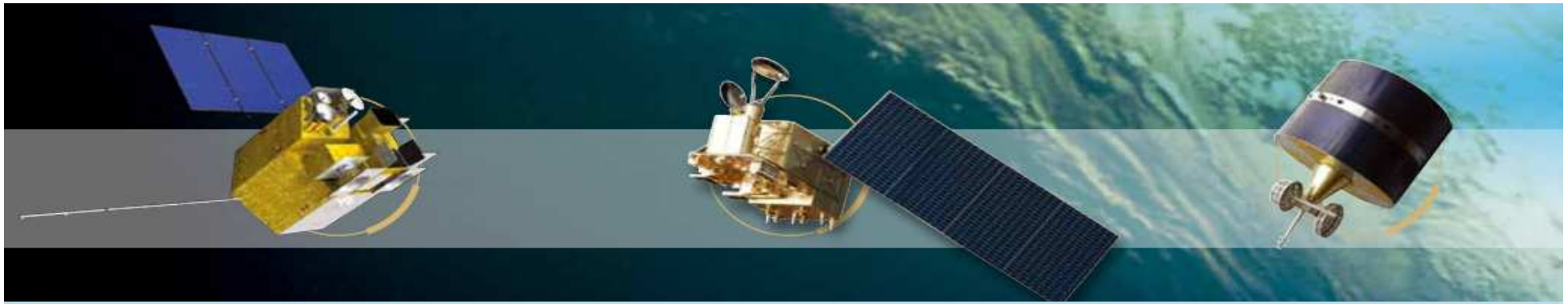


The Emergency Support Mechanism of FengYun Satellite (FY ESM)

ZHANG Peng & WU Xuebao

National Satellite Meteorological Center,
China Meteorological Administration
(NSMC/CMA)

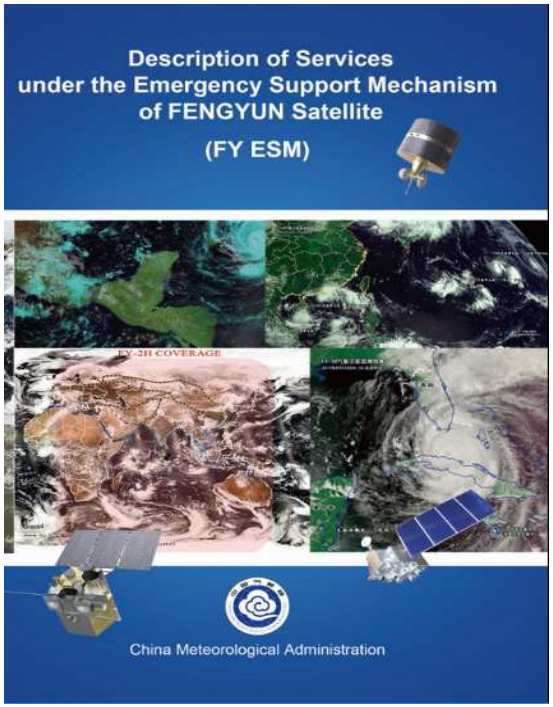
NSMC

Outline

- Overview
- Application Procedure
- Activation of the Mechanism and its Criterions
- Data and Products
- Registered and Authorized FY ESM Users

CMA Announced “Emergency Support Mechanism for International Users of Fengyun Meteorological Satellites in Disaster Prevention and Mitigation” on April 24, 2018

- To serve the countries along the “Belt and Road” in a timely manner. These countries may raise a request for the activation of the mechanism through their respective Permanent Representatives with WMO or their designated focal points.
- Once the request is approved, CMA will command the on-duty FY satellite for frequent and targeted observations per 5-6 minutes over affected areas.
- The images and products will be transmitted to the requesting applicant through CMACast, internet and direct satellite broadcast reception.



Application Procedure

Application for submission

The eligibility of a user is open to Members of World Meteorological Organization (WMO). A Permanent Representative with WMO presents a written application to the Permanent Representative of China with WMO and designates a focal point as an authorized user contact. CMA opens an authorized account for an applicant for activation of FY ESM.

