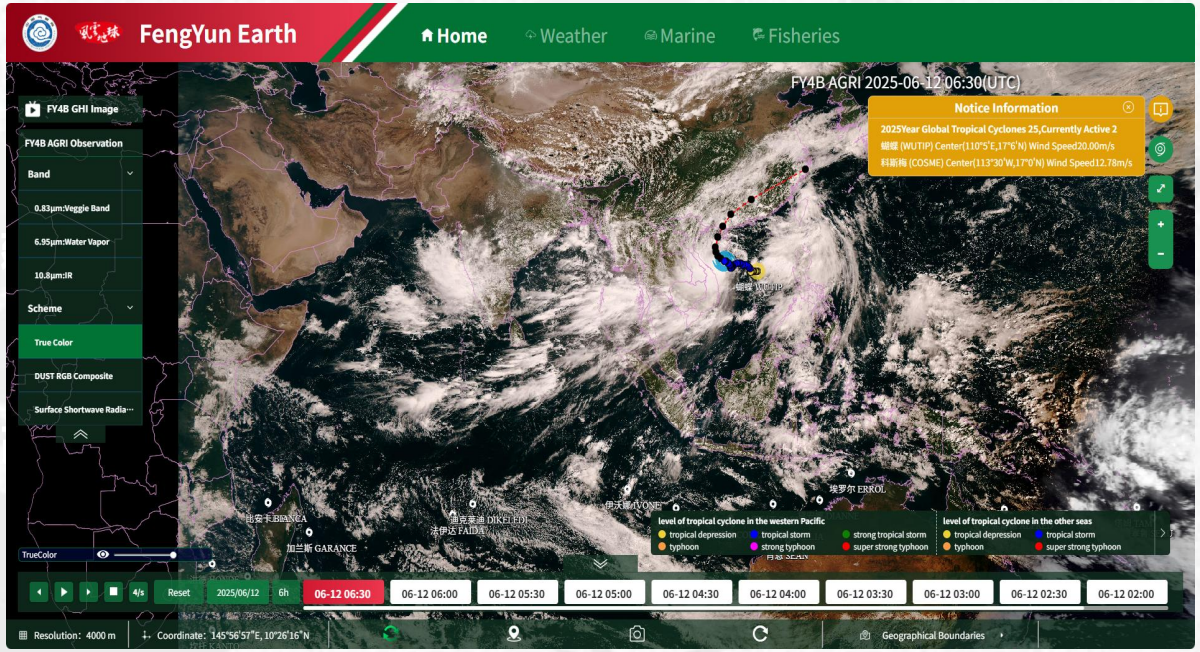
3 users in China.

