Aura Overview
EOS AURA

- Third of the big EOS platforms (Terra and Aqua are the other two)
- Orbit: Polar: 705 km, sun-synchronous, 98° inclination, ascending 1:45 PM equator crossing time. AURA follows AQUA in the same orbit by 15 minutes.
- Six Year Spacecraft Life
- Main science objectives: stratospheric ozone recovery; air quality
Aura Instrument Status Summary

• Microwave Limb Sounder (MLS) - Operating nominally
  – Band 13 electronics (HCl) are degrading rapidly due to HBT slow failure - MLS will use Band 14 with occasional use of Band 13 to continue the measurement
  – Band 10 & Band 29 electronics (ClO) are degrading - seems to be a workmanship problem; the ClO measurement can be recovered from Band 5.

• Ozone Monitoring Instrument (OMI) - Operating nominally
  -- Folding mirror anomaly developed Feb 28-March 2. However, the anomaly could not be reproduced and the instrument is functioning normally.

• Tropospheric Emission Spectrometer (TES) - Operating nominally
  – Increasing sign of bearing wear has caused some interruptions of operations. TES is no longer doing routine limb mode to preserve lifetime.

• High Resolution Dynamics Limb Sounder HIRDLS - Operating with reduced aperture
  – A piece of Kapton® is blocking most of the optical path.
  – HIRDLS team has developed a model of the radiance contribution from the Kapton® piece and is now producing data products
Spacecraft and Data Capture Summary

- Spacecraft Status - **GREEN**
- Instrument Status - **GREEN**
- Data Capture/L0 Processing Status – **GREEN**
  - Solid State Recorder Data Capture to 07/31/2006: **99.67 %**
    (just 4-5 hour losses on 7 June & 5 July 2006 due to Norway prime and backup line failure)

Aura Lifetime Estimate

Worst case analysis for Aura would indicate minimum of 8-10 years of remaining life, including reserving sufficient fuel for de-orbiting at the end of the mission.
Data Activities

**Data processing** – takes place at instrument facilities (original plan for in-house processing at NASA was dropped and the tasks contracted out).

**Data Validation** – nearing completion for most instruments (although will continue indefinitely at some reduced level); HIRDLS well behind because of instrument problem.

NASA Aura has funded a lot of correlative measurements. Aura Validation Data Center (AVDC) website for all Aura data users - clearing house for Aura provisional data and non-US satellite data.

**Data Archiving** - takes place at NASA Distributed Active Archive Centers (DAAC)s and also in the UK for HIRDLS at the British Atmospheric Data Centre (BADC).
CloudSat & CALIPSO were launched on 28 April 2006
CALIPSO sees the aerosol layer

CALIPSO 'First-Light' Lidar Measurements
7 June 2006

Volcanic aerosol layer

Location of layer

532 nm Total Attenuated Backscatter (km$^{-1}$ sr$^{-1}$)
OMI
(other instruments covered in more detail later in the agenda)

Ozone Monitoring Instrument

- Nadir solar backscatter spectrometer
  - 280-500 nm
  - 13x24 km footprint
  - Swath width 2600 km
- Radicals: Column O$_3$, NO$_2$, BrO, OClO
  - O$_3$ profile ~ 5 km resolution
- Tracers: Column SO$_2$, HCHO
- Aerosols (smoke, dust and sulfates)
- Cloud top press., cloud coverage
- Surface UVB
- Tropospheric ozone residual
  (when combined with MLS or HIRDLS)