Change of application

In case that it is deemed necessary to change the focal point of an authorized user, the Permanent Representative of this user with WMO presents a written application to the Permanent Representative of China with WMO.

Activation of the Mechanism

1. The focal point of an authorized user logs in to the service website (http://fy4.nsmc.org.cn/service/en/emergency/index.html) to submit, as required, the requested temporal and spatial ranges for emergency support;
2. When receiving the request, CMA will determine whether to initiate the emergency mechanism. If yes, an email notification will be sent to inform the focal point of the exact start and end times, locations and methods of data acquisition. If the initiation fails for any reason, an email notification will be sent.
3. The emergency-oriented observation is started and completed to generate appropriate data and products, which are provided to the user through the Internet, satellite broadcasting, etc.

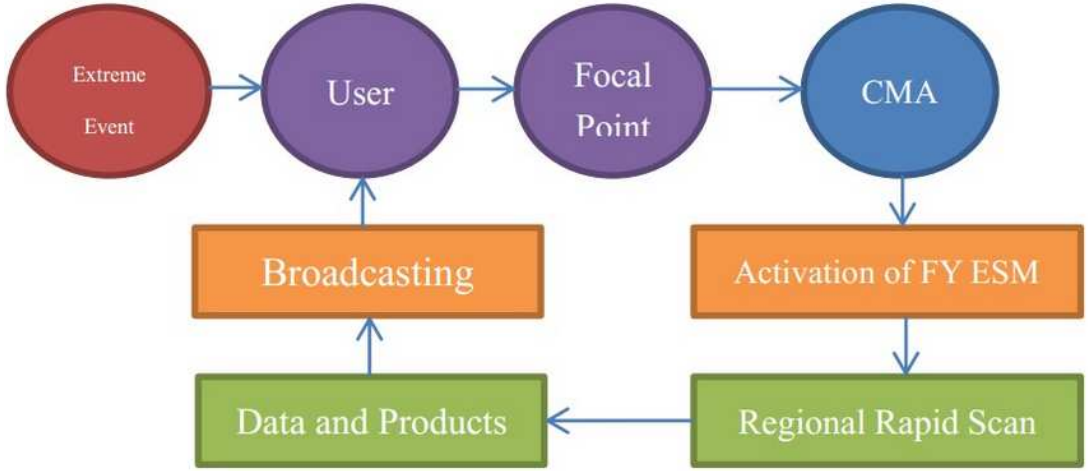
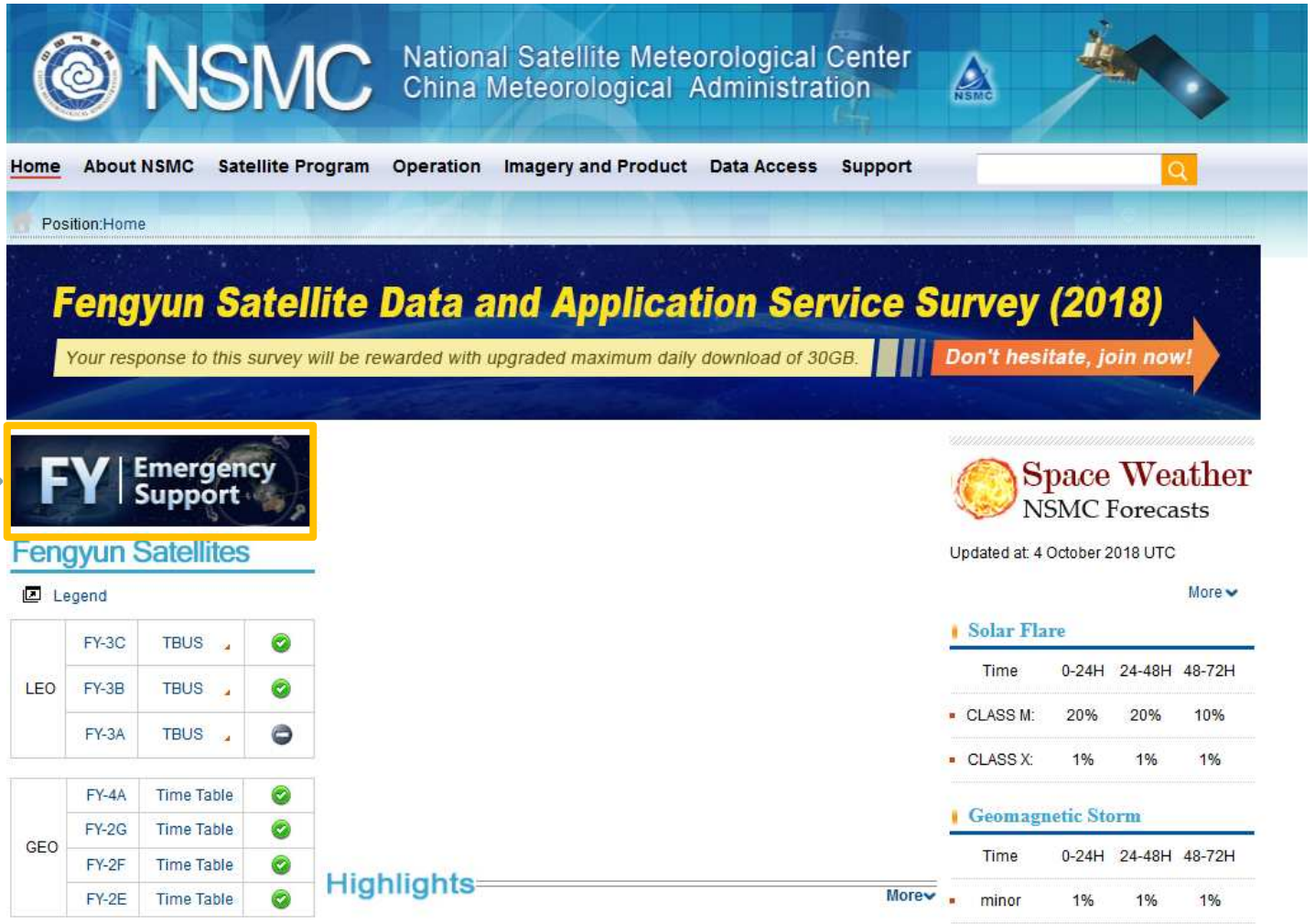


