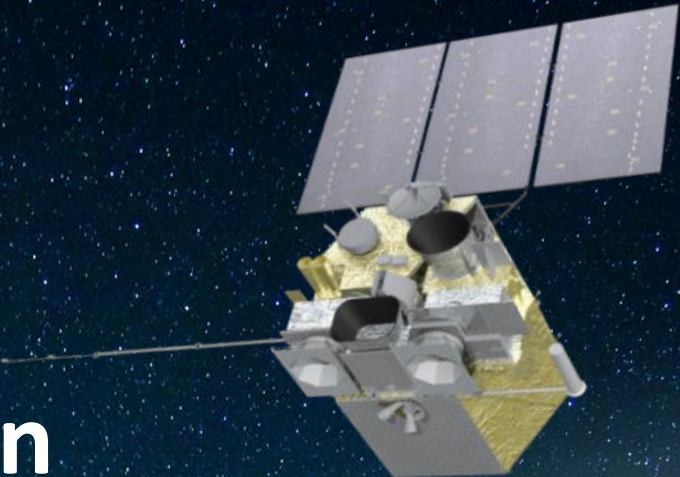




FengYun

Satellite Weather Application Platform

(SWAP Web V2.0)

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FengYun Satellite Weather Application Platform

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□ FENGYUN Satellite Application Platforms



SWAP

Cloud Platform for Geostationary Satellites

Main User: Meteorologist

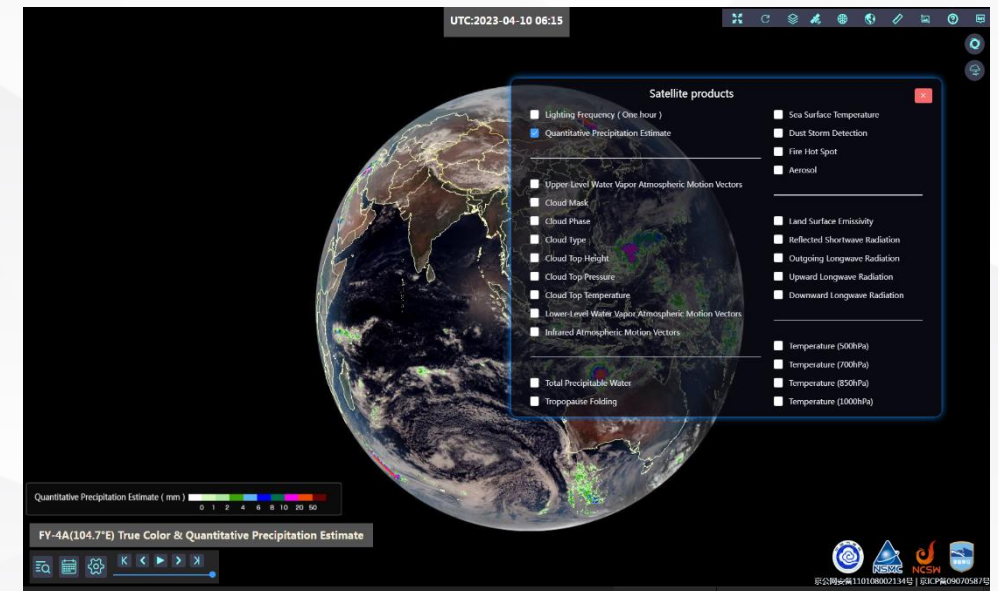
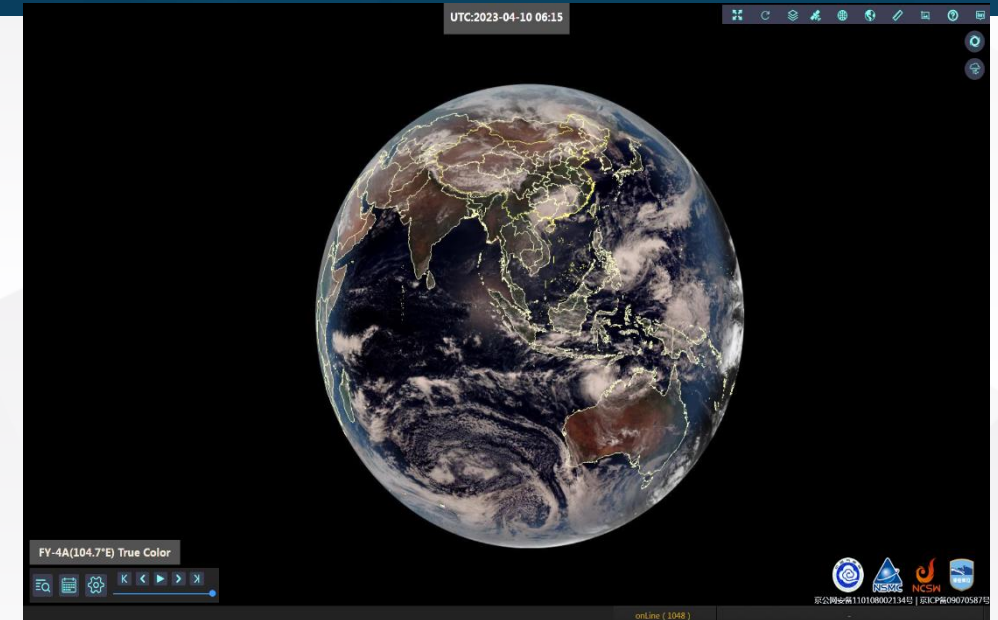
Typical Applications: Tropical cyclone, Convection, Fire, etc.

