

CMA/NSMC Satellite Data Assimilation Activities: Uses of ATOVS and Fengyun VASS Data in WRF

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Forecast/Assimilation System



WRF-V2 forecast model/WRF-3Dvar with following implementation

- RTTOV8.7 and CRTM for radiance assimilation
- Harris & Kelley Method for bias correction
- NMC Method for background covariance
- Modified land surface dataset for China surface complexity
- Improved physics for better depiction of surface snow
- Background error updated every 6 hour;

Satellite Data Assimilated and Planned for Uses in WRF-3dvar

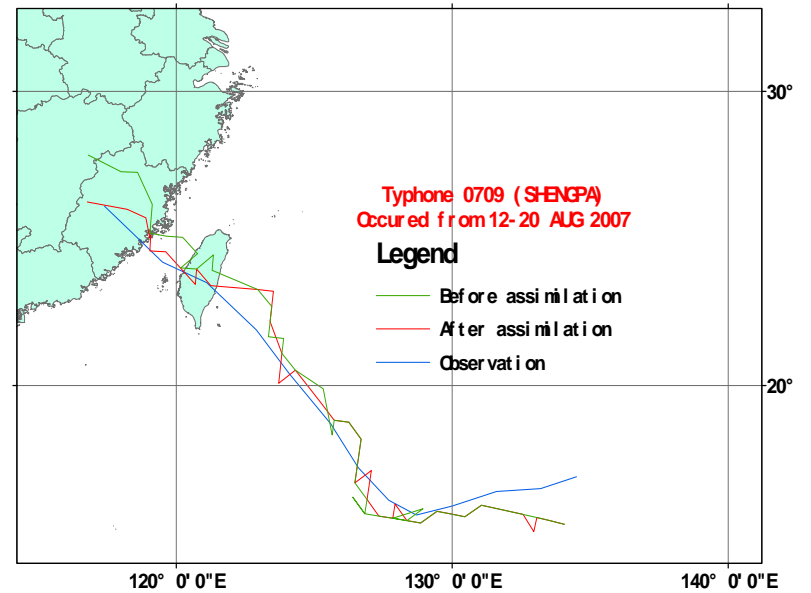
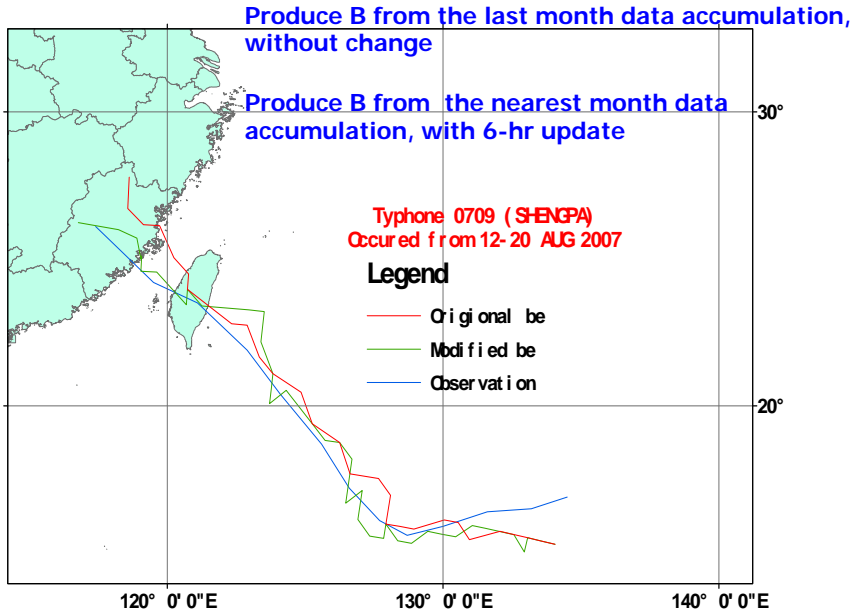
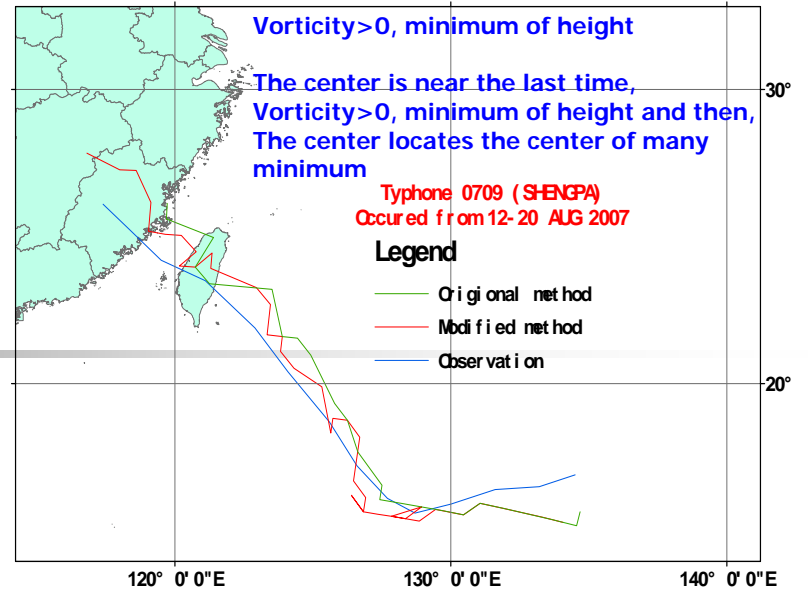
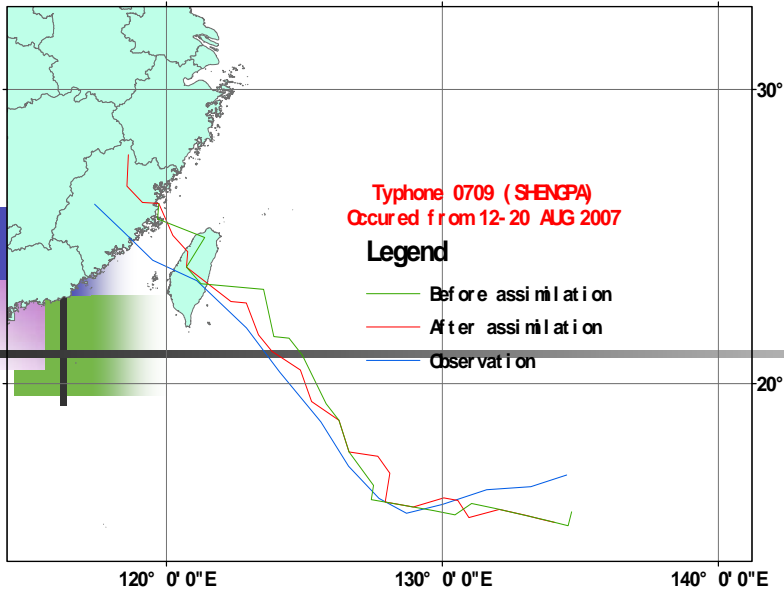


