

GPM R&D NOAA

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Outline

- Forecasting/nowcasting
- Data Assimilation
- Climate

Forecasting/Nowcasting

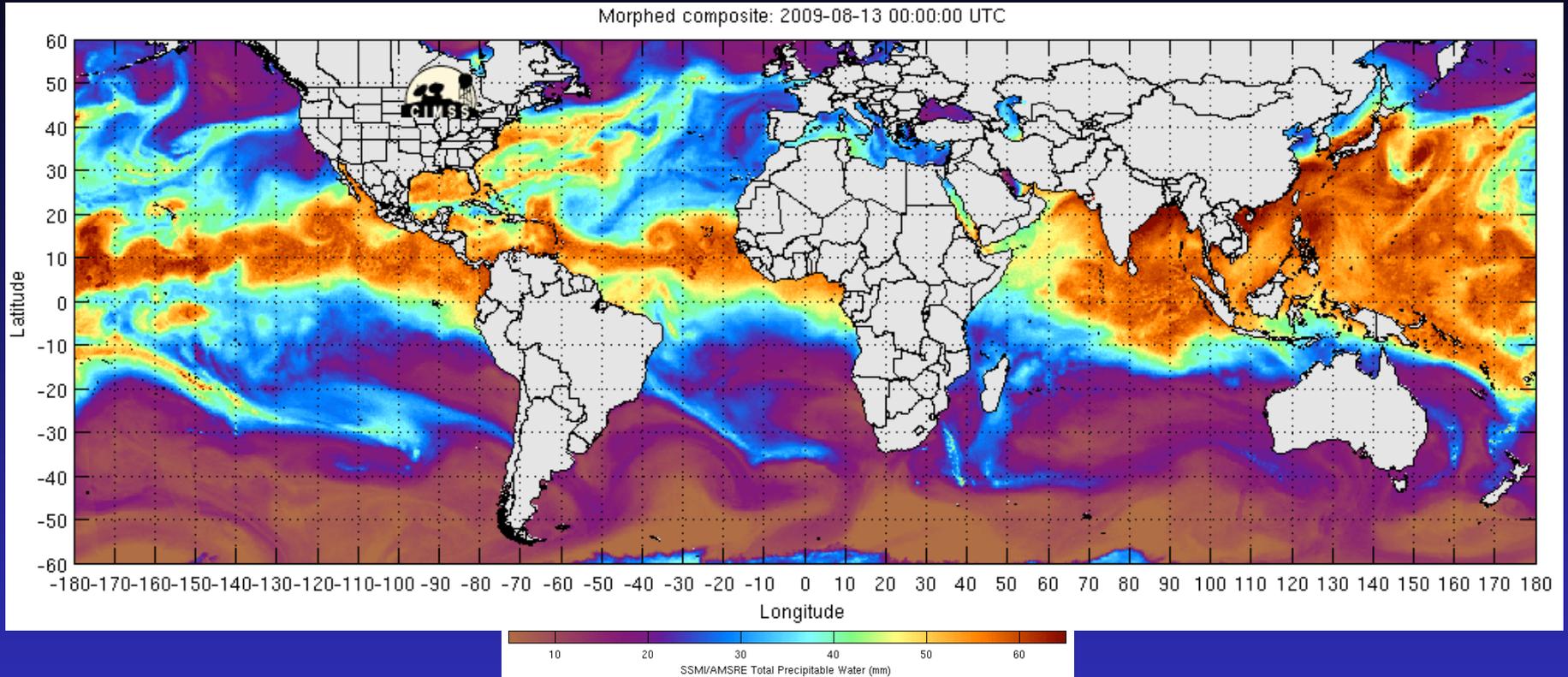
- Forecasting
 - MIMIC

MIMIC-TPW



- ‘MIMIC’ : Morphed Integrated Microwave Imagery at CIMSS (**Pls: Wimmers/Velden**)
- TPW: Total Precipitable Water vapor
- Blended data from SSMI, SSMIS (F-16, -17, -18), Aqua AMSRE (**GPM important here**)
- Advected with model winds to make hourly images
- Emphasis on fidelity to original data, resolution, timeliness, seamless blending (in contrast to model-based analyses or daily satellite composites)

MIMIC-TPW: Applications



- Analyzing the environment for tropical cyclone development and ITCZ evolution
- Tracking the Saharan Aerosol Layer
- Coastal forecasting, tracking atmospheric rivers
- (Available in experimental mode in AWIPS)