Homepage

SWAP is implemented with BS (Browser Service) architecture and accessed through web browser

SWAP has the ability of rendering single/multiple channel composites, and overlaying L2 products

Product Page



□ System Overview and features



FengYun Satellite Weather Application Platform (SWAP) can access FY-4A, FY-4B, FY2H satellite data in real time, and performs automatic image tiling, publication, and update. SWAP has the ability of rendering single/multiple channel composites, and overlaying L2 products. SWAP is implemented with BS (Browser Service) architecture and accessed through web browser, users do not need to install extra software to access SWAP system.

Cloud based data access

- FY-4A, FY-4B satellite data access through data cloud, and performs automatic image tiling, publication, and update;
- SWAP has the ability of real-time rendering single/ multiple channel composites, and overlaying L2 products.

Comprehensive satellite data visualization

- Animation play and control;
- Keyboard shortcut for each function;
- Rolling screen for product animation comparison;
- Transparency control for image layer;
- Show/hide control for image layer;
- Online customizable markers;
- Right mouse key one-click resolution toggle .

Online sharing of viewing window

- SWAP records current web page parameters, which enables online viewing window sharing
- After sharing web page link, user can resume current interactive status at any place.

Cloud atlas animation export

- User can export current viewing animation area as gif file.;
- Progress bar will show the animation export progress.

□ System Access & Constraints



□ Address:

□ Chinese: <http://rsapp.nsmc.org.cn/geofy>

□ English: <http://rsapp.nsmc.org.cn/geofy/en/>

□ Russian: <http://rsapp.nsmc.org.cn/geofy/ru>

Supported browser:

IE 10+

Edge 18+

Chrome 26+

Safari 8+

Opera 18+

YES

YES

YES

YES

YES

□ FengYun satellites data acquisition websites

❖ Websites

- <http://satellite.nsmc.org.cn>
- <http://data.nsmc.org.cn>
- http://rsapp.nsmc.org.cn/test_geofy

□ SWAP

- Chinese: <http://rsapp.nsmc.org.cn/geofy>
- English: <http://rsapp.nsmc.org.cn/geofy/en/>
- Russian: <http://rsapp.nsmc.org.cn/geofy/ru>

FY-4/ ▼ Nomi ▼

Observation Area [Asia Region](#) [Full disk](#)

Band Scheme **Products**

Lighting Frequency (One hour)

Quantitative Precipitation Estimate

Upper-Level Water Vapor Atmospheric Motion V

Cloud Mask

Cloud Phase

Cloud Type

Cloud Top Height

Cloud Top Pressure

Cloud Top Temperature

Lower-Level Water Vapor Atmospheric Motion V

Infrared Atmospheric Motion Vectors

Total Precipitable Water

Tropopause Folding

Cloud

Atmosphere

Land Surface Emissivity

Reflected Shortwave Radiation

Outgoing Longwave Radiation

Upward Longwave Radiation

Downward Longwave Radiation

Temperature (500hPa)

Temperature (700hPa)

Temperature (850hPa)

Temperature (1000hPa)