Figure: Activation of FY ESM

http://www.nsmc.org.cn/en

FY ESM portal



http://fy4.nsmc.org.cn/service/en/emergency/index.html

Lead Time for FY ESM

An international user shall make a request preferably 24 hours in advance when it needs to activate the FY geostationary meteorological satellite for intensive observation of a given area to, with the maximum duration of intensive observation being no more than 48 hours. Any extension needs to be re-requested. If and when an international user needs data observed by FY polar-orbiting meteorological satellites, each requested duration shall not exceed 7 days. Any extension needs to be re-requested.

Response Priority

When receiving a request for emergency support, which conflicts with other emergency requests, CMA will prioritize such requests subject to the performance of the watch satellite and the development of the said event, the order of which is generally as follows:

- An event of higher impact is given a higher priority
- An event of more recent occurrence is given a higher priority

Data Access

Launch of regional intensive observation

Once the application is reviewed, NSMC/CMA launches its FengYun Geostationary satellite for the intensive observation, with relevant data and products being generated.

Dissemination of data and products

The data, images and quantitative products from the regional intensive observation by FengYun geostationary meteorological satellites are provided for the international users via CMACast, the portal of NSMC/CMA, and satellite broadcasting.

GEO Satellite Products

As of August 2018, the on-orbit geostationary FengYun series are operating from 4E to 173W, the data from which are used for severe weather monitoring and forecasting.

