



Brief Introduction to Fengyun-3E

--An early morning orbit mission



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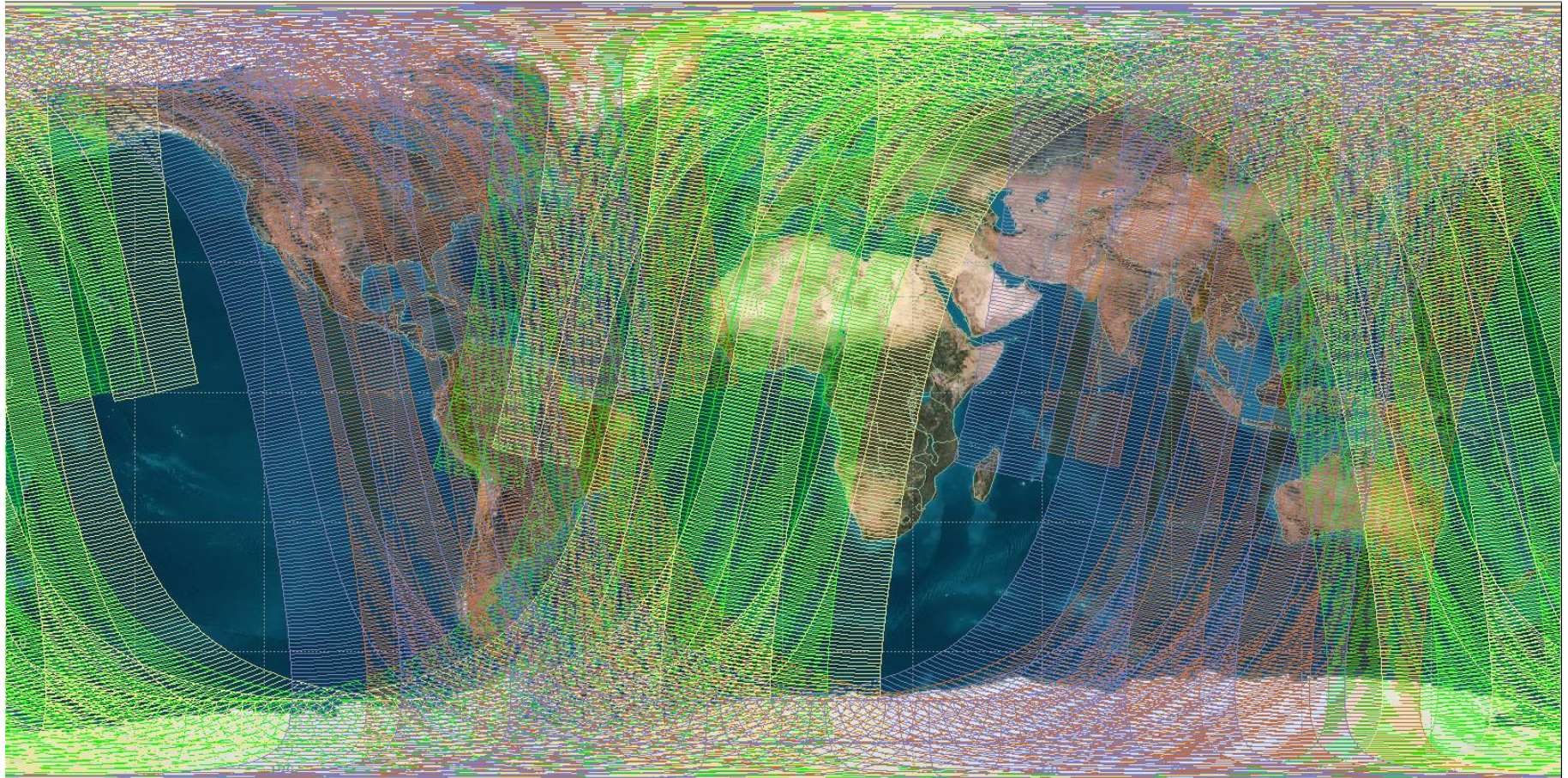
Background

“WMO VISION FOR THE GOS IN 2025”

-- Optimizing the current operational polar-orbiting system

- **Recommendation 39.01:** CGMS agencies are invited to assess the possibility of implementing the mission with sounding capabilities in early morning orbit.
- Relative actions and recommendations are also from ET-SAT-7 in April 2012 and CBS-15 in Sept. 2012.
- CMA indicated its willingness to investigate the possibility of flying the mission with sounding capabilities in the early-morning orbit in order to have a better distribution of atmospheric sounding system over the planned 3 orbits in WMO EC-64 in 2012.

