Fengyun Meteorological Satellite and Their contribution to NWP

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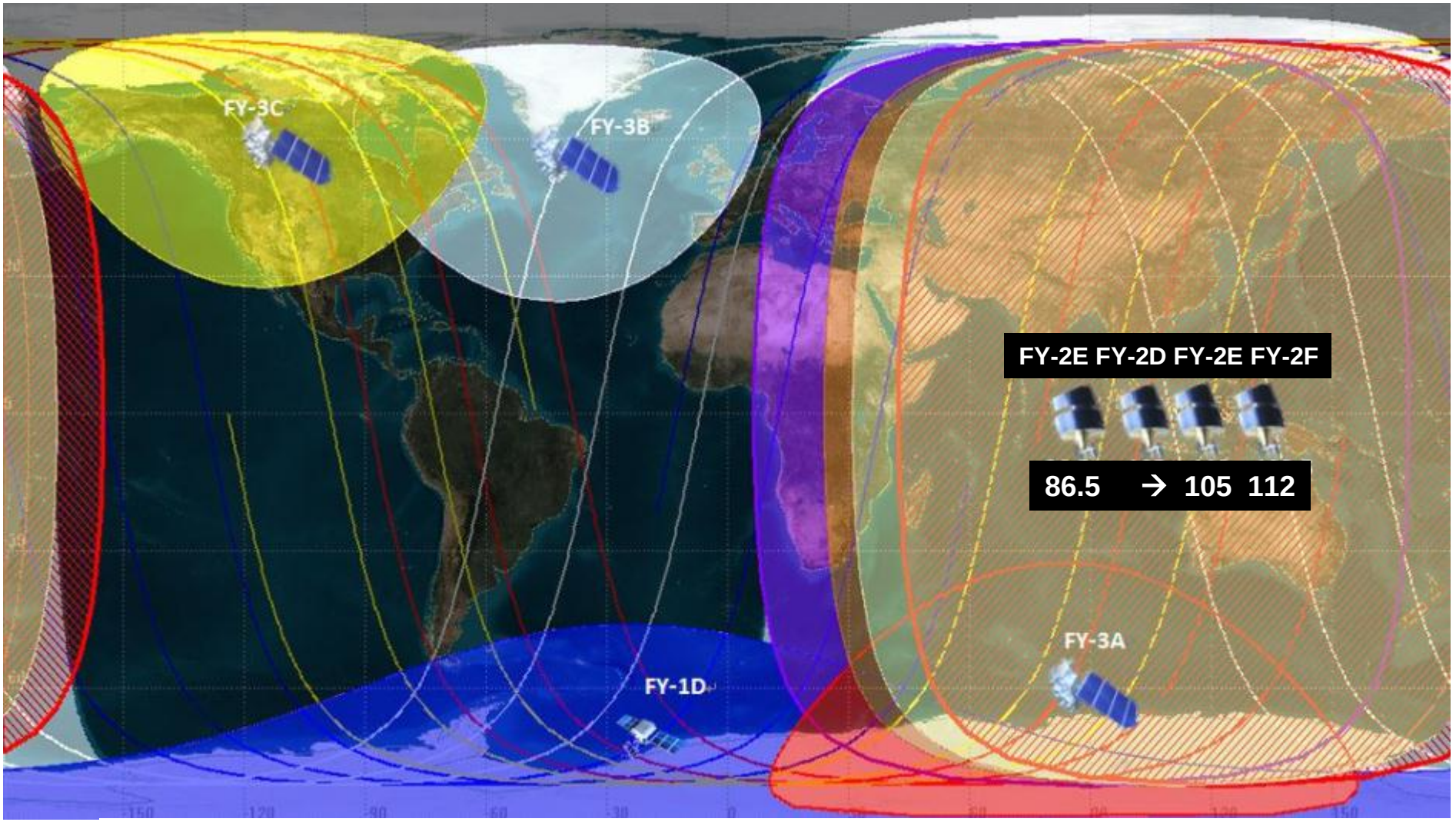
Current Status