Position	Sat	Operating mode	Service
79 ° E	FY-2H	Normal observation (hourly, 28 full-disc images/day)	Data available
86.5 ° E	FY-2E	Bi-sat observation (half-hourly, 28 full-disc images/day)	Data available
99.5 ° E	FY-2G	Bi-sat observation (hourly, 28 full-disc images/day)	Data available
104.7 ° E	FY-4A	Normal observation (40 full-disc images/day, 165 images of China and its surrounding areas)	Data available
112 ° E	FY-2F	Area scanning	Emergency observation services and data available

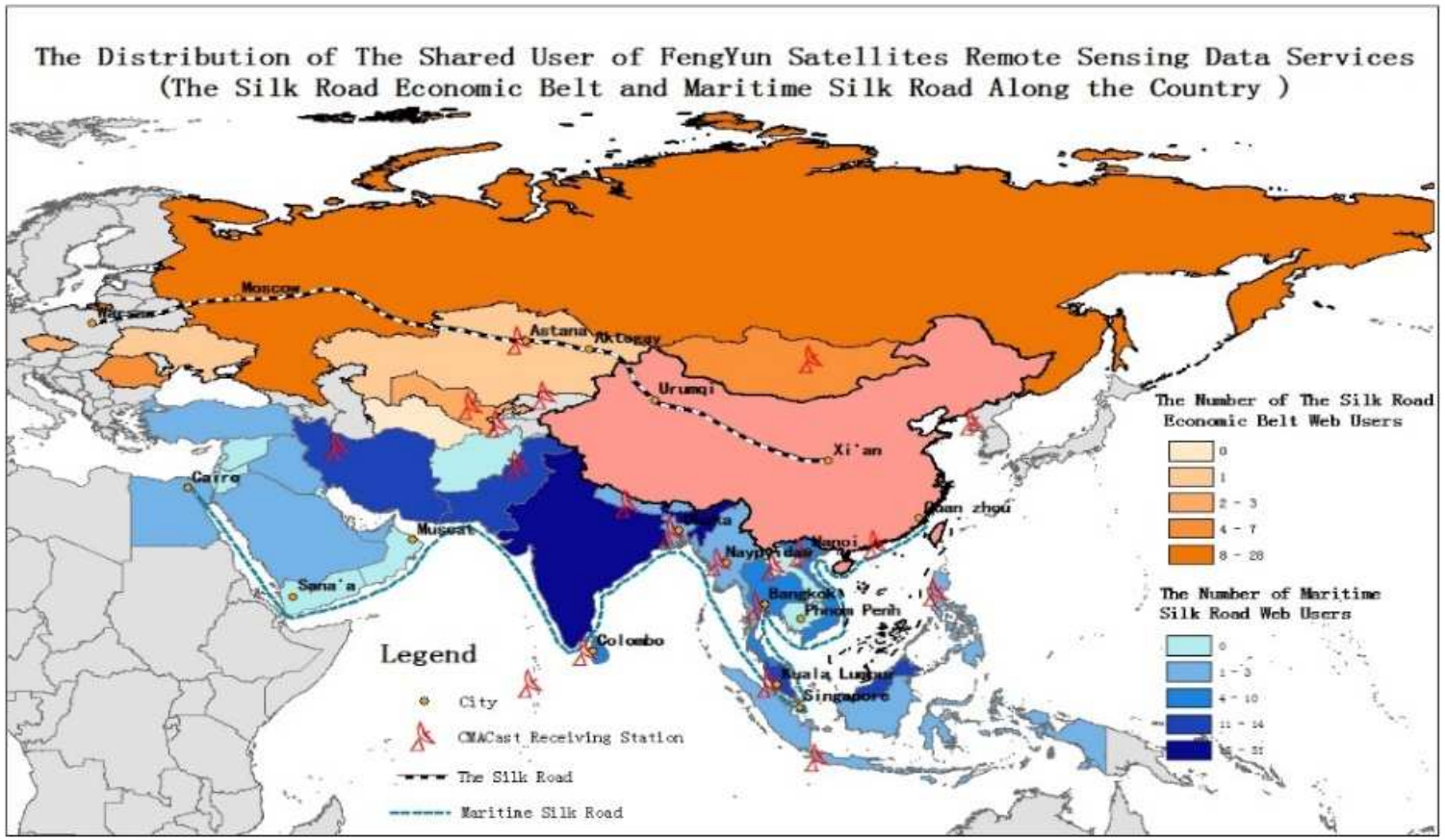
LEO Satellite Products

As of August 2018, the on-orbit FengYun polar orbiting meteorological satellites include FY-3B, FY-3C and FY-3D, which are open to regional users for a requested data support to disaster monitoring and analyses.