Satellite Data Application Platform

Product Platform

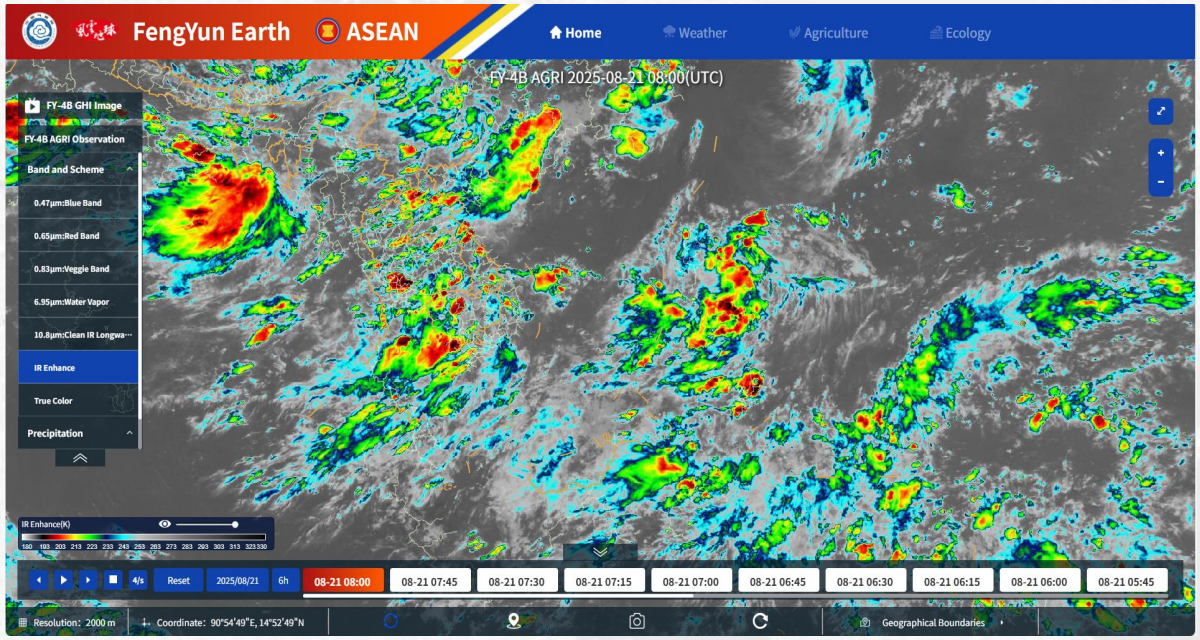


Arabic Version Platform

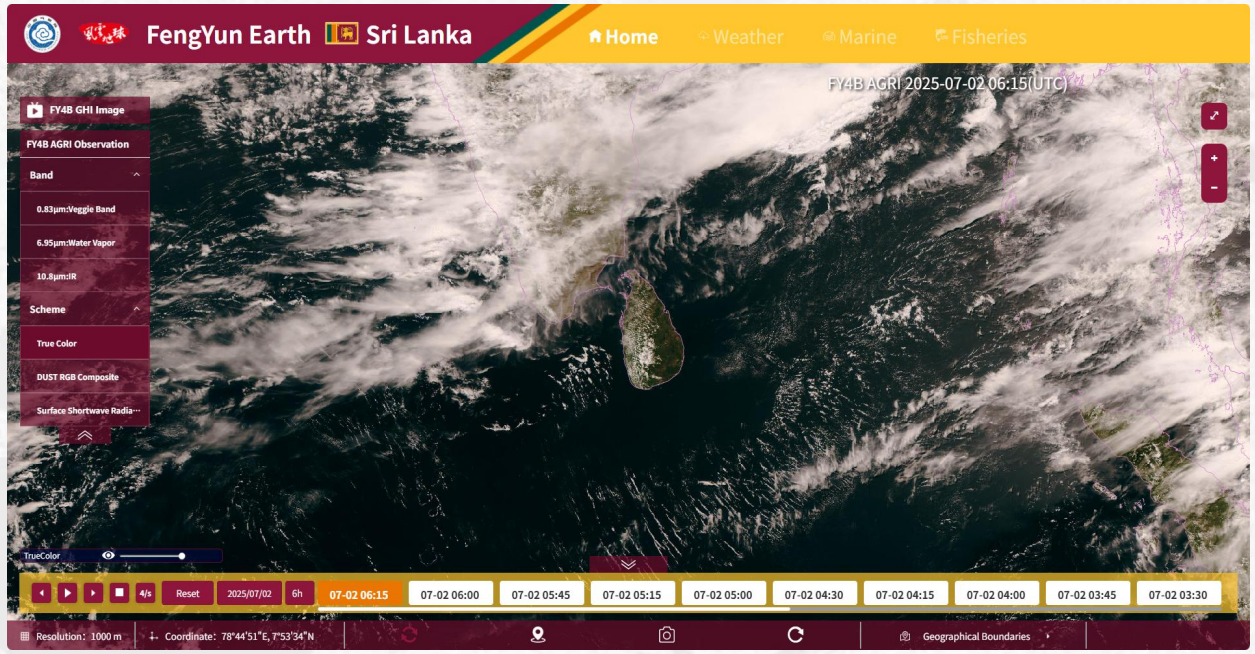


Customized Platform for Maldives

Product Platform



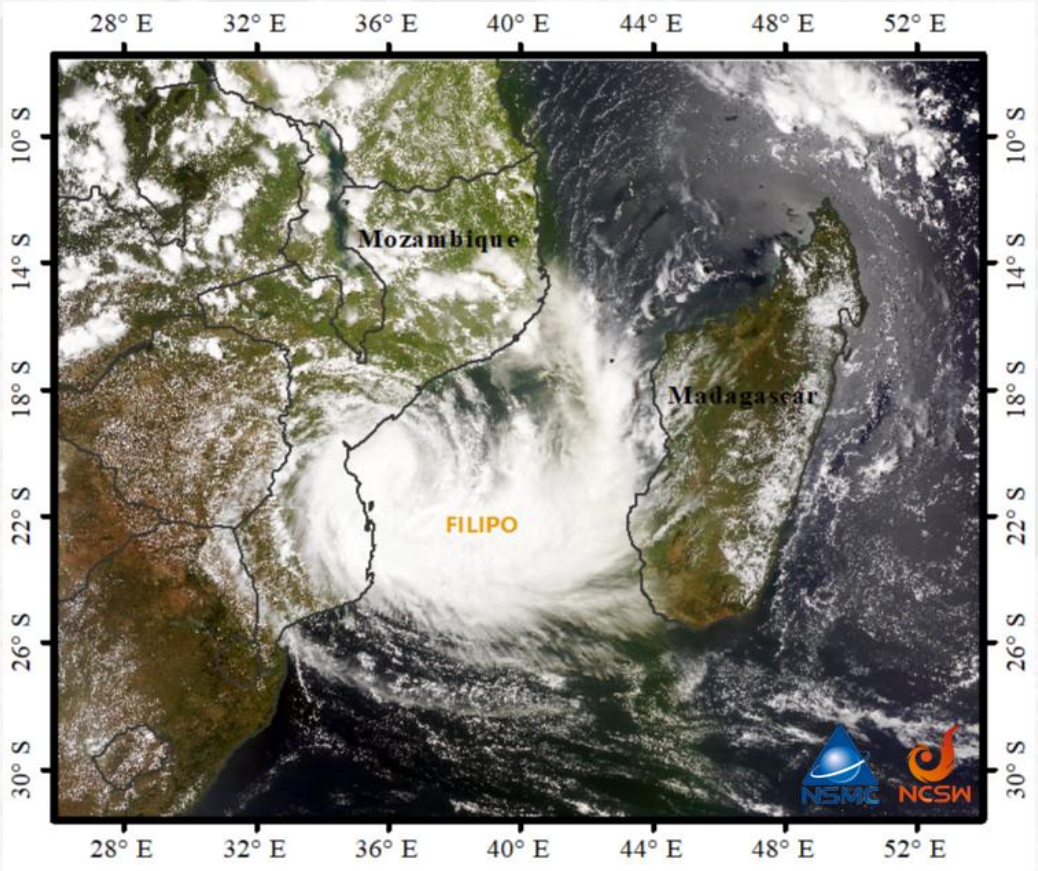
Customized Platform For ASEAN

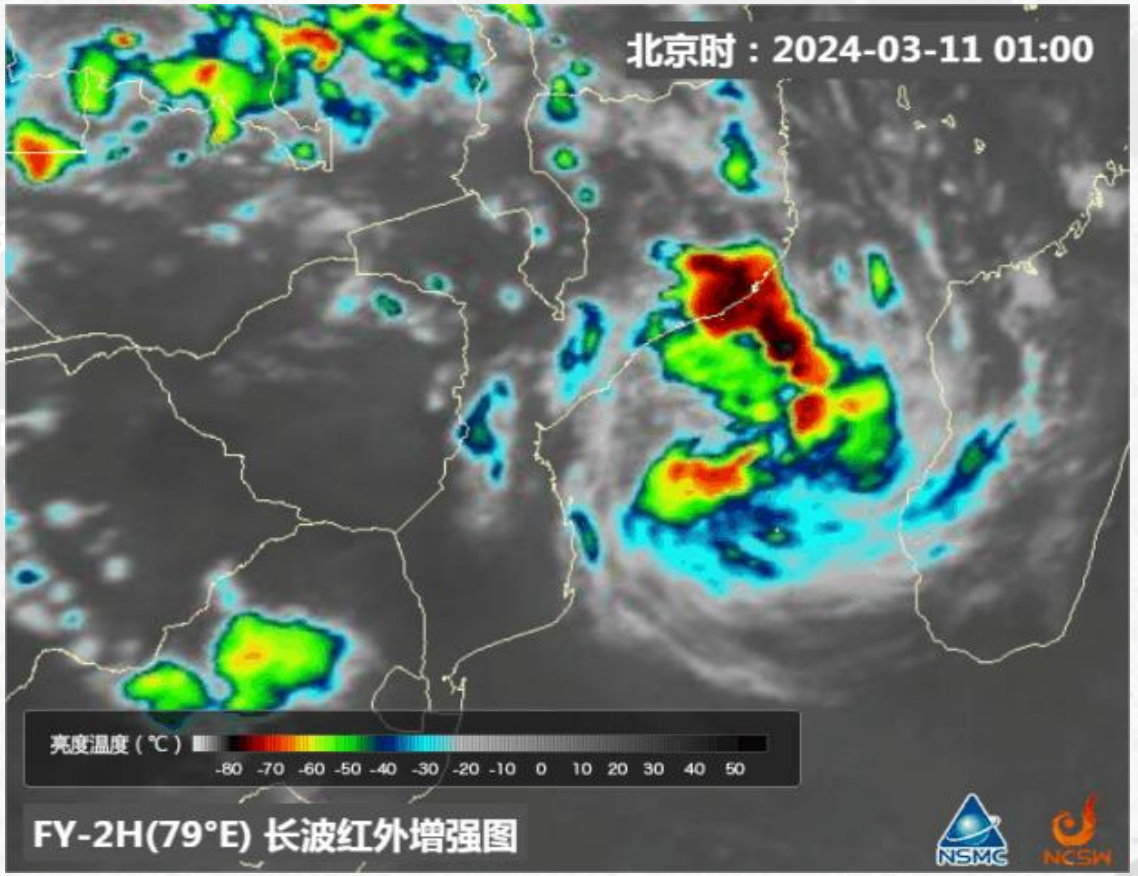


