MODIS Atmosphere Group Summary

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- Data use/validation investigations
  - 14 presentations
  - New uses of MODIS data
    - ✓ Increasing use of CALIPSO and other data sources for both clouds and aerosols
  - MODIS vs VIIRS
    - ✓ Areas of reduced capability
- Collection 5.1 Production
  - Reprocessing of Aqua (then Terra)
    - ✓ Updates to Deep Blue (aerosols over bright targets) for Aqua (new for Terra)
    - ✓ Reprocessing of clouds using current forward stream code
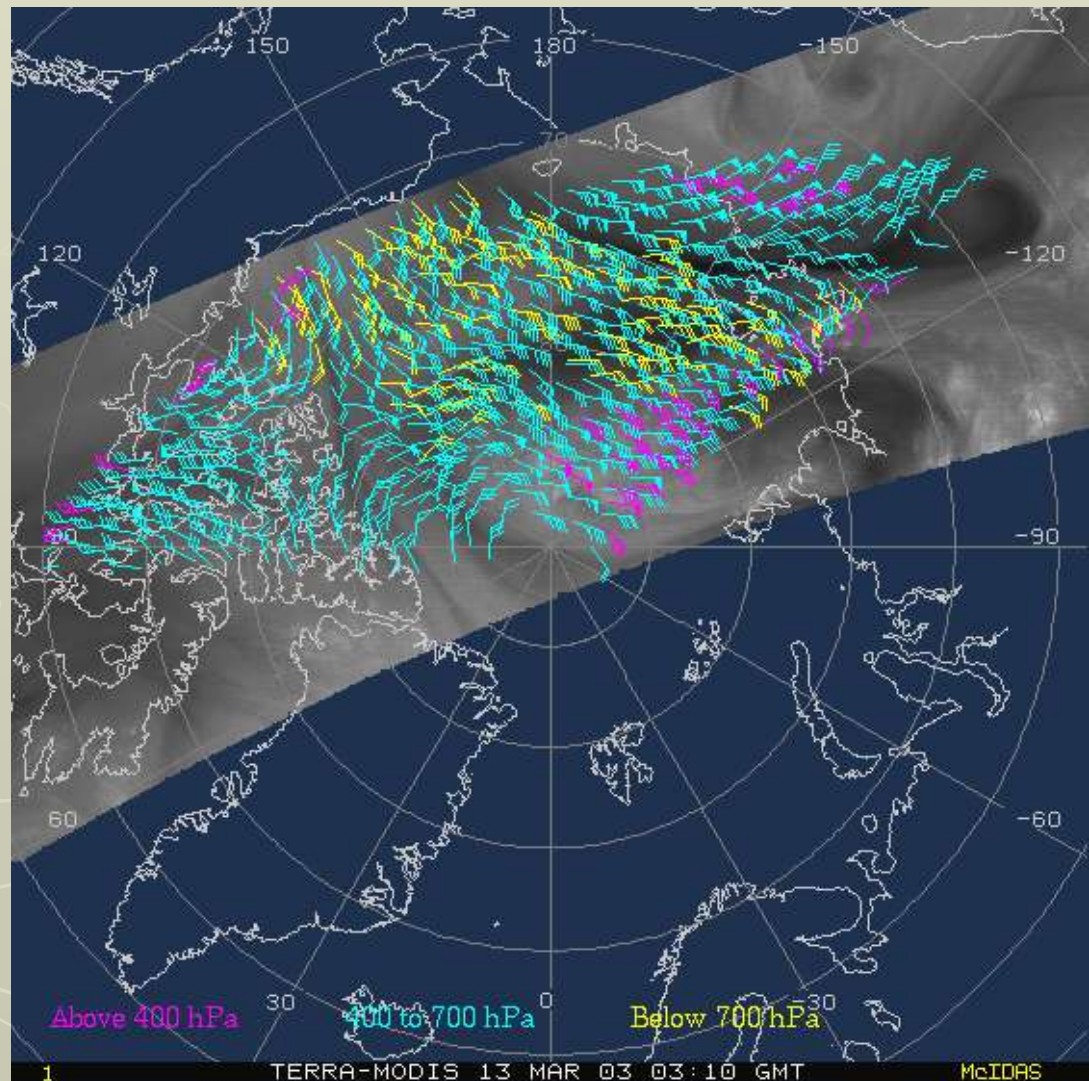- Need and plans for Collection 6

Polar Winds from MODIS
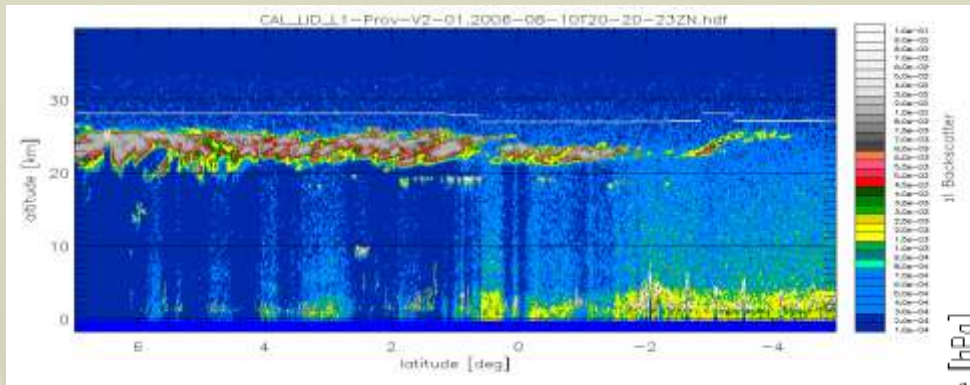## (J. R. Key, C. S. Velden, L. P. Riishojgaard, W. P. Menzel et al.)

