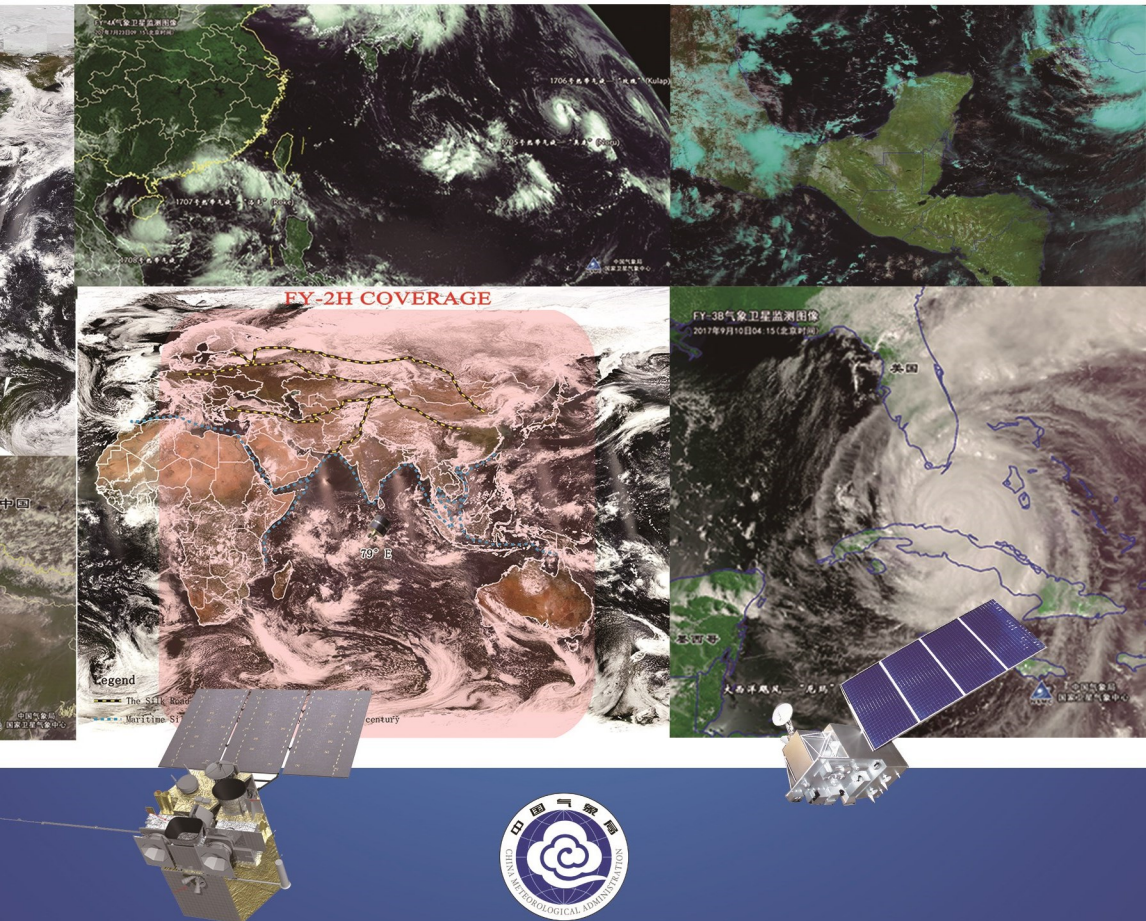
Description of Services under the Emergency Support Mechanism of FENGYUN Satellite

(FY ESM)