- ATOVS data received, preprocessed by NSMC/CMA
- FY3/VASS instruments are added into WRF/3Dvar
- METOP/IASI instrument are added into WRF/3Dvar

Forecast/Assimilation System and its Application in Typhoon Shenpa

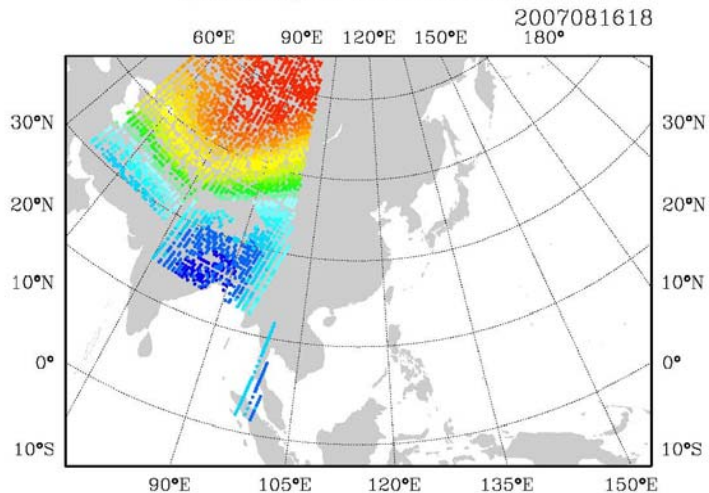


- **Forced by NCEP GDAS dataset**
- **6-hour assimilation window**
- **00 06 12 18**
- **21-03 03-09 09-15 15-21**
- **Post-processed by NCAR-GRADS**
- **Now forced by T213 dataset**