Gap exists in current operational polar- orbiting constellation without E.M.



FY-3A/C 10:00 AM



FY-3B 13:40 PM



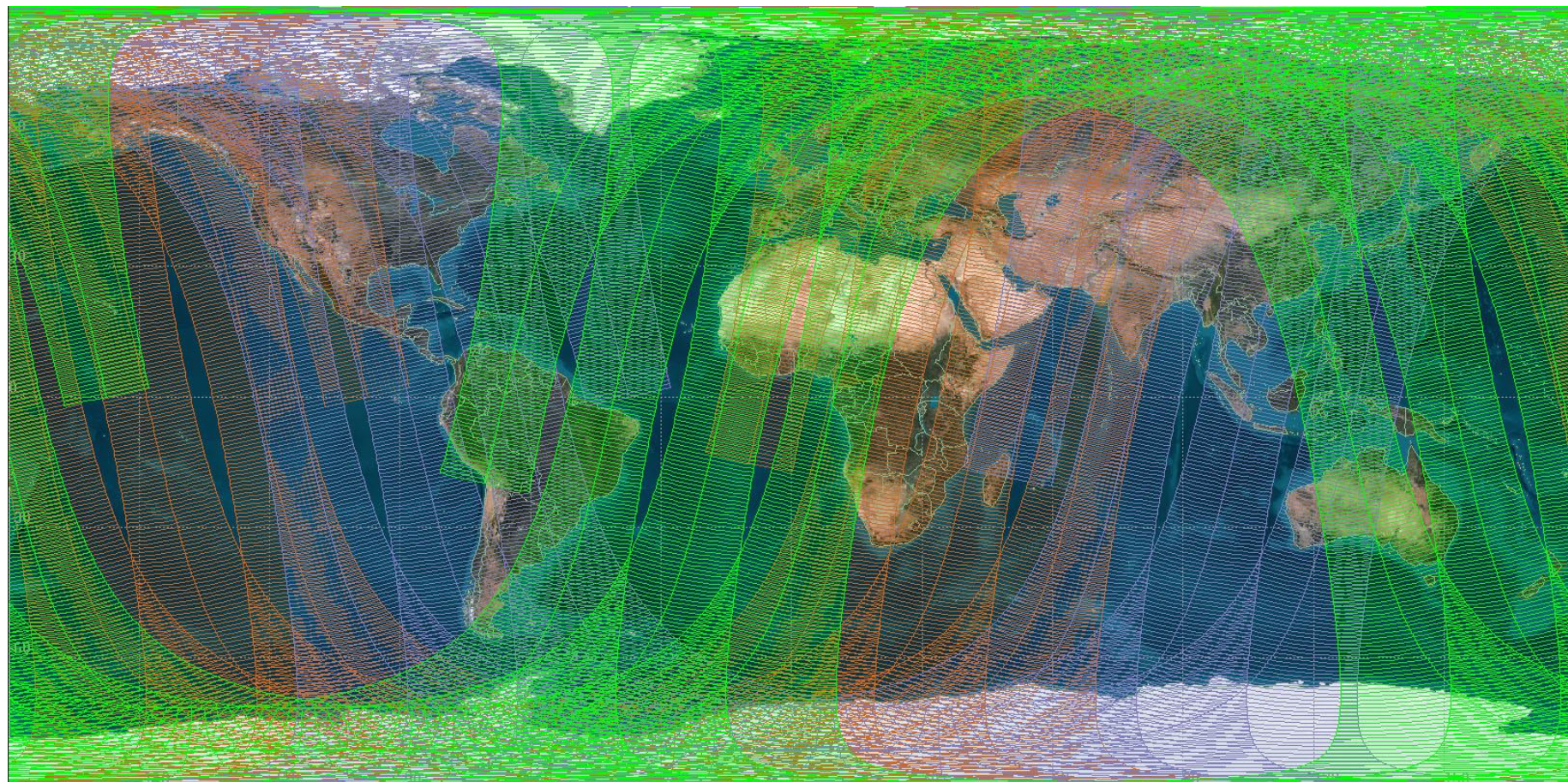
Metop-A/B 9:30 AM



SNPP 13:30 PM

Tri-Orbital configuration: Metop Morning +NPP Afternoon+FY-3 Early Morning

Recognizing that global even distribution of sounding data is of great significance for the 6 hour NWP assimilation window, one approach is to constitute a three orbital fleet including Metop (Mid. Morning) + NPP(Afternoon) +FY-3(Early Morning).