- 8 satellites on the orbit, 5 satellites in operation

Status Change in operation since ITSC-19

1. FY-2 Reposition on the orbit:

   FY-2C is deorbited in Dec, 2014 and completes 10-years' service
   FY-2G is launched in Dec, 2014 and positioned to **the primary position** (105° E) at 8:00 (BJT) June 3, 2015
   FY-2E is repositioned to the secondary position (86.5° E) at 8:15 (BJT) July 1, 2015
   FY-2D is repositioned to the standby position (123.5° E) in Aug 10, 2015

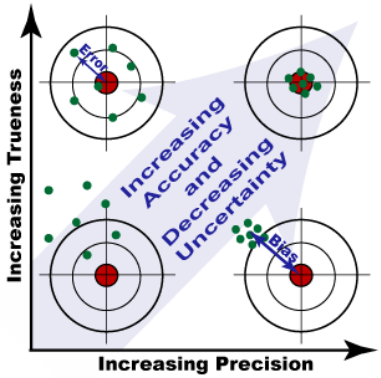
2. The inclination of the FY-3B orbit is adjusted from May 5 to May 8, 2015.

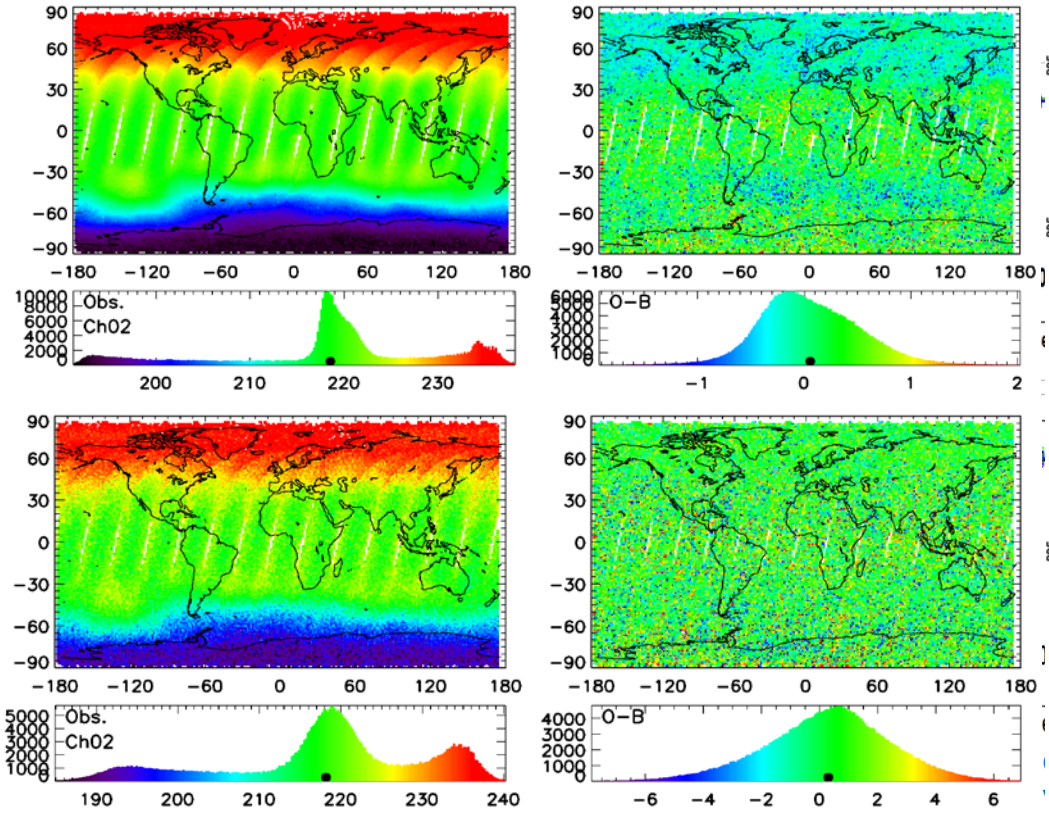
3. WMTS-2/FY-3C change mirror scanning mode from variable speed to constant speed due to the gear problem since May 14, 2014. It suspended on 31 May, 2015 and ended mission on 4 July.