Instrument	Sat	Resolution	Product
VIRR	FY-3B、FY-3C	1km	L1、L2
MERSI	FY-3B、FY-3D	250m,500m,1km	L1、L2

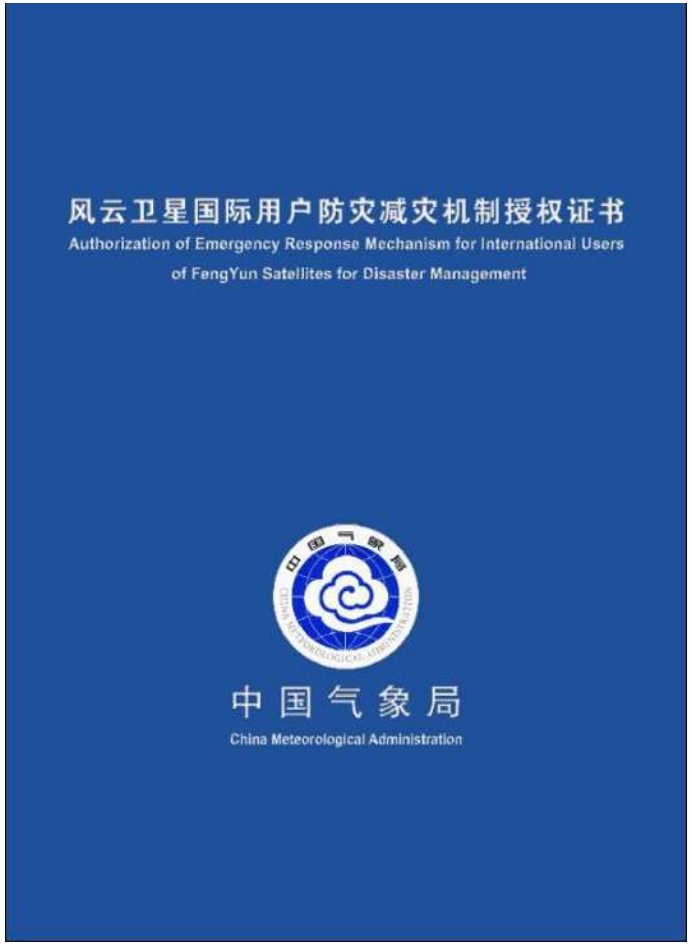
9 Registered FY ESM Users

As of September 2018, there are 9 registered FY ESM users, including Laos, Myanmar, Iran, Maldives, Thailand, Philippine, Algeria, Uzbekistan, Tunisia.