Terra/MODIS

- ➢ Operational Numerical Meteorological Centers
  - – NOAA
    - ✓ NCEP
    - ✓ JCSDA
  - – ECMWF
  - – GMAO
  - – JMA
  - – CMC
  - – FCMOLC
  - – Met Office
- ➢ Experimental tests
  - – Deutscher Wetterdienst
  - – NCAR Antarctic Mesoscale Model
- ➢ Requires 6.7 μm water vapor band

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Cloud Top Pressure Deficiencies with VIIRS
(A. Heidinger, M. Pavolonis, S. Berthier – NOAA, Univ. Wisconsin)
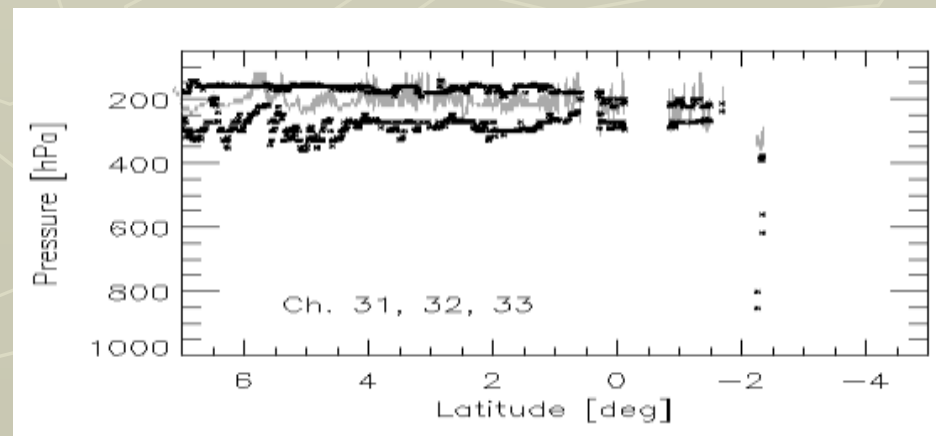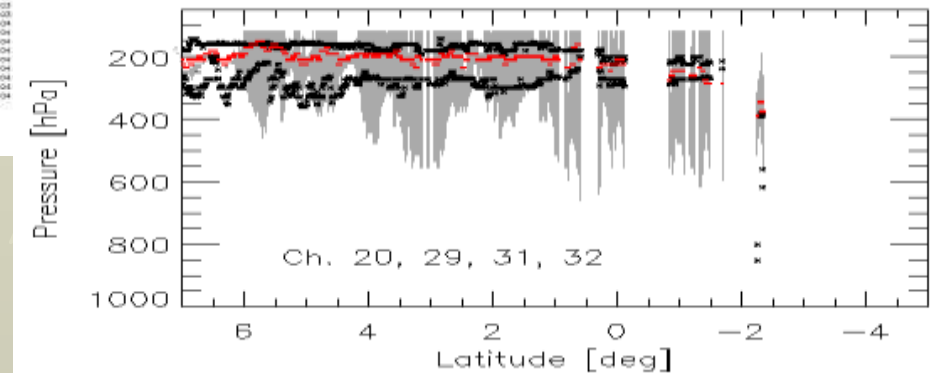

NPP/VIIRS (simulation)

➤ Gray regions are within solution space as possible cloud top altitude
  - Vast ambiguity, compared to CALIPSO and MODIS
    - ✓ VIIRS cloud top pressure of the same quality as AVHRR

GOES-R/ABI (simulation)

➤ Good capability comparable to MODIS

Impact of VIIRS & Implications for MODIS Record

- Recommendation for VIIRS changes to continue MODIS capability
  - Add a 6.7 µm band
    - Contributes to use by numerical weather forecasting centers worldwide
  - Add a 13.3 µm band
    - Greatly improves cloud top pressure/altitude determination
    - Maintains continuity with MODIS quality
      - Currently being assimilated in some models

MODIS Collection 6 Wish List

MODIS Atmosphere Algorithm Development Teams

- ➢ Cloud mask (MOD35/MYD35)
- ➢ Cloud product (MOD06/MYD06)
  - – Cloud top properties
  - – Cloud optical properties
  - – Cirrus reflectance
- ➢ Aerosol product (MOD04/MYD04)
- ➢ Atmospheric profiles (MOD07/MYD07)
- ➢ Water vapor (MOD05/MYD05)
- ➢ Atmosphere joint product (MODATML2, MYDATML2)
- ➢ Level-3 (MOD08/MYD08)

Happy Birthday

- Chris Justice