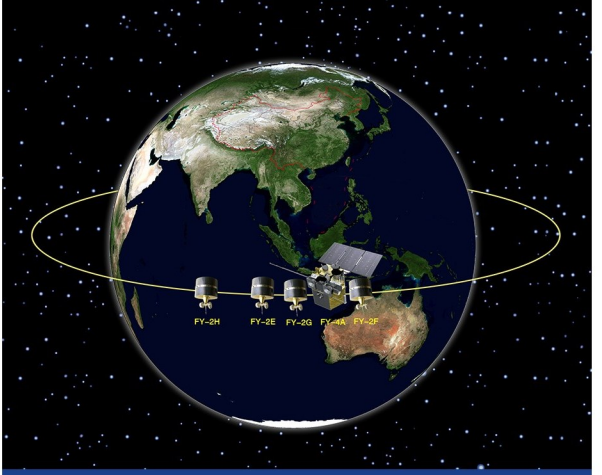


China Meteorological Administration

OVERVIEW

China provides timely and efficient observation of extreme weather, climate and environmental events regionally and globally by operating both geostationary and polar-orbiting meteorological satellites.

China Meteorological Administration (CMA) introduced the Emergency Support Mechanism of FENGYUN Satellite (FY ESM) in 2018, open to international users who made a request once visited by such extreme events as typhoon, heavy rain, severe convection, forest or grassland fire and sand storm. In this case, the on-duty FY satellite is activated to initiate highly frequent observation of a given area at an interval of up to 5 minutes, processing and generating images and quantitative products, which are provided through such channels as CMA-Cast, Internet and direct satellite broadcasting, to inform the processes of disaster preparedness,mitigation and relief in a timely fashion.



A

Geostationary meteorological satellites

As of August 2018, the on-orbit geostationary FY series are operating from 4E to 173W, the data from which are used for severe weather monitoring and forecasting. See Table 1 for details.

B

Polar-orbiting meteorological satellites

As of August 2018, the FY polar-orbiting meteorological satellites operating on-orbit include FY-3B, FY-3C and FY-3D, which are open to regional users for a requested data support to disaster monitoring and analyses. The instruments that can be requested are shown in Table 2.

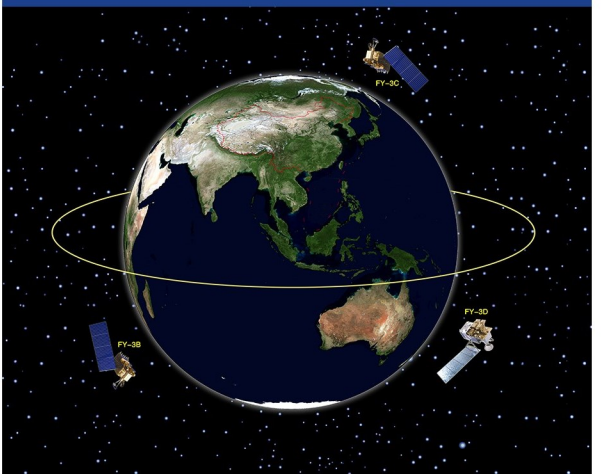


Table 1

List of capabilities of FY satellites currently on-orbit (As of May 2019)

