

1. Status of delivery of updated version of VIC, Mosaic LSMs to the NCEP Land Team.

Helin: Copy old directory to new server.

Brian: Recommend Mosaic next Friday

Eric: Finished calibration of VIC. It looks quite comparable to Noah. Need Noah output for 2003 and 2004.

2. Status of the JCSDA first release of the beta version of the public Community Radiative Transfer Model (CRTM).

Now the target date of release is end of August or early September.

3. Discussion of Ben Ruston and Fuzhong Weng's proposal that the JCSDA land PIs and this telecon group get involved with the "International Working-group on Land Surface Property Modeling and Remote Sensing" (also a sub-group for the ITWG Radiative Transfer and Surface Property Modeling Working Group).

Ben: At the last International TOVS Study Conference, Fuzhong and I proposed the formation of a special group to address the land surface emissivity problem. Participants will include representative from UK-Met Office, Météo France, ECMWF, Canadian Met Center, NCEP, NESDIS NRL, and GFDL. This working group is going to address atlases, operational approaches in current global modeling efforts, and forward modeling in both the infrared and microwave. The proposed working points are the followings.

- Document the land emissivity implementation techniques and forecast impacts from different numerical weather prediction centers.
- Inter-compare retrieval methodologies and analyze the emissivity spectra from various retrievals.
- Standardize the spatial and temporal averaging methodology for averaging infrared and microwave emissivity atlases.
- Review the output fields available from land surface modeling systems, and target the fields necessary for forward modeling of emissivity.

Eric: Our strategy would be first to use satellite data and land surface model at low frequency to estimate the emissivity, then go to atmospheric model by doing radiative transfer to see whether the land surface estimates with radiative transfer get you better water vapor retrieval and compare that to the radiosonde data. It is important to look for the impact of spatial variability and temporal dynamics.

Xubing: We need to emphasize the importance of the land to influence the retrieval in the atmosphere. Substantial uncertainties were found when using different atmosphere flux data to calculate the surface albedo even in snow free area.

Ken: The land emissivity could be more reliable over the area with no vegetation and snow pack, which would be good for the correction of atmospheric retrieval and have positive impact on the simulation of brightness temperature at the top of atmosphere.

4. Brief status report from JCSDA land PIs

Eric: Implement and run some test cases with the forward model for the snow using data over Colorado.

Ben: Use Fuzhong's model as first guesses, do 1-D var retrieval of emissivity in both IR and microwave simultaneously. I'm just trying to get that into the Navy Global Data Assimilation System and Model, so we can test forecast impact. We had a field study in Alabama during August and September 2004, trying to retrieve land surface temperature

and 2m T and Q. We try to get these into Navy mesoscale model, which is coupled with Noah, to test the impact at high resolution over that region.

Xubin: We have tried to improve the Noah model for snow, considering the canopy shading of underlying snow. We found for the current model the impact is small, not because it is not important, but due to the model structure. If we don't change it, we can not go further. Besides, we obtained one year green vegetation flux using our algorithm and MODIS data, looking at the impact on LDAS simulation.

5. Discussion of land surface temperature simulation

Ben: Land surface temperature in the model is often largely different from what you get from the retrieval. The diurnal cycle is often highly damped compared to what you see in the satellite retrieval - too cold at day and warm at night.

Xubin: Chinese scientists obtained comprehensive measurements over Tibetan Plateau, showing that substantial temperature diurnal cycle of about 30-40C difference. We want to see if model can produce such large diurnal cycle.

Ken: According to lessons learned at the workshop on land data assimilation in European Center last November, almost every land modeling group came up independently that the treatment of surface layer turbulence, i.e. surface exchange coefficient and the treatment of roughness length for heat, can have big impact on the air dynamic conductance hence the skin temperature, irrespective of details of your land modeling, such as how the land states being initialized and how many soil layers that each model has etc.

Eric: I found that in western Colorado tremendous differences of surface temperature between LDAS model results and observations, which disappear by noon time. It has to do with not enough small scale turbulence being set up in the morning in the real case.