Customized Platform for Sri Lanka

Monitoring Products

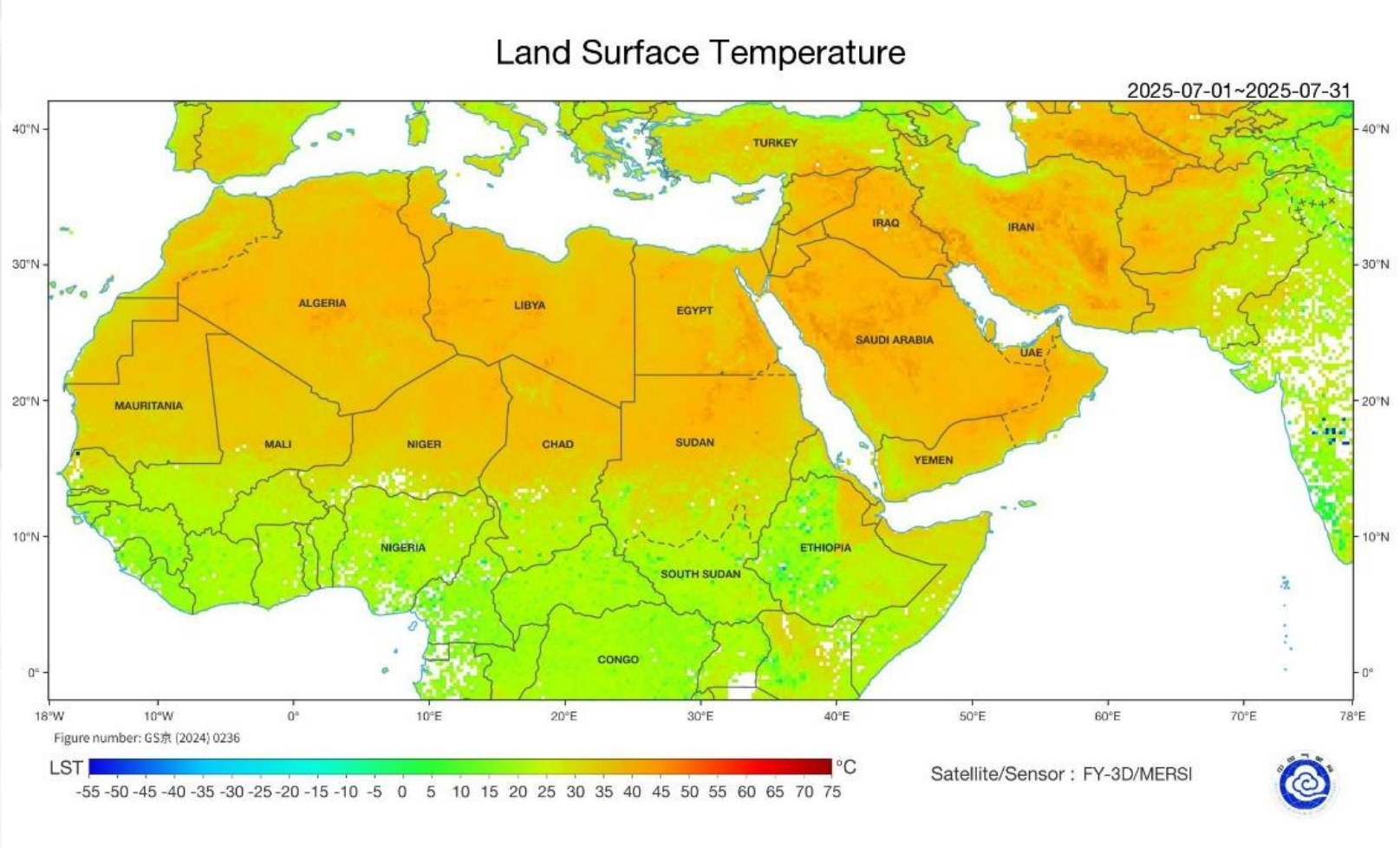
On March 11th, 2024, the severe tropical storm "FILIPO" formed in the southwestern Indian Ocean. Affected by "FILIPO" and its peripheral cloud system, the eastern coast of Mozambique has been experiencing continuous precipitation since the 11th.