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

Table 2

List of emergency data from FY-3 satellites

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

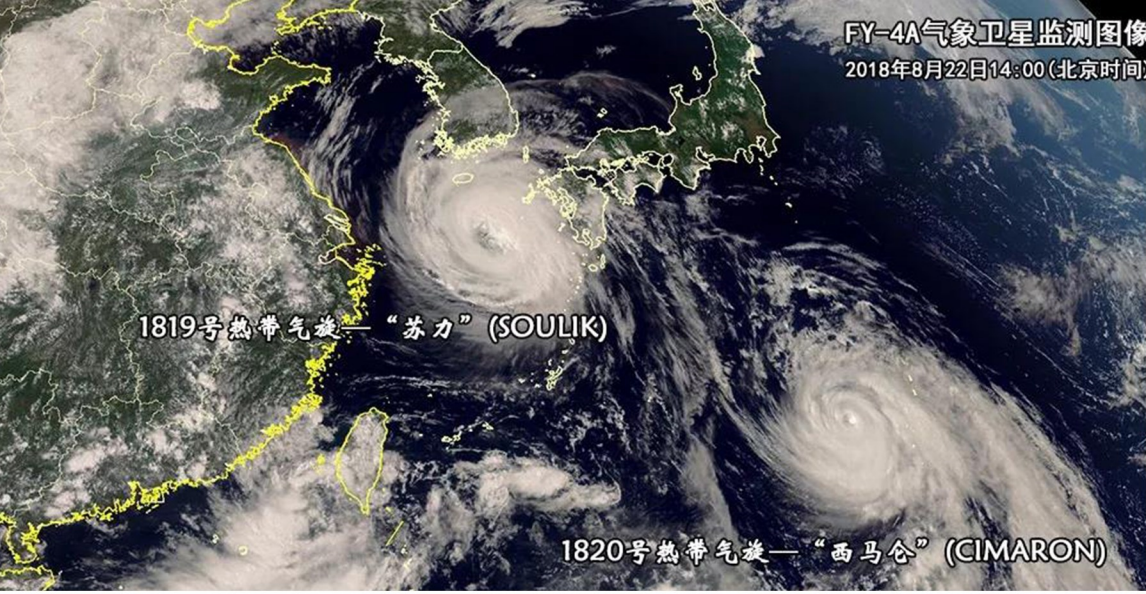
User Registration

A. User application

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. The application form for an authorized user is shown in the appendix.

B. User change

In case that it 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.



Conditions for a Request

An international user may request CMA to activate FY ESM before, during and after an extreme event such as typhoon, heavy rain, severe convection, forest or grassland fire and sand storm, etc., with one of the following references provided:

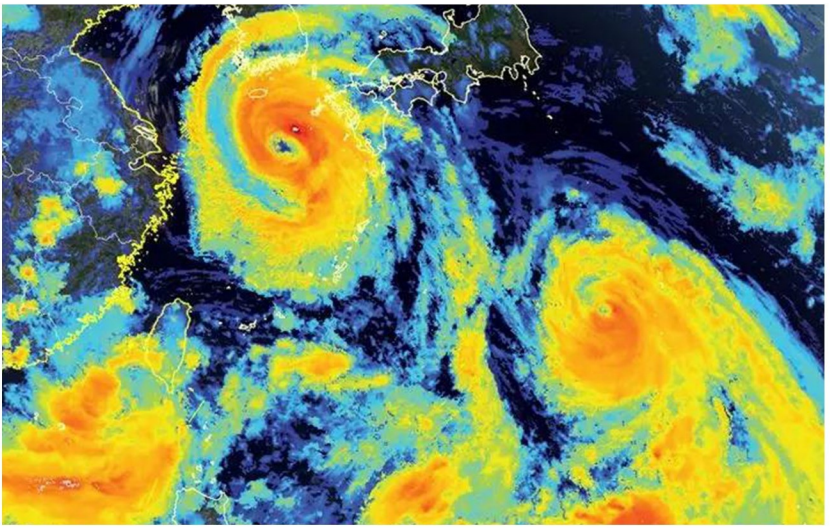
Typhoon	Heavy rain and severe convection
The central wind force exceeds 28m/s and the impact is expected to be felt within 24 hours;	It is expected that the rainfall will exceed 200mm within 24 hours;
Fire	**Flood**
A forest/grassland fire breaks out, posing a grave threat;	A widespread flood looms large;
Other extreme events predicted to pose a grave threat.	

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.

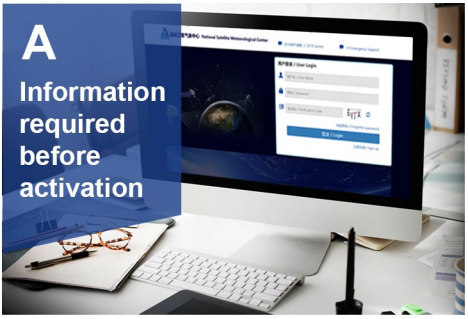


Lead Time for Emergency Response and Support

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, with the maximum duration of intensive observation being no more than 48 hours. Any extension needs to be re-requested.

If 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.

Activation of the Mechanism



STEP1

Login account and password
(issued to the focal point designated by the Permanent Representative with WMO);

STEP2

Event information
(including type, location, related news links or forecasts, etc.);

STEP3

Requested information
(including the required satellite, latitude and longitude, etc.)