Radiation

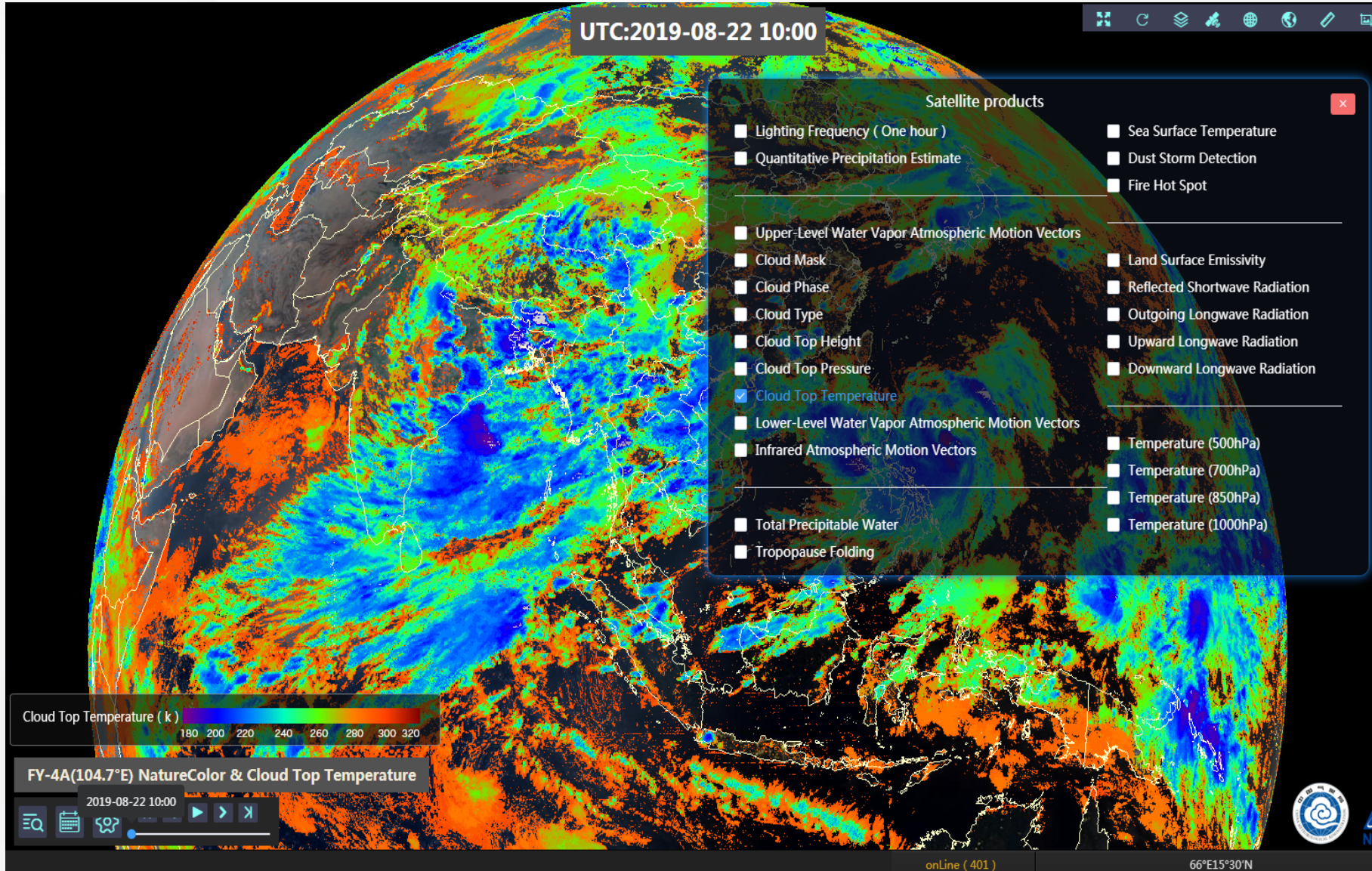
• Sea surface temperature

• Sea surface wind speed

• Ocean color/chlorophyll

Ocean

□ Feature: Satellite product overlay



SWAP Support 28 Products

Cloud Mask

Cloud Type

Dust Storm Detection

Outgoing Longwave Radiation

Quantitative Precipitation Estimate

Surface Solar Irradiance

Atmospheric Vertical Profile

Number of Lightning Events (Count/min)

Cloud Phase

Cloud Top Height

Cloud Top Temperature

Cloud Top Pressure

Downward Longwave Radiation (DLR)

Upward Longwave Radiation (ULR)

Reflected Shortwave Radiation (RSR)

Tropopause Folding

Land Surface Emissivity

Sea Surface Temperature

Fire Hot Spot

Layer Precipitable Water (Contain Total Precipitable Water)

Upper-Level Water Vapor Atmospheric Motion Vectors

Convective Initiation

□ Introduction to shortcut toolbar



● Measuring distance and area



- ① full-screen display
- ② Vector layer
- ③ Measurement tools
- ④ Animation and image export
- ⑤ Basic settings

- ① Measuring distance
- ② Measuring area

□ Main Interface Introduction



The screenshot displays a satellite view of Earth with yellow outlines of landmasses. The interface includes several toolbars and callouts:

- Top Center:** UTC:2019-08-23 00:15
- Top Right:** A toolbar with icons for full screen, refresh, layer selection, satellite selection, coordinate system, observation area, measure tools, export animation to gif file, and operation manual.
- Bottom Left:** A toolbar with icons for time slider, play control, speed control, playlist, archived data search, and play setting.
- Bottom Center:** Online user count (431)
- Bottom Right:** Logos for NSMC and a blue triangle logo.

Callout 1 (Top Left): date and time for current frame (UTC)

Callout 2 (Top Right):