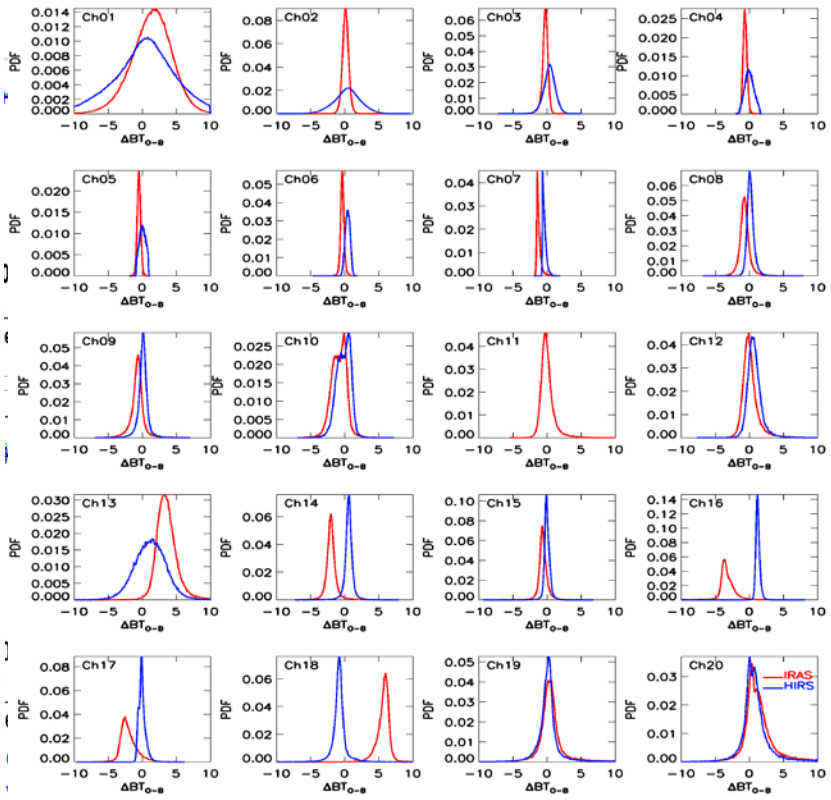
4. All instruments on FY-3C are suspended on 31 May, 2015 due to the solar energy problem. VIRR, MWRI, MWHS, GNOS, IRAS, TOU are rebooted from 11 to 14 July. ERM, SIM, SBUS, SEM are rebooted from 14 to 16 Sept, 2015.

Current FY Cal & Val

- Onboarding calibration system
- Inter-calibration with the GSICS reference Instrument
- Cal. and Val. with stable targets such as Lunar, DCC and ground reference sites
- Monitoring data quality with O-B