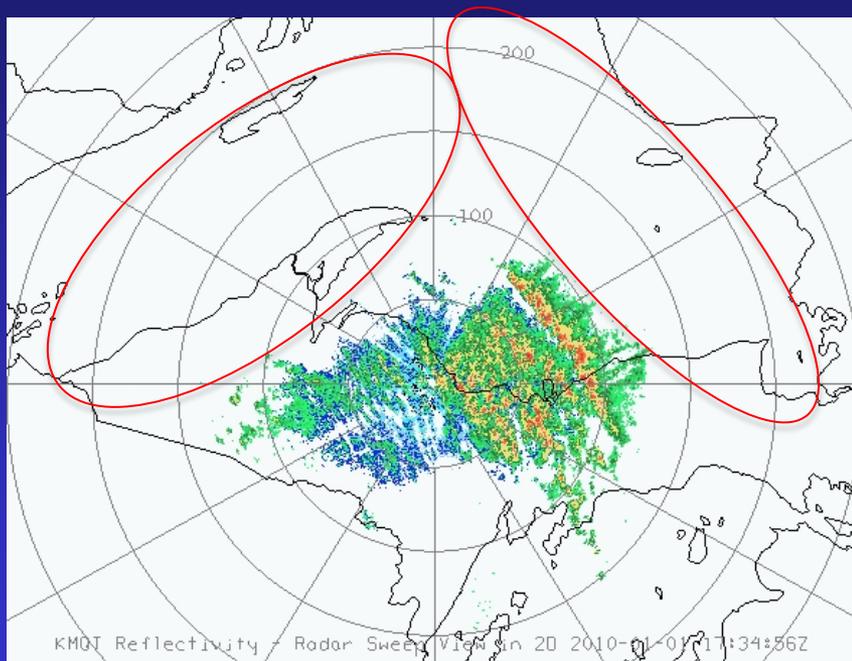
Forecasting/Nowcasting

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Forecasting/Nowcasting

- Forecasting
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 - Snowfall, in particular Lake Effect Snow
 - NOAA is currently funding activities to use GOES data to help predict/nowcast LES. (PI: Kulie, CIMSS)
 - GPM provides excellent additional opportunities with space-borne radar + MW radiometer

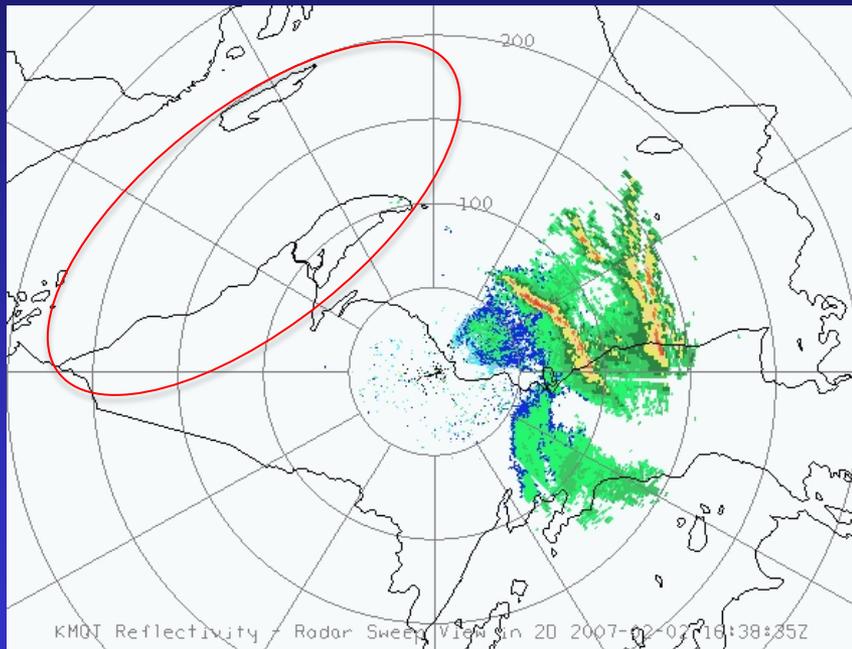
NEXRAD 1734Z



Terra MODIS 1725Z



NEXRAD 1638Z



Terra MODIS 1635Z



Data assimilation

- Global
 - Clouds/precip: Linearized physics, adjoints, forward model
 - Water vapor path, surface wind speed possibly most realistic in short term
 - R2O **O2R**
- Regional
 - Mesoscale
- Short-term
 - CRTM update (gas absorption)
 - Radar simulator?
 - Bias monitoring (radiance space cloud-free, cloudy)

Climate

- GPM critical to maintain series of conically scanning satellites going back to 1987 (SSM/I) resp. 1978 SMMR
- In addition to rain LWP, WVP, Wind are critical
- Intercalibration efforts
- Integration with existing NOAA products...