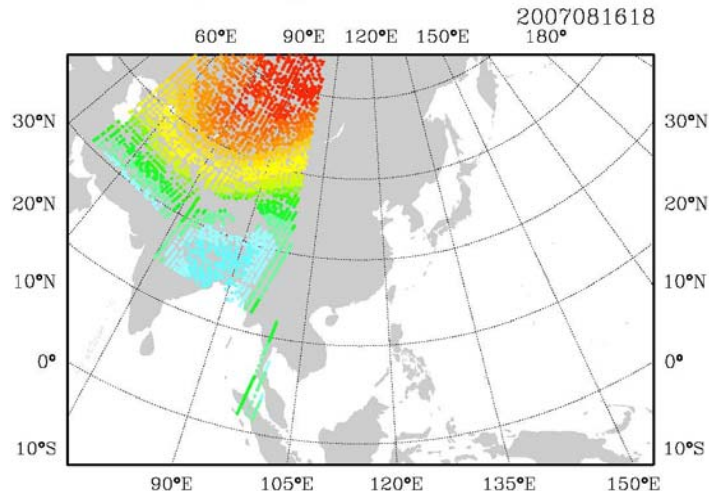


FY3-VASS data assimilation and its related

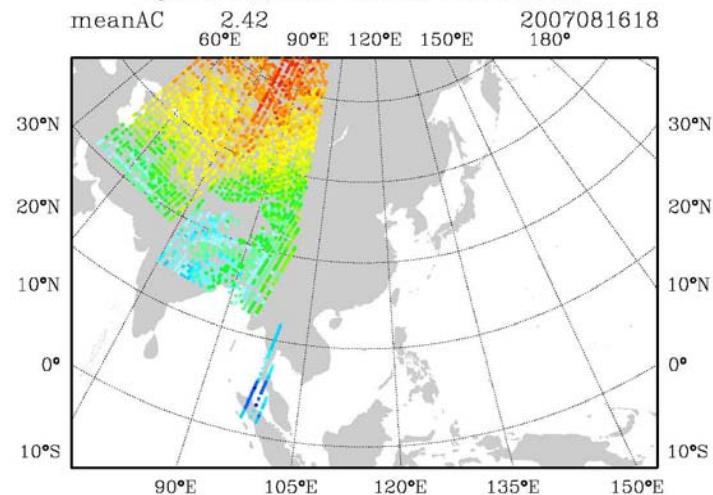
fy3-1-mwts_ch0004 OBS 4704 / 5561

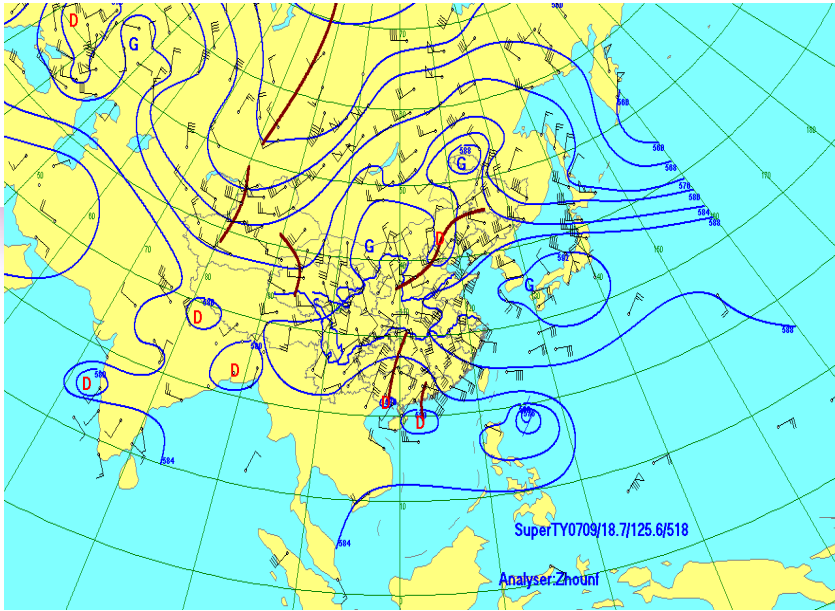


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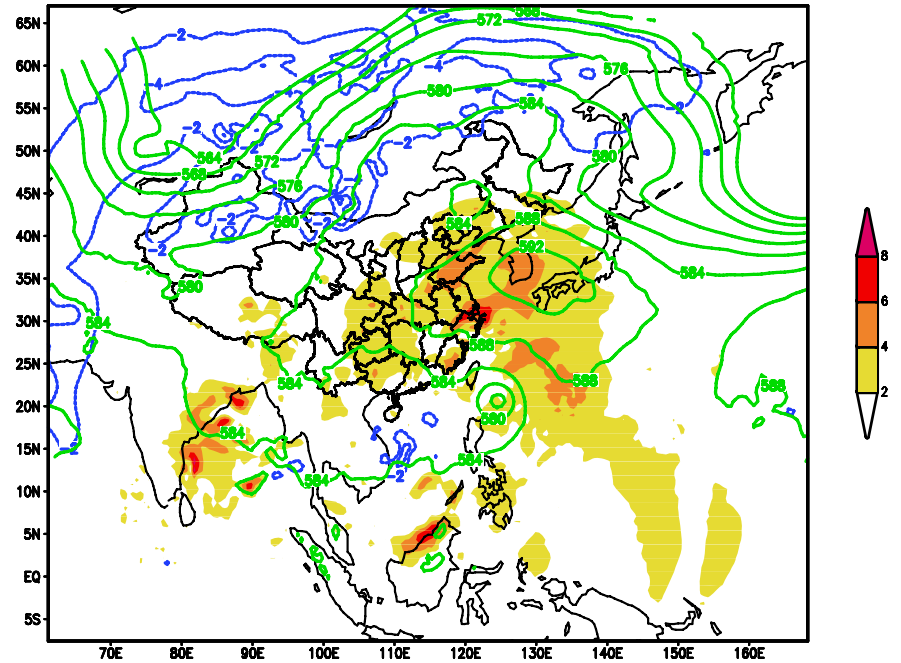