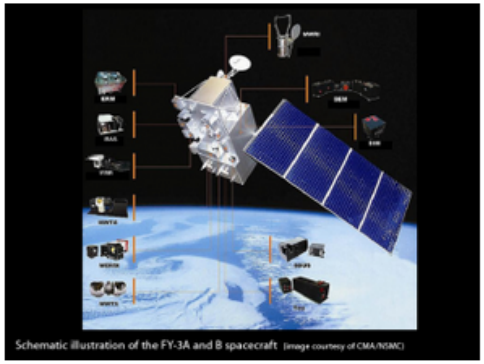






ECMWF starts using Chinese satellite data

29 September 2014

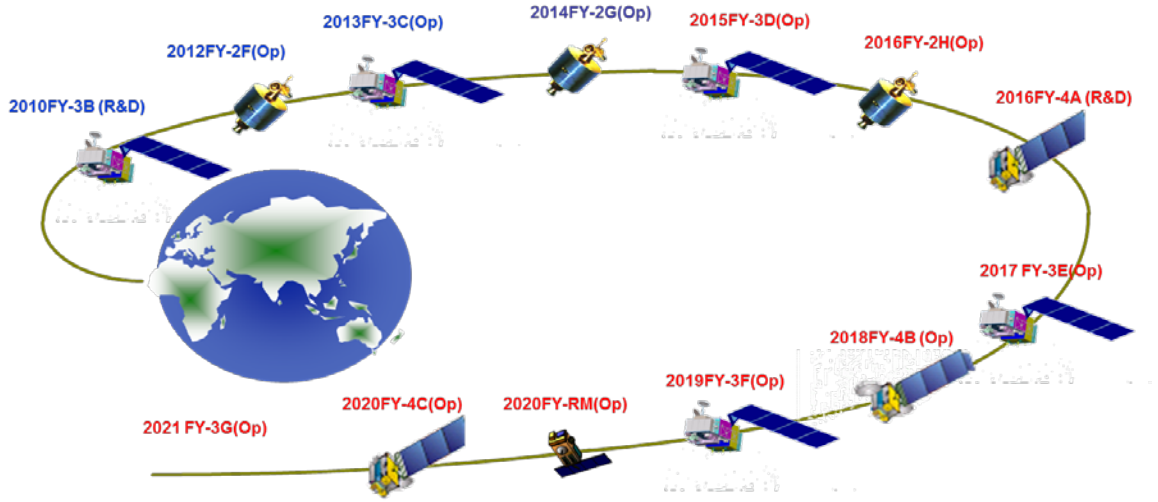

Schematic illustration of the FY-3A and B spacecraft (image courtesy of CMA/NSMC)

On 24 September 2014, ECMWF actively used Chinese satellite data for the first time in the operational forecasting system. This marks a milestone in ECMWF's fruitful cooperation with the Chinese Meteorological Administration (CMA) and the Chinese Institute of Atmospheric Physics (IAP) in the area of characterisation and use of Chinese satellite data. China is expected to play a leading role in providing meteorological satellite data in the near future, alongside Europe and the US, currently the main providers of satellite sounding data used operationally. Activating the first Chinese satellite data in the ECMWF system is therefore an important step towards a much greater use of Chinese satellite data in the future.

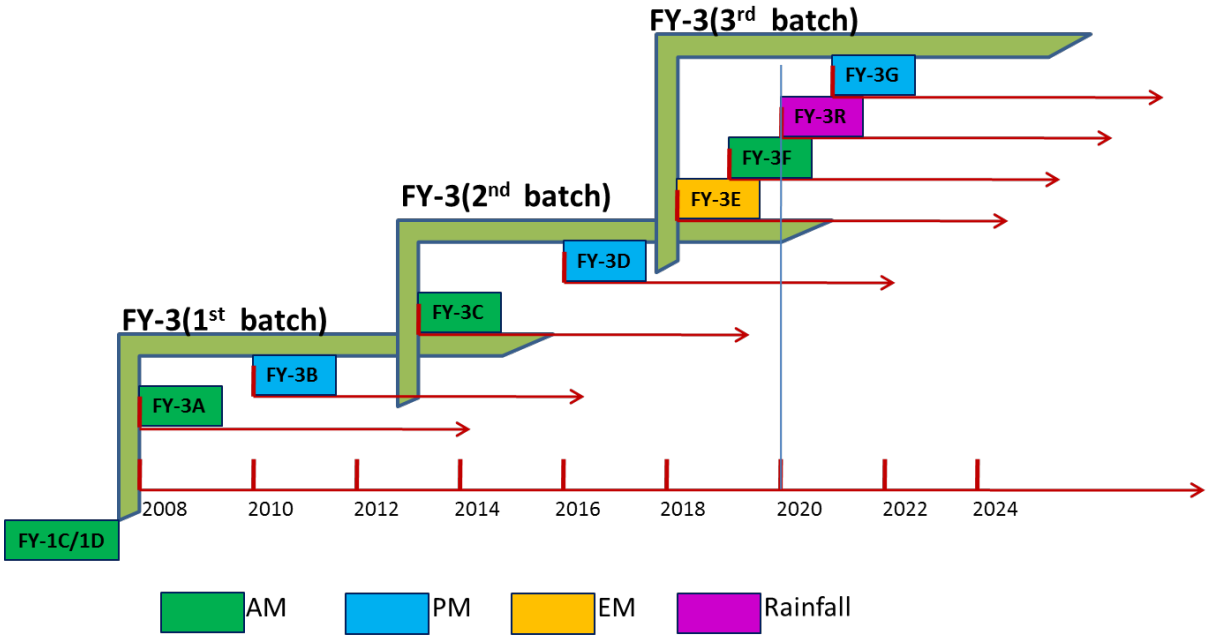
The new data originates from the Microwave Humidity Sounder (MWHS) on-board the Fengyun-3B (FY-3B) satellite. It contributes to an improved analysis of mid- to upper-tropospheric humidity, and adds robustness to the satellite observing system. Although FY-3B is an experimental satellite, the data has been found to be of sufficient quality to further improve ECMWF's atmospheric analysis. Keyi Chen, visiting scientist from IAP, explains: "Our work has shown the data is of reliable quality, and it has an impact comparable to similar European or US satellite instruments that have been used operationally for a long time."

