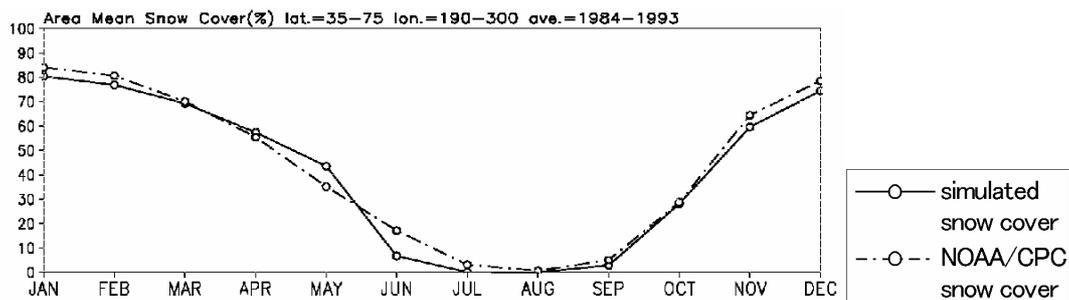


## Validation of Land Surface Parameters from the JMA-SiB Using ERA15 Atmospheric Forcing Data

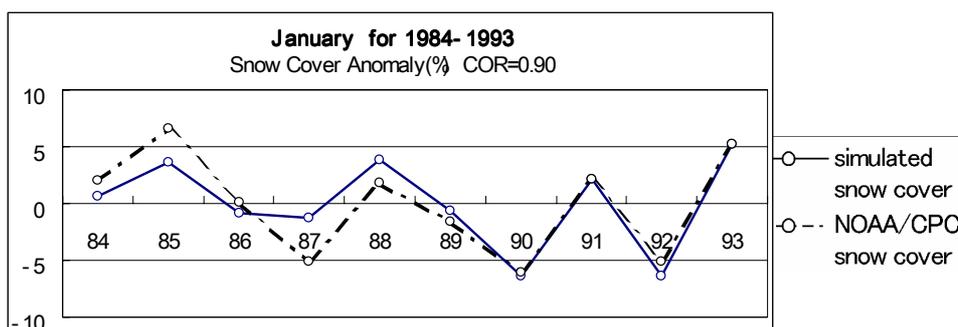
The JMA-SiB (Simple Biosphere Model modified by Japan Meteorological Agency) was forced with 1984-1993 ERA15 (ECMWF Re-analysis) atmospheric data to generate land surface parameters, such as soil moisture, snow depth, soil temperature, and so on. First the model was integrated for 10 years with the same atmospheric forcing of 1984 until it was in equilibrium. Then the land surface parameters on 1.125° global grids were produced for a ten year period(1984-93).

Comparing the off-line simulated snow coverage and the corresponding NOAA/CPC data, the seasonal cycle averaged over ten years for North America agrees well. The inter-annual variations of the snow coverage on January as well as the seasonal cycle and inter-annual variation of soil moisture are also reasonably simulated. The soil moisture anomalies in the top 1-m soil layer are simulated quite well compared with the observations from grasslands in Illinois.

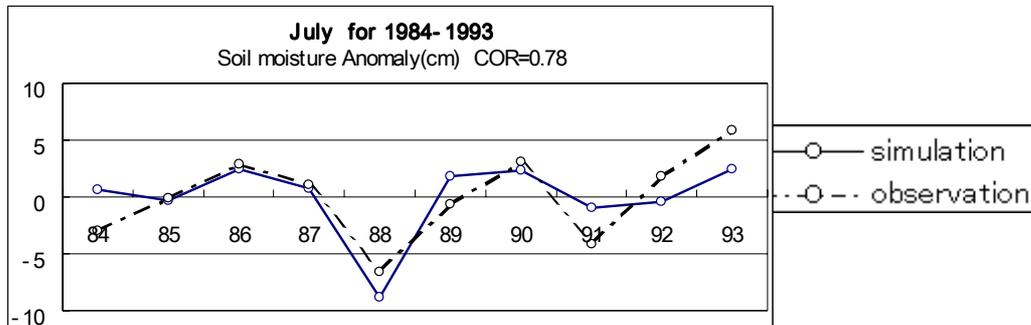
To investigate an impact of using the land surface parameters from the off-line simulated JMA-SiB as the initial condition, one-month forecasts for June 1986, 1987, 1988, 1989, 1990 and 1993 were performed using JMA Global Spectral Model (T106L40) coupled atmosphere-land model. Comparing the one-month forecasts using the off-line simulated land surface parameters as the initial condition and those using the ten-year(1984-1993) averaged parameters, the variance ratio on 850hpa temperature, especially over the continents, was improved.



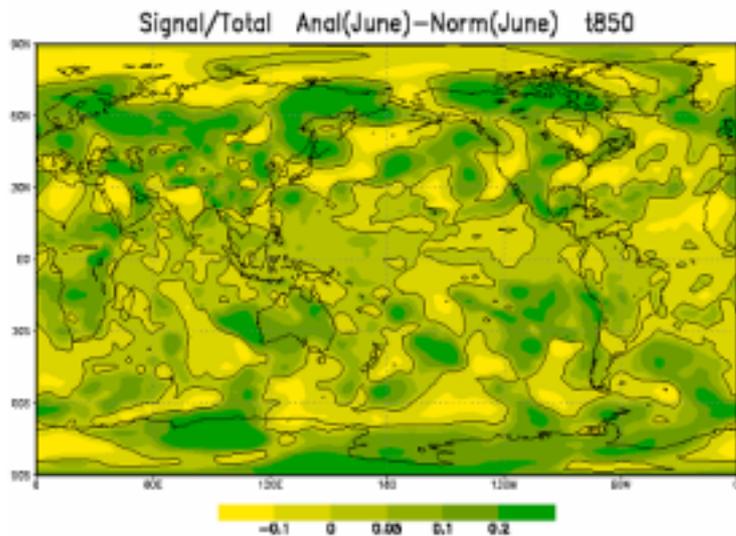
Comparison of the seasonal cycle of the simulated snow cover and NOAA/CPC data for North America (from 35N to 75N, from 170W to 60W), averaged from 1984 to 1993.



Comparison of the inter-annual variations of the simulated snow cover and NOAA/CPC data for North America (from 35N to 75N, from 170W to 60W). Anomaly is shown.



Comparison of the inter-annual variations of the simulated soil moisture in the top 1-m soil layer and the observations for Illinois (from 38N to 42N, from 90W to 88W). Anomaly is shown.



The difference of the variance ratio on 850hPa temperature between one-month forecasts for June using the land surface parameters from the off-line simulated JMA-SiB as the initial condition and those using the ten-year(1984-1993) averaged parameters.