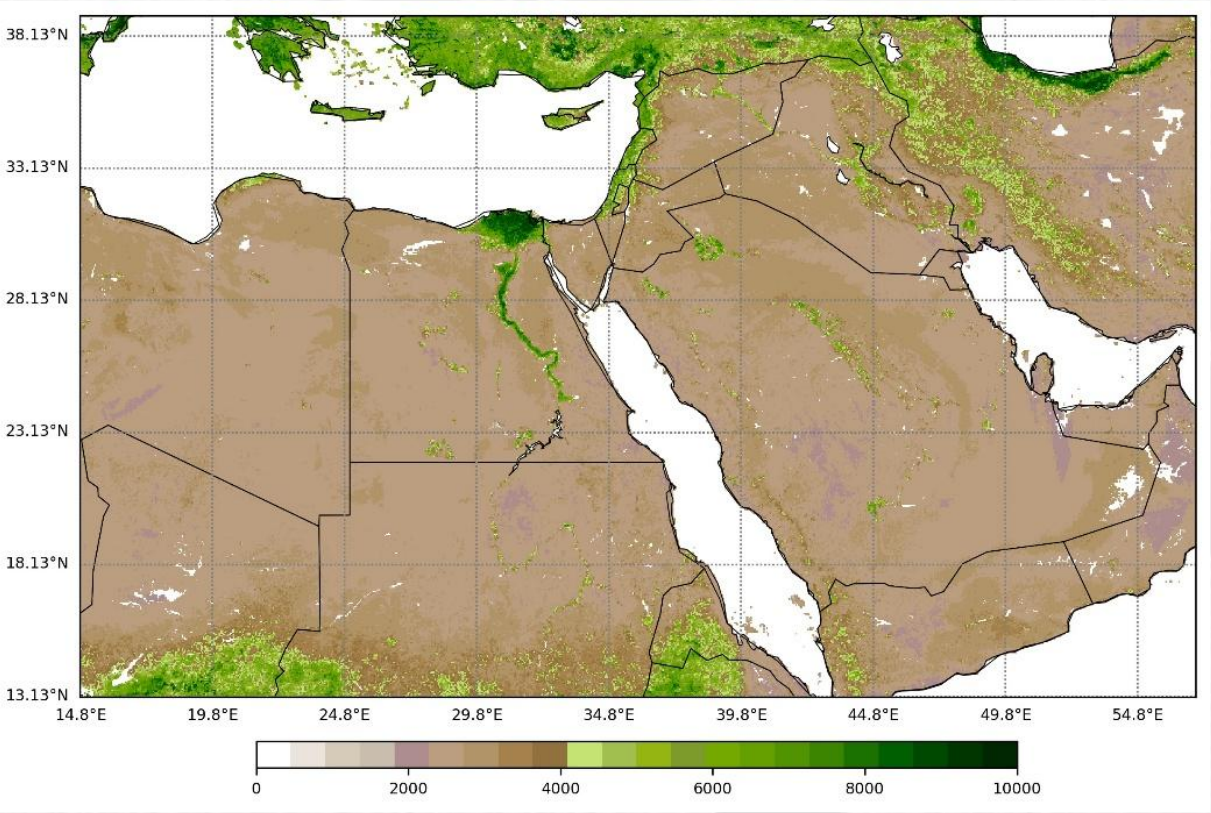
Monitoring Products

Land Surface Temperature (FY-3D)

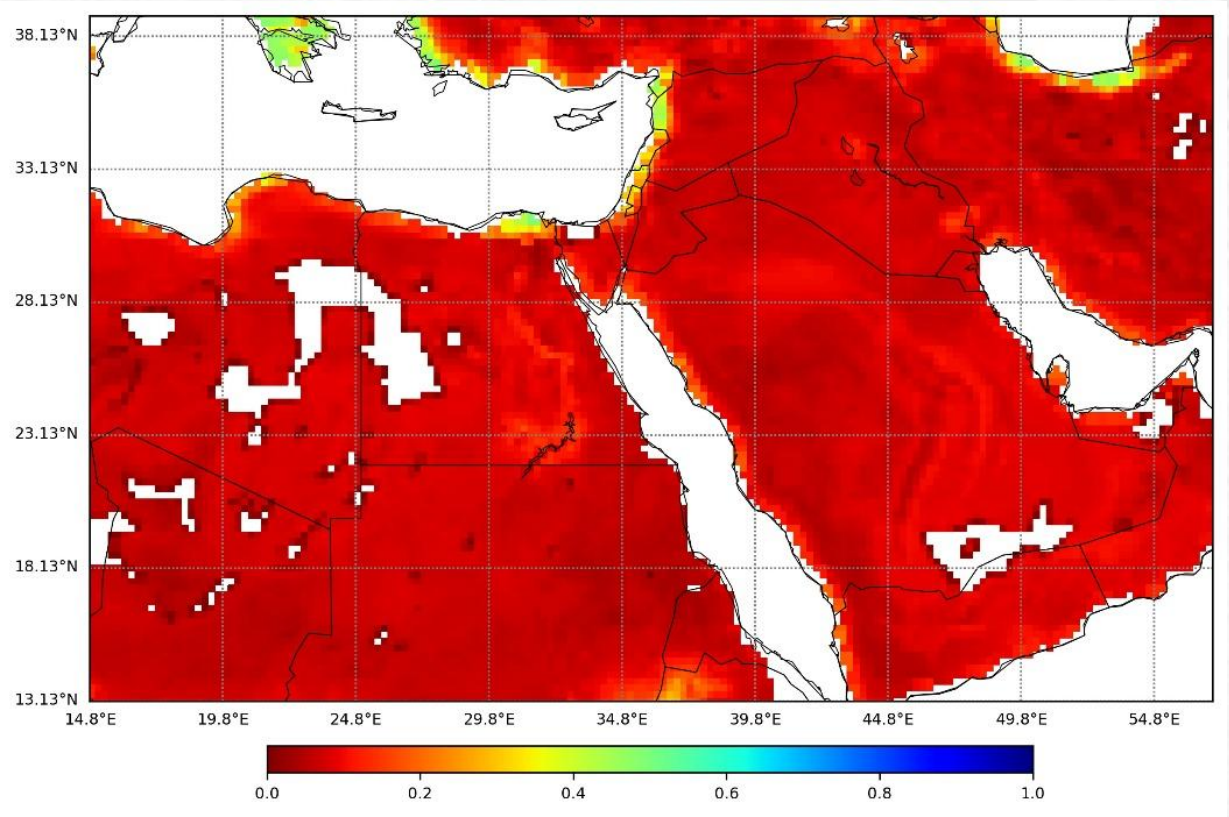


Monitoring Products

Vegetation Index (FY-3D)