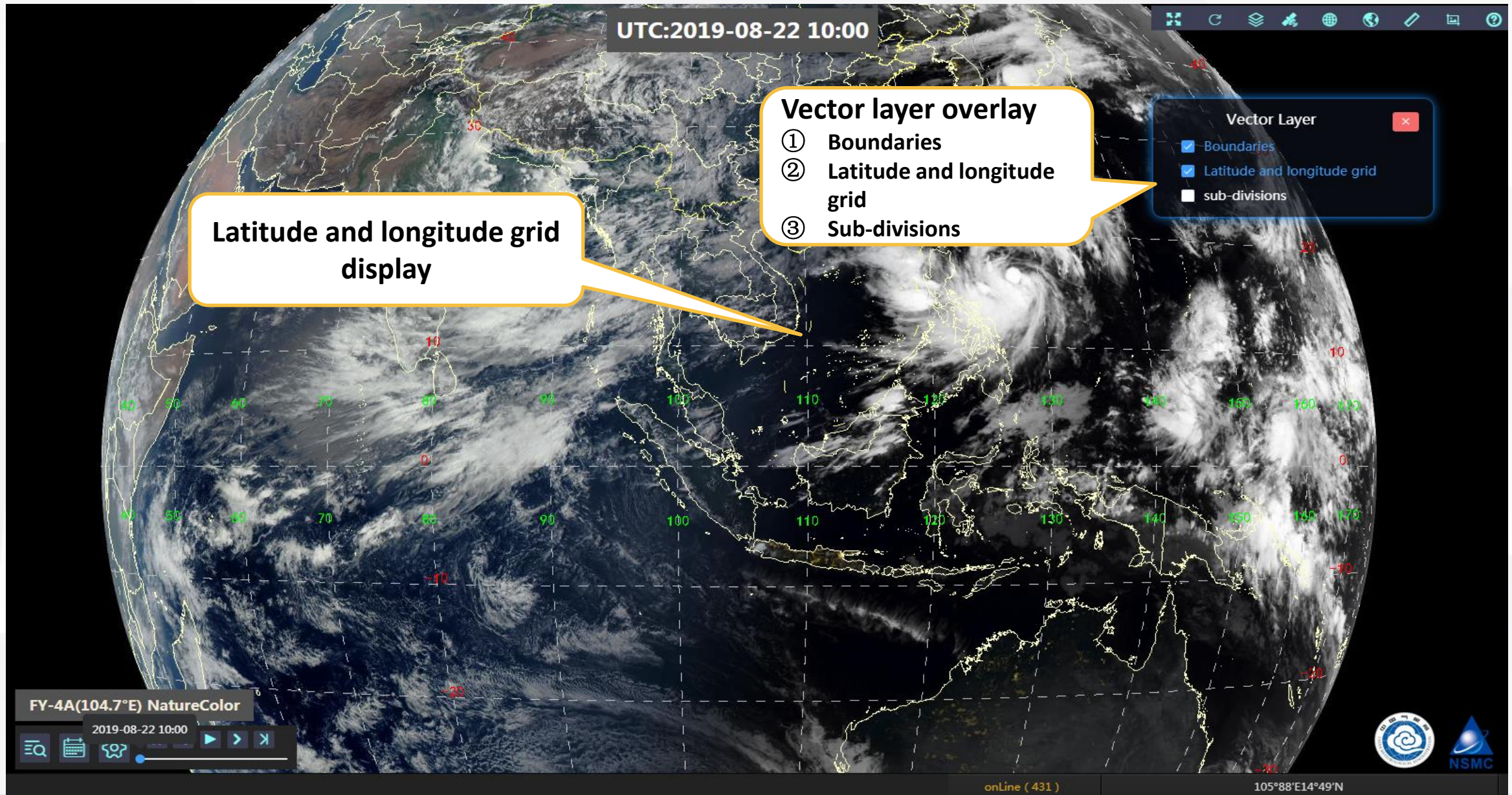
- ① Full screen
- ② Refresh
- ③ Layer selection
- ④ Satellite selection
- ⑤ coordinate system
- ⑥ Observation area
- ⑦ Measure tools
- ⑧ export animation to gif file
- ⑨ Operation manual

Callout 3 (Bottom Left):

- ① Time slider
- ② Play control
- ③ Speed control
- ④ Playlist
- ⑤ Archived data search
- ⑥ Play Setting

Callout 4 (Bottom Center): Online user count

□ Feature: Vector Layer overlay



□ Feature: Satellite channel view



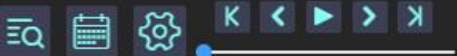
UTC:2019-08-22 10:00

SWAP FY4 Channel View

Satellite Band

- IR Enhance (From CIMSS)
- Band 1: 0.47 μm (blue Band)
- Band 2: 0.65 μm (Red Band)
- Band 3: 0.83 μm (Veggie Band)
- Band 4: 1.37 μm (Cirrus Band)
- Band 5: 1.61 μm (Snow/Ice Band)
- Band 6: 2.22 μm (Cloud Particle Size Band)
- Band 7: 3.72 μm (Shortwave Window Band High)
- Band 8: 3.72 μm (Shortwave Window Band Low)
- Band 9: 6.25 μm (Upper-Level Tropospheric Water Vapor Band)
- Band 10: 7.1 μm (Lower-level Water Vapor Band)
- Band 11: 8.5 μm (Cloud-Top Phase Band)
- **Band 12: 10.8 μm (Clean IR Longwave Window Band)**
- Band 13: 12 μm (Dirty Longwave Window Band)
- Band 14: 13.5 μm (CO2 Longwave Infrared Band)

FY-4A(104.7°E) Band 12: 10.8 μm (Clean IR Longwave Window Band)



□ Feature: Composite scheme



UTC:2019-08-29 06:15



SWAP Support 12 Synthetic scheme

Synthetic scheme

- NatureColor
- NatureColor_NoLit
- Natural Color RGB Composite (From WMO)
- Dust RGB Composite (From WMO)
- AirMass RGB Composite (From WMO)
- Fog/Snow RGB Composite (From WMO)
- Severe Storms RGB Composite (From WMO)
- CloudsConvection RGB Composite (From WMO)
- Volcanic Ash RGB Composite (From WMO)
- Day Convective Storms RGB Composite (From WMO)
- Day Microphysics RGB Composite (From WMO)
- Night Microphysics RGB Composite (From WMO)

Clouds Convection



FY-4A(104.7°E) CloudsConvection RGB Composite (From WMO)



onLine (481)

□ Feature: Archiving images



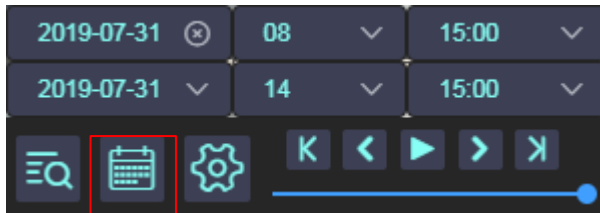
The “Archived Image” can be freely selected for FY4 data within the last 6 months, and the business personnel can perform historical weather process animation playback as needed.