STEP1

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;

STEP2

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.

STEP3

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.

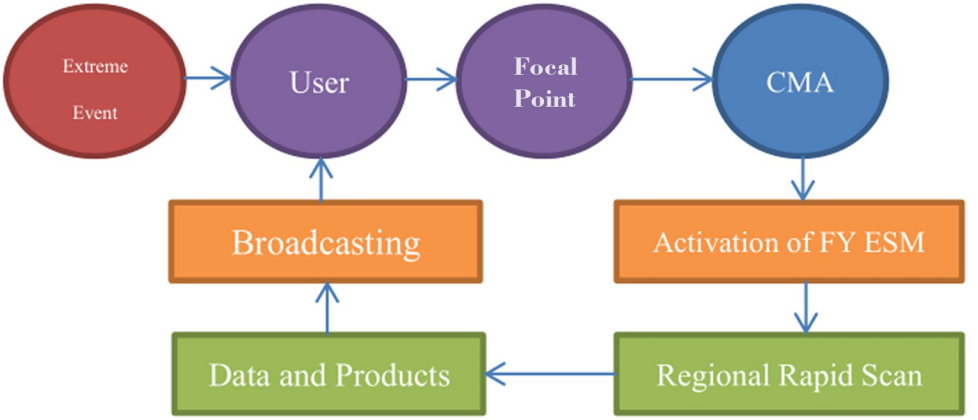
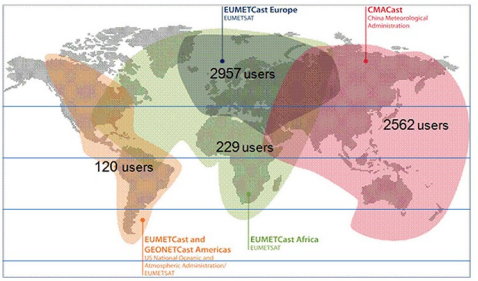


Figure:Activation of FY ESM

Data Access

The data, images and quantitative products derived from the intensive observation of an area by the FY geostationary satellite are provided to international users through such channels as CMACast, NSMC portal, satellite broadcasting and FTP.



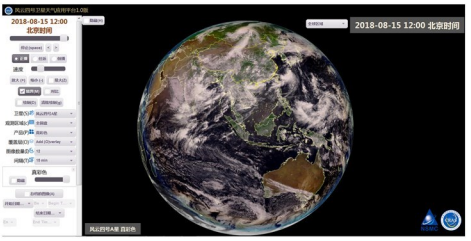
CMACast、EUMETCast、GEONETCast

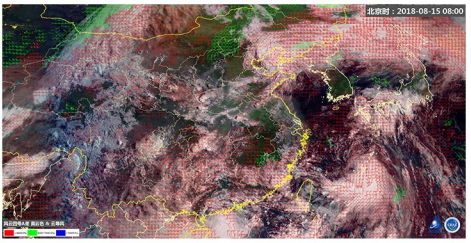
NSMC Portal

http://data.nsmc.org.cn/portalsite/default.aspx

Data Application Tools

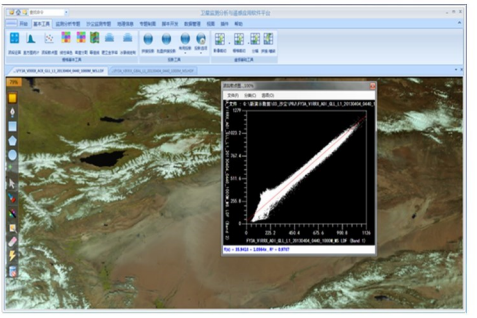
Users can login in http://www.nsmc.org.cn to download the FY Satellite Weather Application Platform (SWAP) and the FY Satellite Environmental and Ecological Monitoring System (SMART) to process and display FY satellite emergency data.