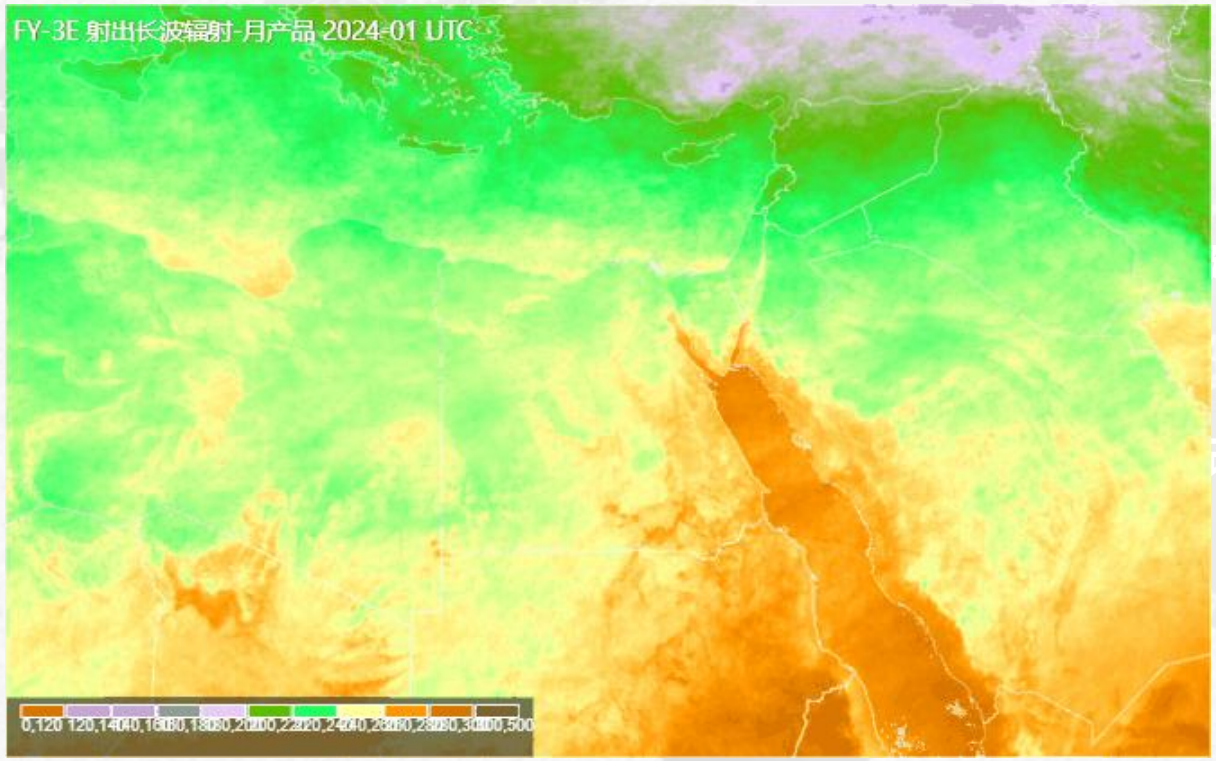


Soil Moisture (FY-3D)



Monitoring Products

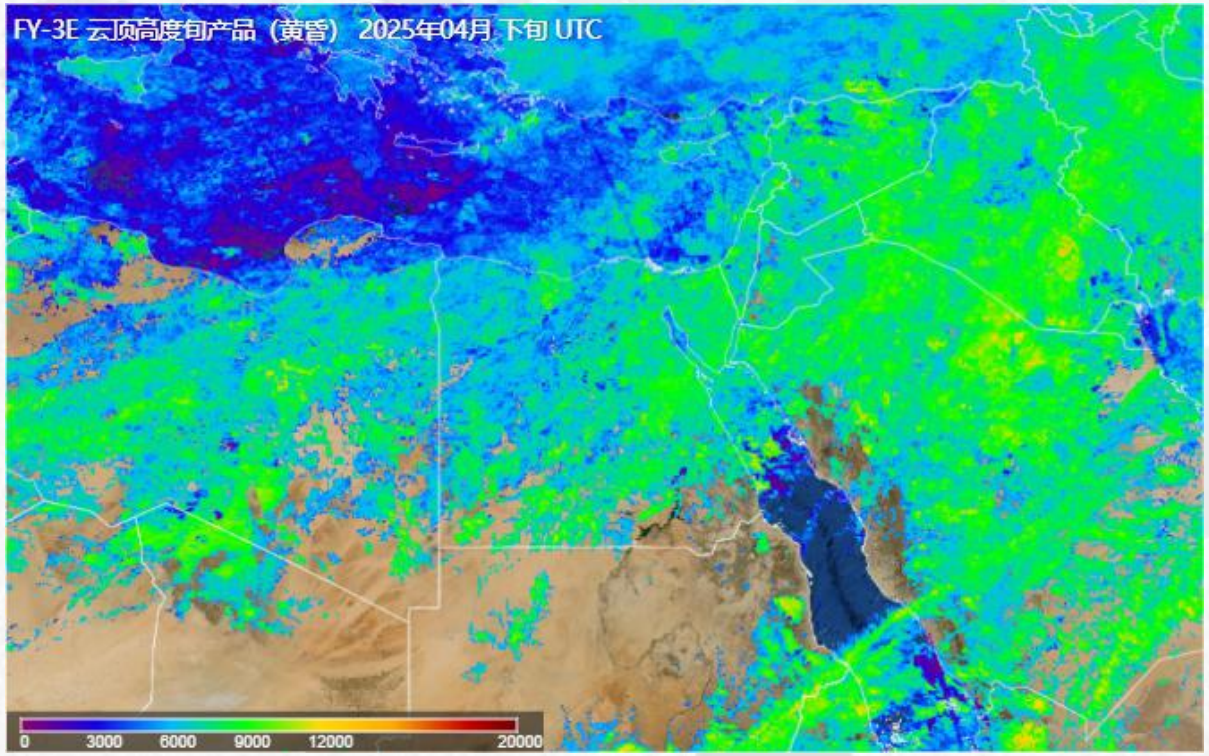
Long-wave Radiation (FY-3E)



