The Community Land Model version 04 (CLM v04), the land model for the Community Earth System Model (CESM v1.0.4) (Verettestein et al., 2011) is a spatially distributed one-dimensional vertical model that provides the lower boundary condition for the Community Atmosphere Model (CAM). CLM snow outputs were assessed in preparation for multisensor data assimilation into the land model. The primary goal of the assimilation is to develop an optimized approach for merging Terra MODIS snow cover, Aqua AMSR-E snow water equivalent (SWE), and GRACE terrestrial water storage change observations to generate spatially and temporally continuous global snow water equivalent fields, at high resolutions (~1/8 degree).

CLM simulation was conducted in offline mode for the period 2000-2010 and the Northern Hemisphere estimates of snow cover fraction (SCF), snow depth and snow water equivalent (SWE) were evaluated using observations listed below.

**DATA & METHODS**

**Observations**
1. MODIS/Terra daily snow cover fraction (Hall et al. 2002: MOD0102; 0.05° resolution; northern hemisphere; 2002 to Present)
2. Interactive Multisensor Snow and Ice Mapping System (IMS) data (NOAA/NESDIS/OSDPD/SSD, 2004)
3. The Canadian Meteorological Centre (CMC) daily snow depth (Brown and Bransnett, 2010) and SWE estimates using the Sturm et al. (2010) snow densities.
4. The snowpack telemetry (SNOTEL), and the Cooperative Station snow depth and water equivalent Observations (COOP).

**RESULTS**

**a. Comparison of CLM Snow cover extent against MODIS**

**b. Map difference**

**c. Categorical Analysis of SCF**

**REFERENCES**

Brown, R.D. and B. Brassnett (2010), Canadian Meteorological Centre (CMC) daily snow depth analysis data, Environment Canada Boulder, Colorado USA: National Snow and Ice Data Center, Digital media.


NOAA/NESDIS/OSDPD/SSD(2004), updated 2006. IMS daily Northern Hemisphere snow and ice analysis at 4 km and 24 km resolution. Colorado USA: National Snow and Ice Data Center Digital media.


**Acknowledgements**

This study is funded by NASA’s Science of Terra and Aqua program.