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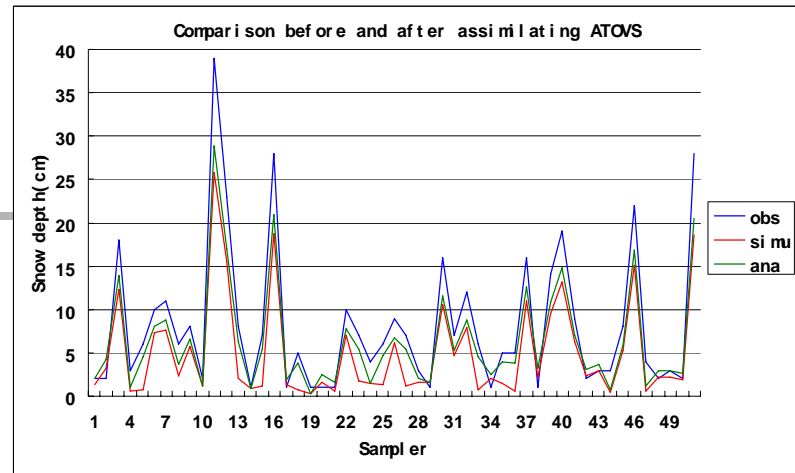
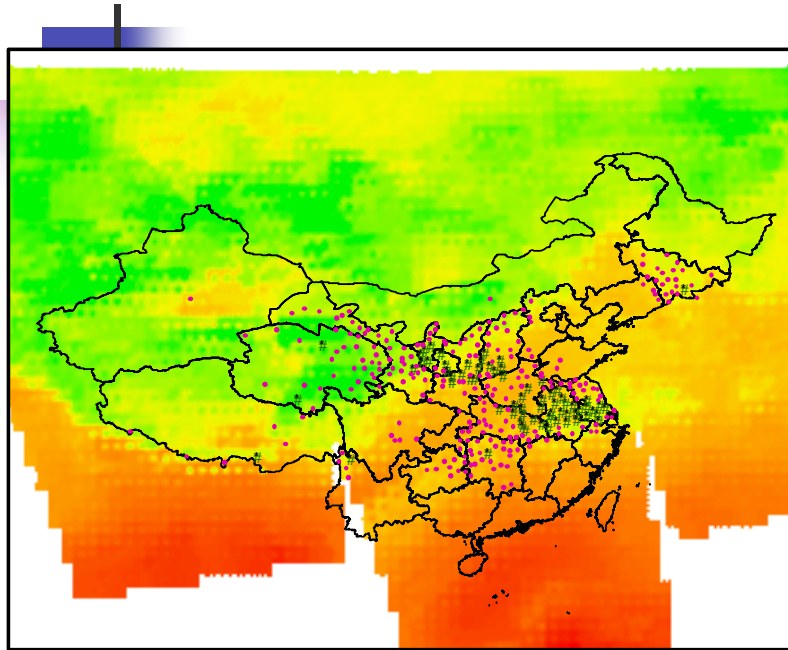




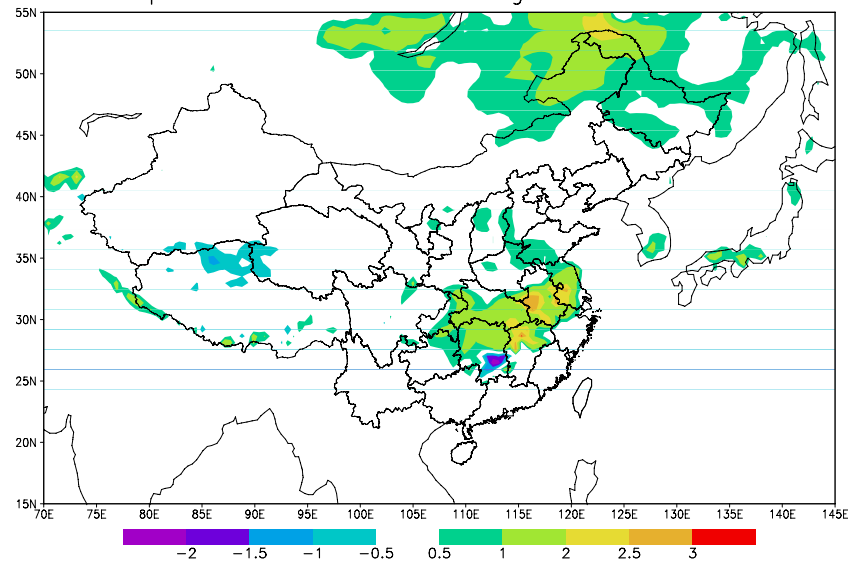
Height diff before and after assimilating FY3/VASS at 500hPa



ATOVS assimilation to monitor 2008 snow storm in South China



Snow depth difference of assimilating ATOVS before and after



International TOVS Study Conference, 16th, ITSC-16, Angra dos Reis, Brazil, 7-13 May 2008.
Madison, WI, University of Wisconsin-Madison, Space Science and Engineering Center,
Cooperative Institute for Meteorological Satellite Studies, 2008.