Play list

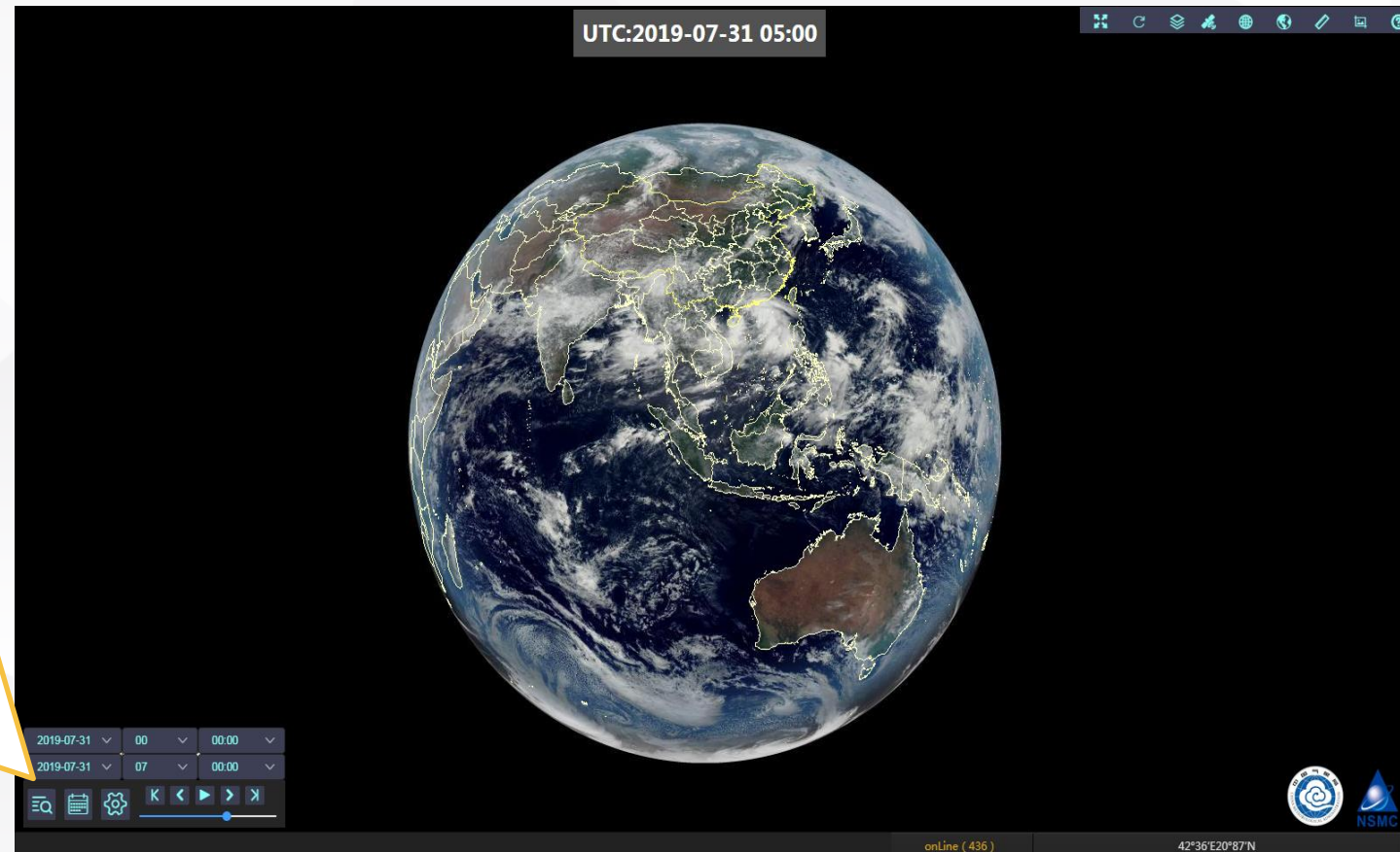
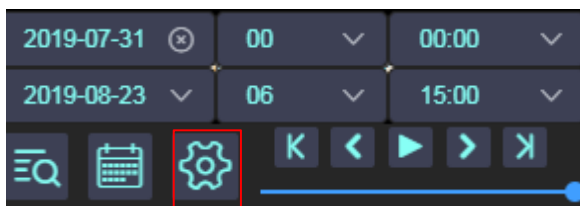
2019-07-31 10:00
2019-07-31 10:45
2019-07-31 11:00
2019-07-31 11:15
2019-07-31 13:00
2019-07-31 13:45
2019-07-31 14:00
2019-07-31 14:15