The development is the result of a very constructive partnership with CMA and IAP to characterise Chinese satellite data. During regular visits to ECMWF, Qifeng Lu from CMA has significantly advanced our understanding of the performance of the instruments on the experimental FY-3A and B satellites. This work continues with the analysis of data from the latest Chinese satellite, FY-3C, performed together with CMA, ECMWF, and the UK Met Office. FY-3C is China's first operational meteorological polar-orbiting satellite, and it carries much improved instruments compared to the earlier FY-3A and B satellites. It was launched in September last year and Qifeng Lu is currently visiting ECMWF again. He notes: "The cooperation between CMA, ECMWF and the Met Office is very important to help us evaluate the data and improve its performance. This is also of benefit to the wider community. We very much hope that more Chinese data will be actively assimilated at ECMWF and elsewhere in the future."

Tentative Schedule for Future FY Series



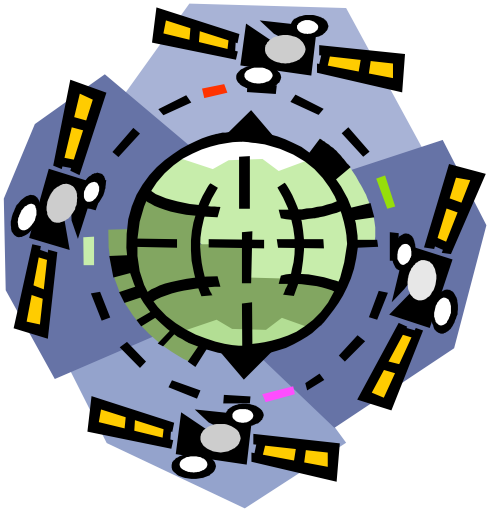
3 yrs 5 yrs 8 yrs Designing lifetime



- 9 satellites will be launched within this decade
- The transition from FY-3 02 batch to 03 batch is expected
- Designed lifetime from 5 years to 8 years to guarantee stable observation for NWP community
- MWTS-2, MWHS-2, HIRAS inherited from FY-3D as well as the active microwave radar WindRAD are expected to contribute NWP community

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

N0.	Sensor Siute	Satellite / Sensor	FY-3E（05）EM Satellite	FY-3F（06）AM Satellite	FY-3G（07）PM Satellite	FY-3R（08）Rainfall Satellite
		Scheduled Launch Date	2018	2019	2021	2020
1	Optical Imagers	MERSI	√（III-Low Light）	√（III）	√（III）	√（III-Simplified）
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	√(Multi-angle)		√	
		Solar X-EUV Imager	√			



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Thank you!