FY-3 Early Morning 6:00 AM



Metop-A/B 9:30 AM



NPP 13:30 PM

■ **CMA Consideration on early-morning orbit satellite** presented at CGMS 40 during 5-11 Nov. 2012 in Lugano, Switzerland.

CMA stated that:

- FY- 3D has been under manufacture, no chance to make it changed for Early Morning orbit
- **FY-3E is the possible opportunity for CMA to fly early morning orbit before 2020**

FY-3 OPERATIONAL SATELLITE INSTRUMENTS	FY-3C	FY-3D	FY-3E	FY-3F
MERSI – Medium Resolution Spectral Imager (I, II)	√(I)	√(II)	√(II)	√(II)
MWTS – Microwave Temperature Sounder (II)	√	√	√	√
MWHS – Microwave Humidity Sounder (II)	√	√	√	√
MWRI – Microwave Radiation Imager	√	√		√
WindRAD - Wind Radar			√	
GAS - Greenhouse Gases Absorption Spectrometer		√		√
HIRAS – Hyper spectral Infrared Atmospheric Sounder		√	√	√
OMS – Ozone Mapping Spectrometer			√	
GNOS – GNSS Occultation Sounder	√	√	√	√
ERM – Earth Radiation Measurement (I, II)	√(I)		√(II)	
SIM – Solar irradiation Monitor (I, II)	√(I)		√(II)	
SES – Space Environment Suite	√	√	√	√
IRAS – Infrared Atmospheric Sounder	√			
VIRR – visible and Infrared Radiometer	√			
SBUS – Solar Backscattered Ultraviolet Sounder	√			
TOU – Total Ozone Unit	√			

↑ **2018**

Milestones

1. User Workshop
 - Beijing, March 11, 2013
 - CMA Headquarter, NWPC, NNWPC, NCC, CAMS
2. Discussions on FY-3E Engineering Feasibility Study
 - Shanghai, Nov. 8, 2012
 - Shanghai, Jan. 10, 2013
 - Beijing, March 12, 2013
 - SAST/CAST
3. Discussions on Financial Support
 - Jan., 2013
 - CMA, CNSA, NDRC
4. WMO Tiger Team Meeting
 - Beijing, 25-26 April. 2013
5. Formal commitment on FY-3E from CMA administrator Dr. Zheng
 - Geneva, WMO EC-65th, 2013
6. Approval of FY-3E Mission Requirement by CMA in 2014

Tiger Team Meeting

April 25 ~ 26, 2013, Beijing



Assessment of the benefits of a satellite mission in an early morning orbit

Report from the WMO-CGMS Tiger Team

April 2013



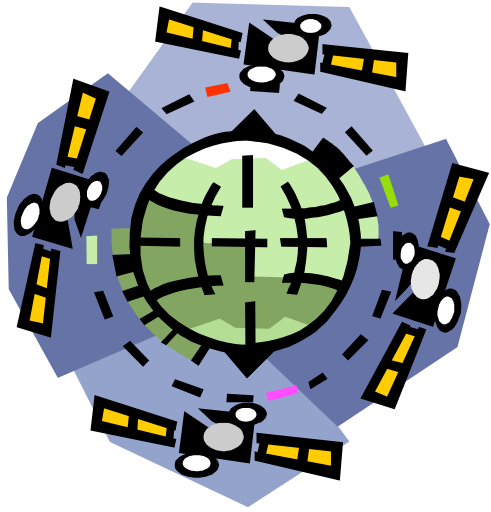
1. BENEFITS OF AN EARLY MORNING MISSION FOR NWP

2. BENEFITS FOR OTHER APPLICATIONS

- Diurnal cycle and daily operations schedule**
- Tropical cyclones and other severe events**
- Climate monitoring**
- Air quality**
- Solar observations**

Conclusion:

- **CMA appreciated the supports from CGMS and WMO, especially the Tiger Team, on the benefit assessment of the E.M. orbit;**
- **CMA has decided to redeploy FY-3E to an early morning orbit and calls on support from WMO, CGMS members and satellite operators to reach this objective**
- **International efforts are expected in the course of the development phase of the FY-3E early morning mission.**
- **FY-3E is now under manufacture, and is expected to be launched in 2019.**



Thank you!