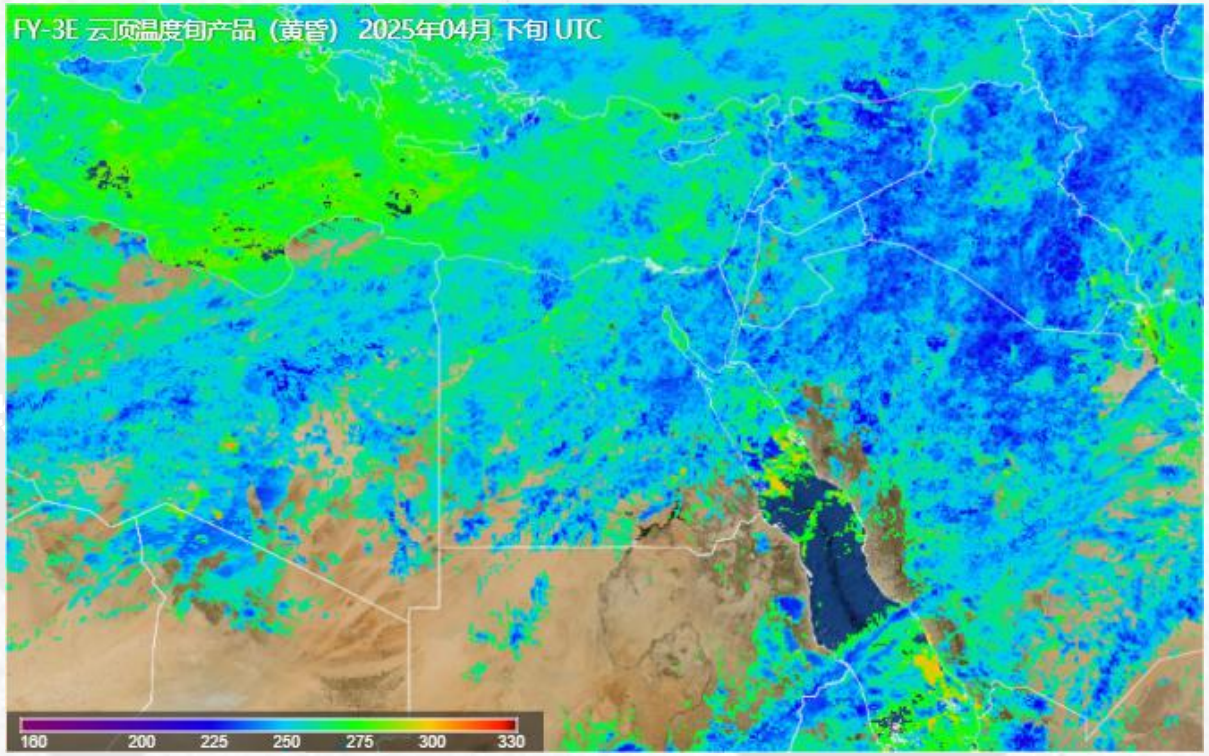
True Color Composite Image(FY-3D)

Monitoring Products

Cloud Top Height (FY-3E)

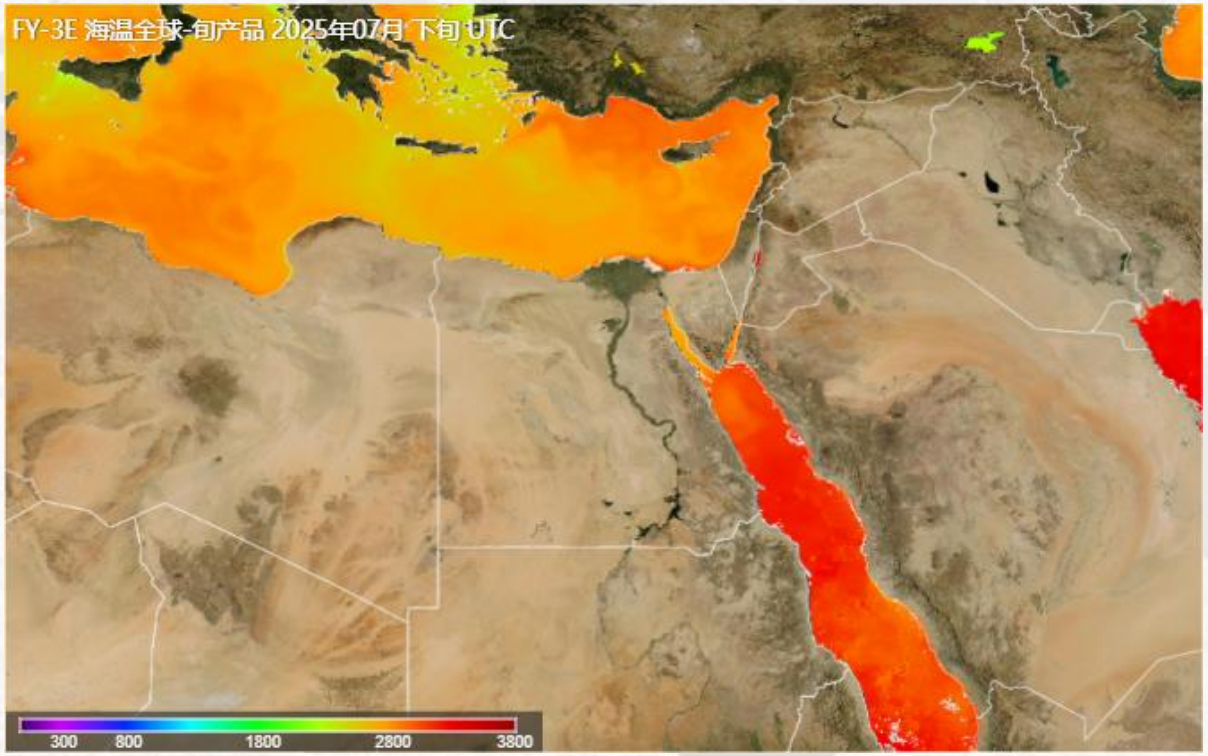


Cloud Top Temperature (FY-3E)