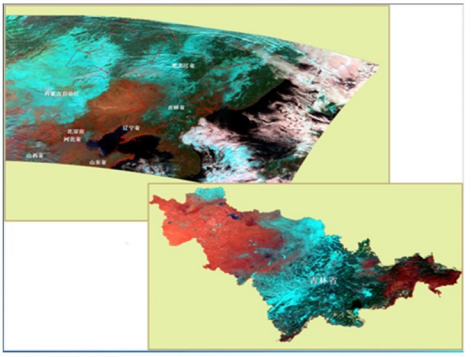




Satellite Weather Application Platform

SWAP, which is a weather application-oriented analysis platform developed by NSMC, uses geostationary meteorological satellites as a source of data. The system serves weather forecasters as a specialized interactive tool.





Satellite Environmental and Ecological Monitoring System

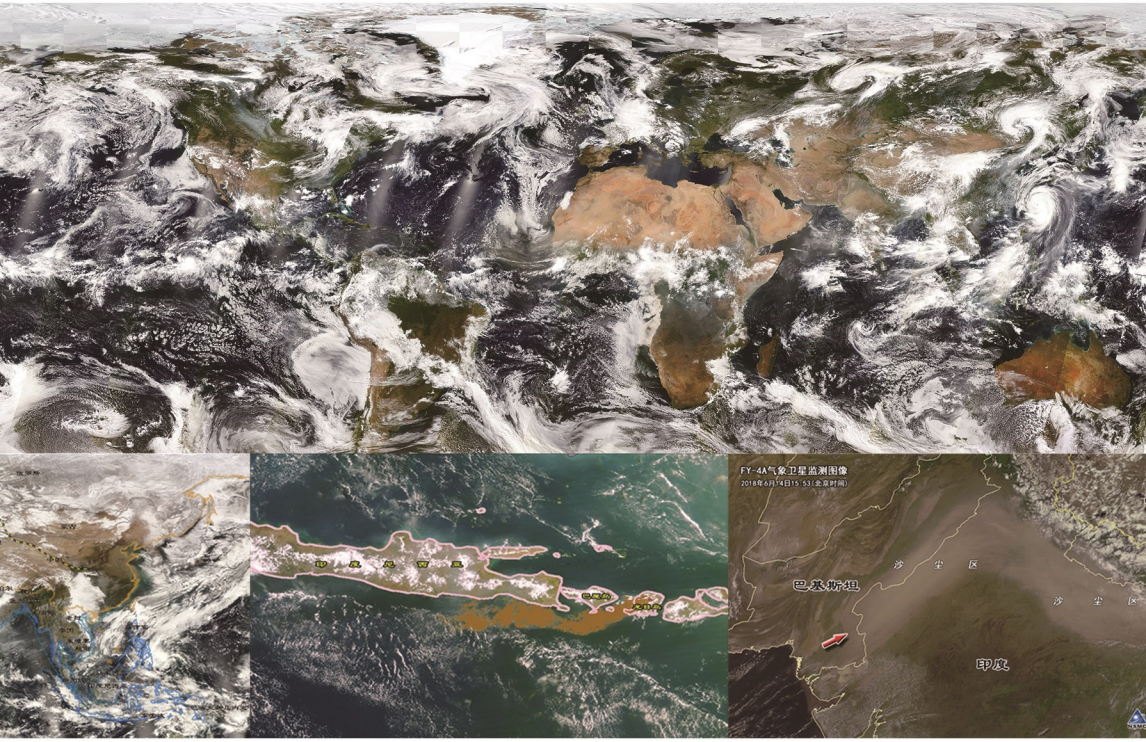
SMART is a general application platform developed by NSMC that offers FY3-based monitoring outputs, data analyses and public services.

Data Policy

The use of data and products derived from FY ESM shall be bound by CMA data policy. The “essential” data and products declared by CMA in accordance with Resolution 40 (Cg-XII) are free to be used for any purpose. The data and products which are not the “essential” data and products declared by CMA in accordance with Resolution 40 (Cg-XII) shall only be used for official duties in support of the protection of life and property, and shall not be used for any commercial activities.

User Feedback

The international user shall send comments to CMA concerning the emergency services applied.



Contact at CMA: FYemergency@cma.gov.cn