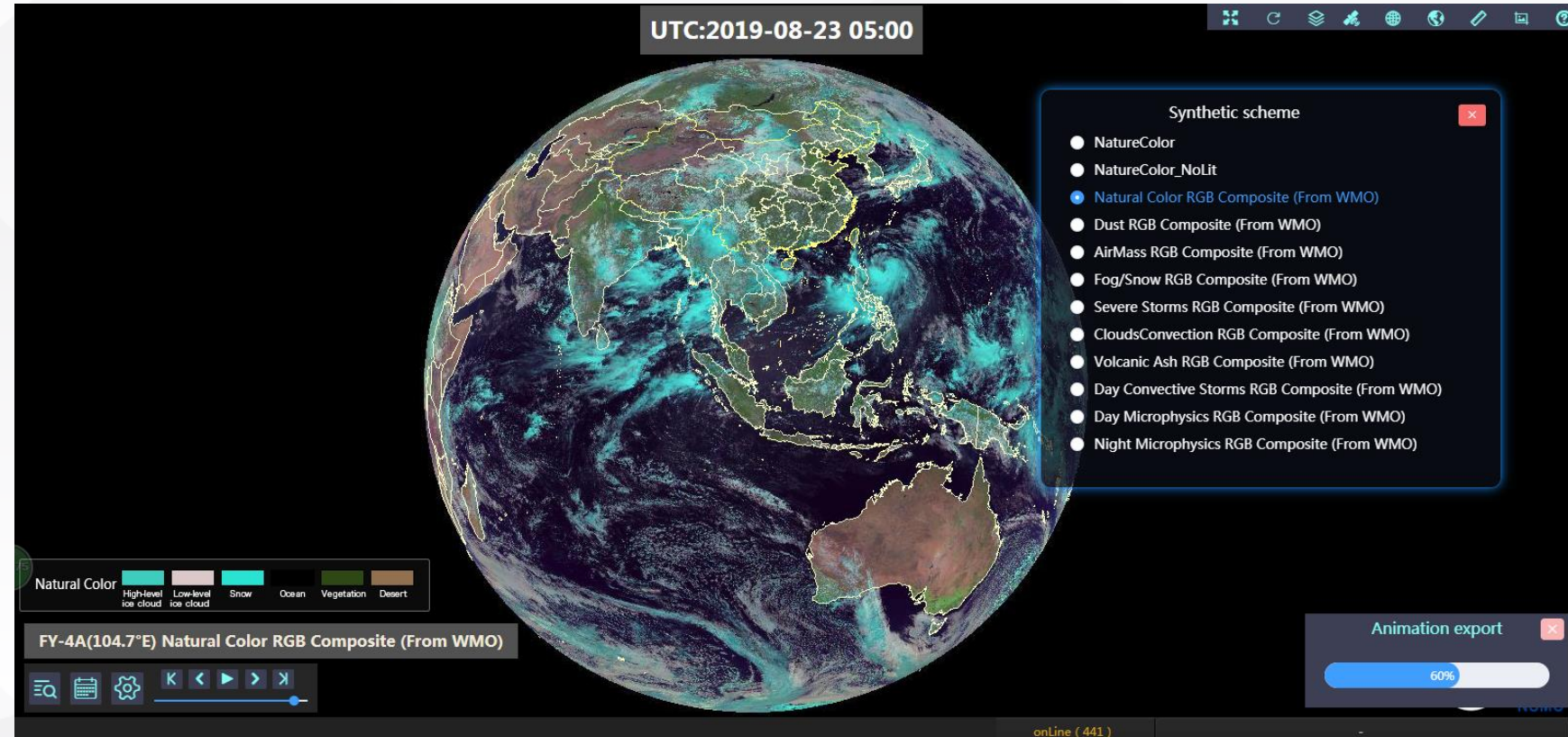
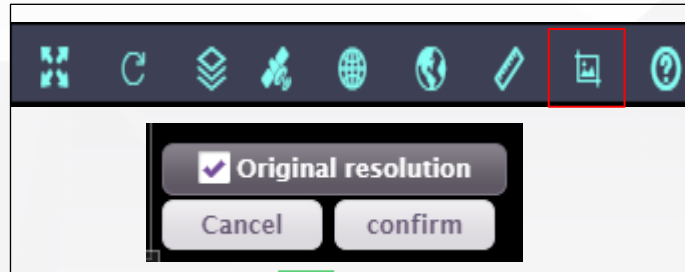
Archived data query



