The JCSDA 5th Science Workshop
Plenary Session Summary

The 5ᵗʰ JCSDA Science Workshop, May 1-2, 2007

JCSDA Road Map (2002 - 2010)

Science Advance

By 2010, a numerical weather prediction community will be empowered to effectively assimilate increasing amounts of advanced satellite observations

The radiances can be assimilated under all conditions with the state-of-the science NWP models

NPOESS sensors (ATMS, CrIS, OMPS GOES-R

Advanced JCSDA community-based radiative transfer model, Advanced data thinning techniques

The CRTM includes scattering & polarization from cloud, precip and surface

AIRS, ATMS, CrIS, VIIRS, IASI, SSM/IS, AMSR, more products assimilated

The radiances from advanced sounders will be used. Cloudy radiances will be tested under rain-free atmospheres, and more products (ozone, water vapor winds) are assimilated

Improved JCSDA data assimilation science

A beta version of JCSDA community-based radiative transfer model (CRTM) transfer model will be developed, including non-raining clouds, snow and sea ice surface conditions

AMSU, HIRS, SSM/I, Quikscat, AVHRR, TMI, GOES assimilated

The radiances of satellite sounding channels were assimilated into EMC global model under only clear atmospheric conditions. Some satellite surface products (SST, GVI and snow cover, wind) were used in EMC models

Pre-JCSDA data assimilation science

Radiative transfer model, OPTRAN, ocean microwave emissivity, microwave land emissivity model, and GFS data assimilation system were developed

| 2002 | 2003 | 2004 | 2005 | 2007 | 2008 | 2009 | 2010 |

2007 Workshop Highlights

- Over 100 scientists participated in this meeting with a considerable show-up of young scientists and Ph.D students.

- Senior management from research and operational centers gave their program overviews – this is the first time ever – Reaction from participants are very positive

- Over 40 science presentations in 5 breakout sessions

JCSDA Benefits for Its Partners

- Share the common radiative transfer model and components (e.g. CRTM, emissivity models, CRTM Zeeman splitting)

- Jointly manage atmospheric data assimilation codes (e.g. EMC-GMAO-STAR)
  - GSI, CRTM, Adjoints, 1DVAR, EOF noise reduction, SSMIS preprocesser, TOVS/ATOVS process

- Jointly assess the impacts of new satellite data and accelerate uses of new data into forecast models

- Explore new data assimilation science (e.g. s4dvar, ensemble/Kalman filter, QC, ocean data assimilation system)

- Provide the vision for defining the future satellite programs

JCSDA Growing Business

- Education and Outreach

- Extend Uses of Existing Atmospheric Data Assimilation Capability for
  - Ocean data assimilation system
  - Air quality data assimilation system

- Active sensor forward models