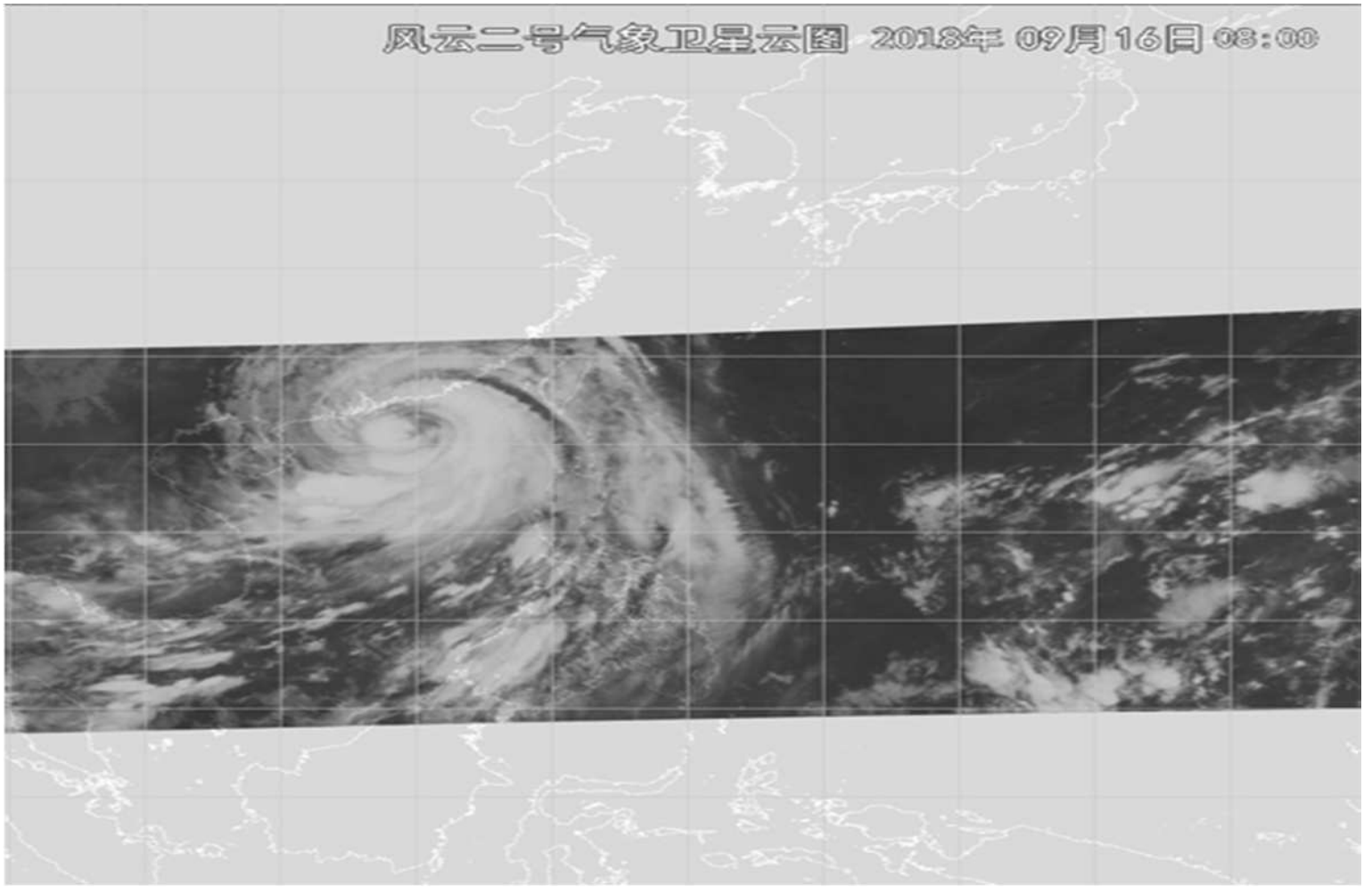
18 Authorized FY ESM Users

As of September 2018, there are 18 Authorized FY ESM users, including Indonesia, Vietnam, Laos, Myanmar, Thailand, Philippine, Malaysia, Singapore, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Uzbekistan, Afghanistan, Iran, Mongolia, Sri Lanka



Typhoon Mangkhut

FY-ESM initiated by Vietnam “Disaster Management Center” and “Meteorological and Hydrological Administration”



CMA started a FY-2F 6-min Regional Observation from 14th to 16th Sep. 2018.
CMA has provided FY-2 and FY-3 data images via ftp server and website to users.

User Requirement Survey

A questionnaire on the demand for Fengyun meteorological satellite information services has been issued to the meteorological departments of the Shanghai Cooperation Organization (SCO) member states, observer states, and dialogue partners. The survey result shows that there is strong demand in SCO countries for FengYun meteorological satellite data to be used in the disaster prevention and mitigations.

States	DB Station	CMACast	Internet
Afghanistan	✔	✔	✔
Pakistan	✔	✔	✔
Iran	✔	✔	✔
Russia		✔	✔
Uzbekistan		✔	
Kyrgyzstan	✔	✔	
Kazakhstan			✔

States	Drought	Rainfall	Snow	NDVI	Sandstorm	Fog	Pollution	Fire
Afghanistan	✔	✔			✔	✔		
Pakistan	✔	✔	✔	✔	✔	✔	✔	
Iran	✔		✔	✔	✔			✔
Russia						✔		✔
Uzbekistan	✔	✔		✔	✔	✔	✔	
Kyrgyzstan	✔	✔	✔	✔	✔	✔		✔
Kazakhstan	✔	✔	✔	✔				✔

Thank you for your attention

FY ESM contact at CMA

FYemergency@**cma.gov.cn**