Setting Control



□ Feature : Animation export



http://rsapp.nsmc.org.cn/geofyimg/exp_gif/20190823/1523680689512_12_1.gif

Thematic application-typhoon topic



Typhoon path display and analysis function

Year

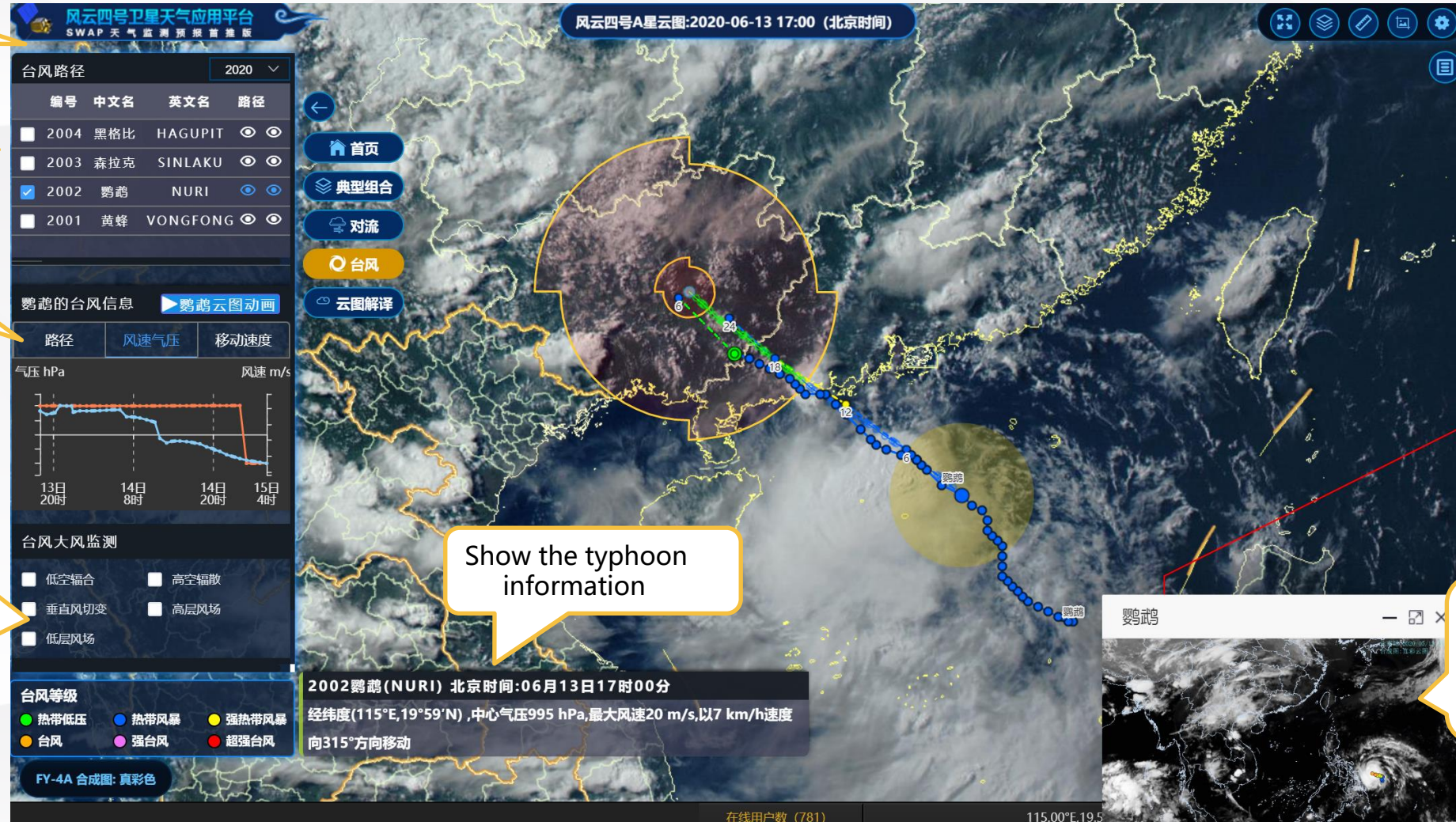
Year list

Typhoon tracks

Overlap the wind field

Show the typhoon information

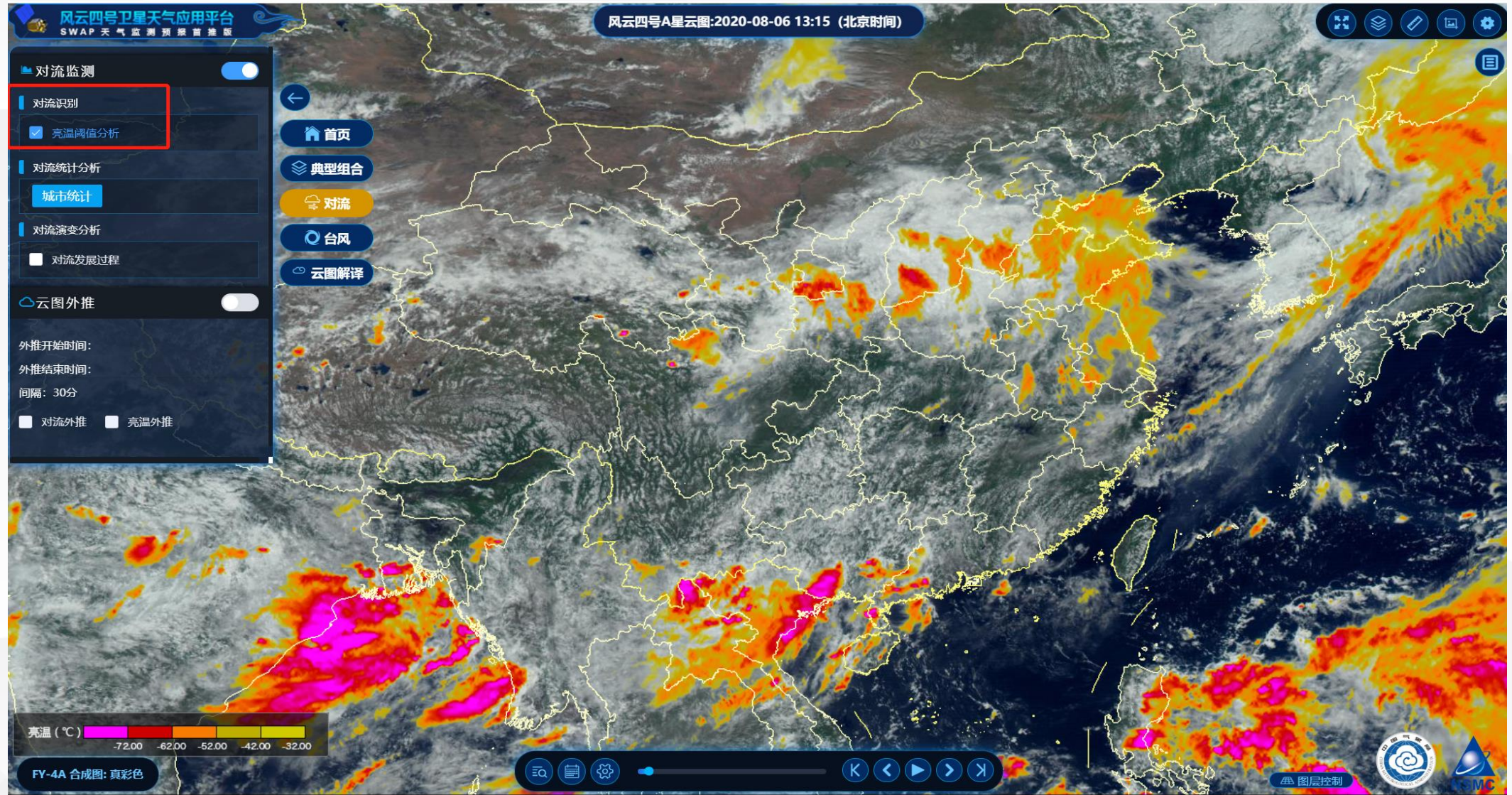
Typhoon track and could image



Thematic application-convection topic



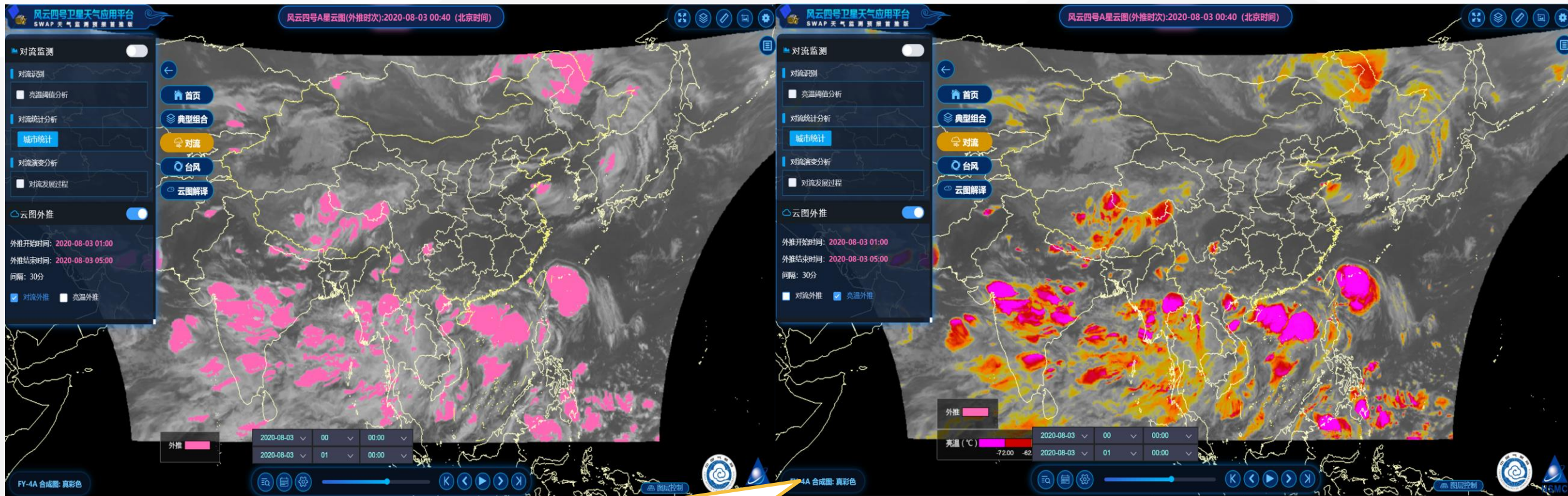
Convection monitoring-brightness temperature threshold



□ Thematic application-convection topic



Cloud map extrapolation



Cloud image extrapolation: You can view the extrapolation results of the cloud image, convection and brightness temperature in the next three hours, and you can view the historical extrapolation results by selecting the historical start time and end time

□ Online Service



If you have any further questions, please feel free to contact me at your convenient time.



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