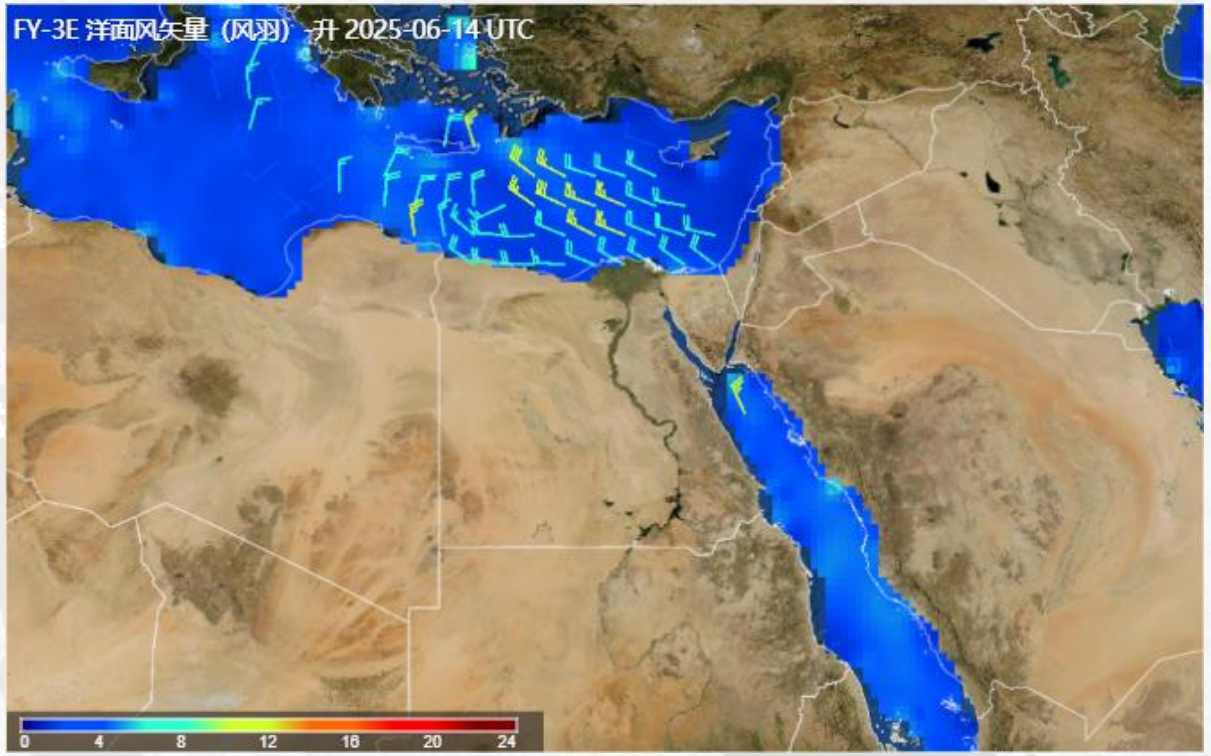


Monitoring Products

Sea Surface Temperature (FY-3E)

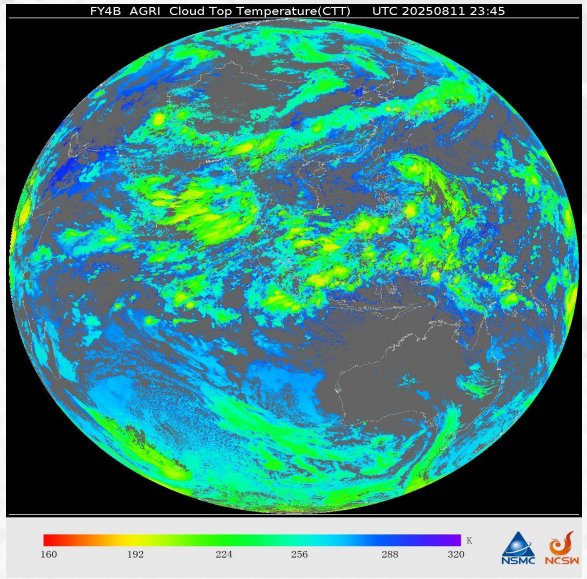


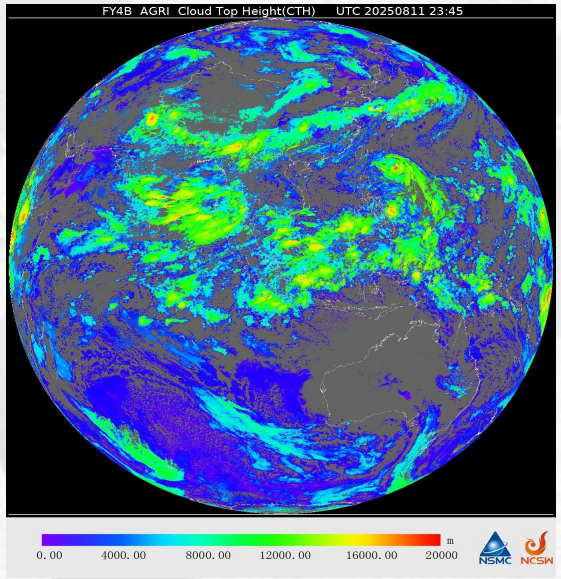
Sea Surface Wind (FY-3E)

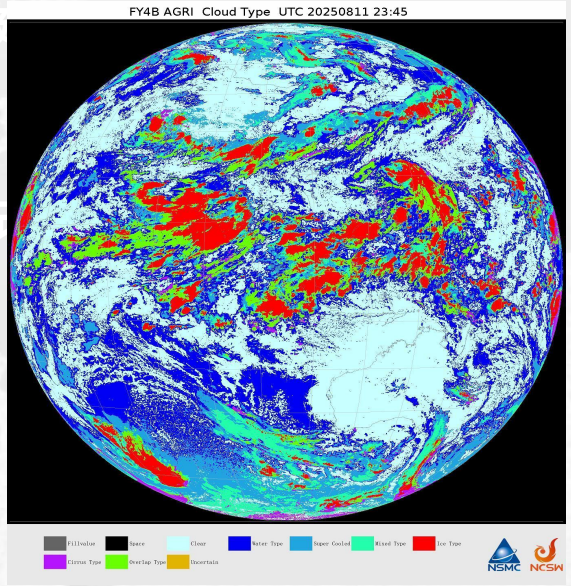


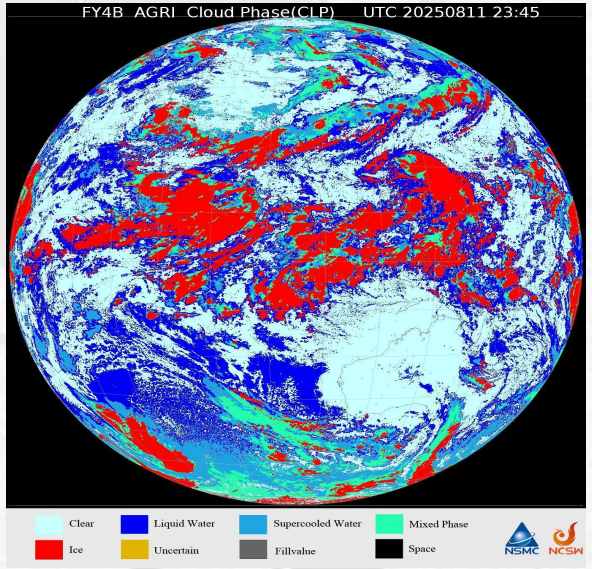
Monitoring Products

FY-4 satellite high-frequency observation provides cloud observation products including cloud type, cloud top height/temperature/pressure products, etc.



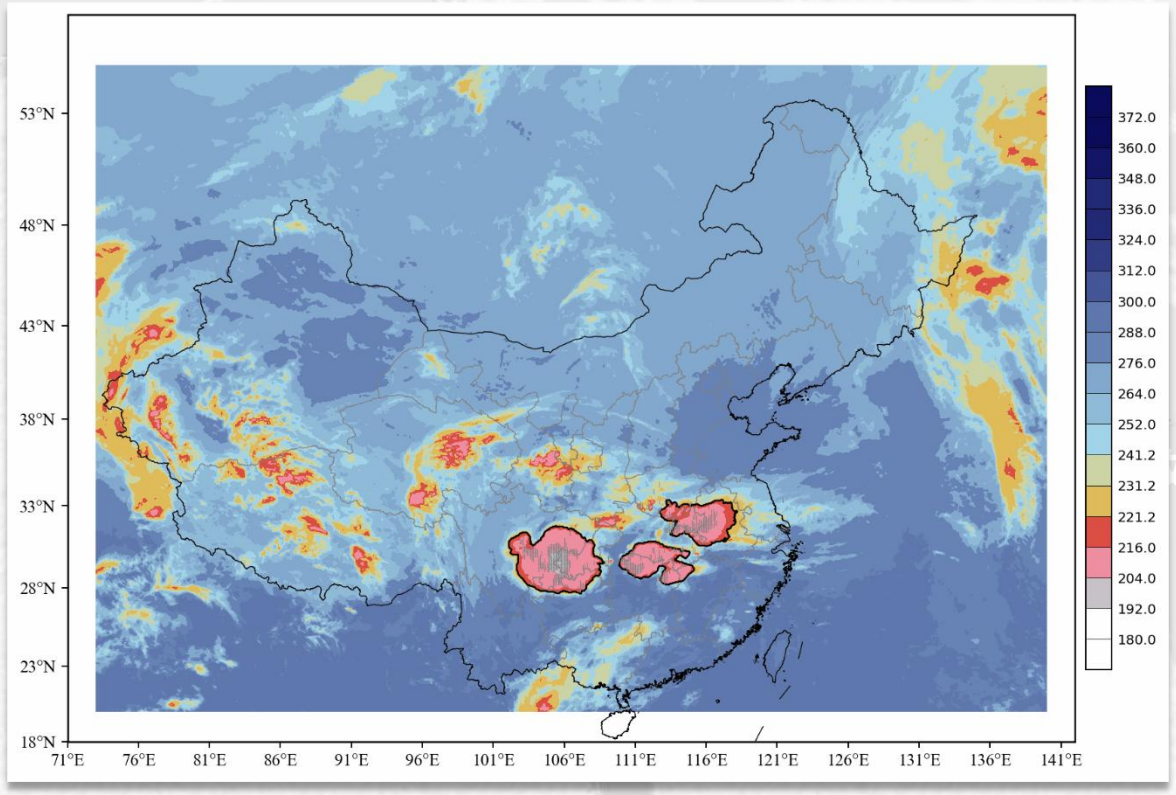


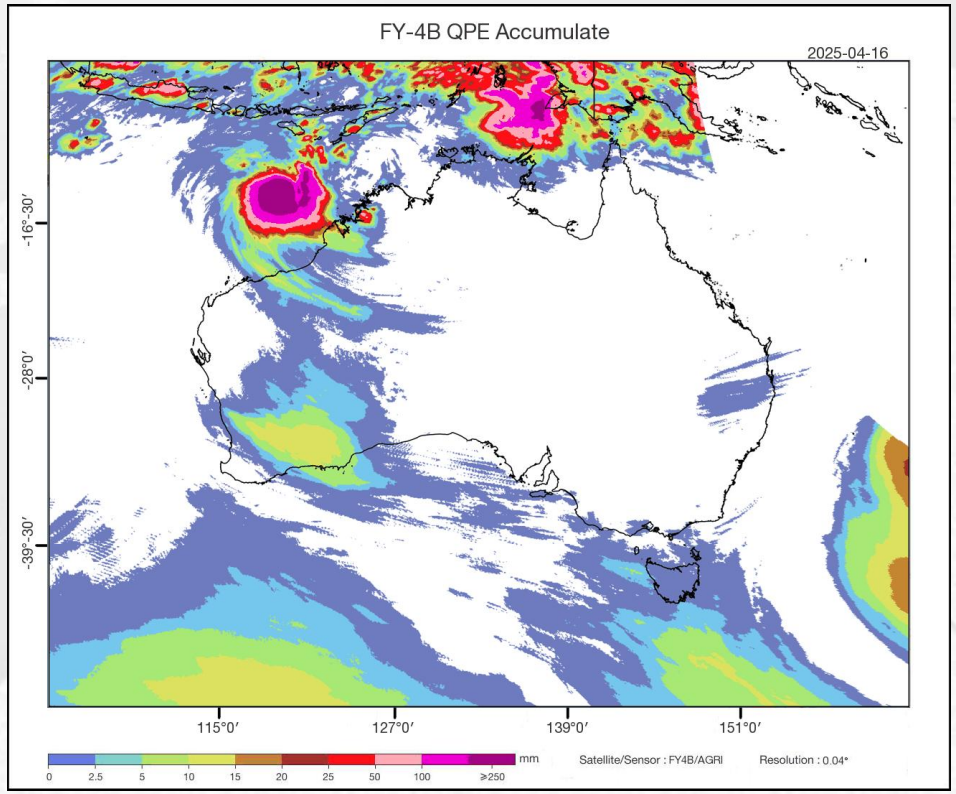




Monitoring Products

Application of FY-4 meteorological satellite data in monitoring heavy rain and severe convective weather conditions , and also in short range weather forecasting.





THANKS FOR YOUR TIME!

Beijing Huayun Shinetek Science and Technology Co., Ltd