STORM NCEP run

The ocean-only STORM NCEP simulation, covering the period 1948-2010, is complete. Some description of the run can be found in the two papers given below. Right now the data are on blizzard in the directory:

/work/im0454/m211054/experiments/tp6ml80_srtm30plus_ncep/outdata

Monthly data have file names: *data_mm*, *data2_mm*

Daily data have file names: *data_dm*

Hourly data have file names: *1h*

You can check variables in a file using 'cdo showcode file_name'

A brief description of each variable (e.g. the respective code and its unit) can be found in:

/work/im0454/m211054/experiments/tp6ml80_srtm30plus_ncep/mpiom.partab

An example of how to extract data and merge the selected variables in time series can be found in

/work/im0454/m211054/experiments/tp6ml80_srtm30plus_ncep/scripts

The script '1_split_data_mon.ksh' is designed to split the data by variable name and month. Here you can specify the list of variables to be extracted (e.g. var_list="tho sao") from the output files. The best way is to process data decade-wise (or year2-year1<=10), otherwise the number of started processes could be too large. The script '2_mergetime_mon.ksh' is designed to merge the data in time series (separated by month) after the splitting having been completed. Our experience is that it is not very handy to put data at all 80 levels and all months in one file. The data will be written to your GPFS scratch area. The scripts can be started interactively or in batch mode by 'llsubmit <scriptname>'.

The data are open to all consortium members. However, they have to be removed from the GPFS work area when the coupled integration is in production (as already announced in the last report in December 2011), and downloaded from the HPSS tape accessible via pftp from DKRZ & ZMAW machines and gridftp from other sites. The data location in tape archive is:

/hpss/arch/im0454/m211054/tp6ml80_srtm30plus_ncep

The archived files can be decompressed using parallel gzip (e.g., `pigz -d -N -p 16 <name>.gz`).

When you publish results based on these data, we appreciate citing the following papers (pdf-files available on https://www.dkrz.de/redmine/projects/storm/documents):

von Storch, C. Eden, I. Fast, H. Haak, D. Hern\'andez-Deckers, E. Maier-Reimer, J. Marotzke, D. Stammer, 2012: An estimate of Lorenz energy cycle for the world ocean based on the 1/10o STORM/NCEP simulation. J. Phys. Oceanogr. (in press)

von Storch, J.-S., I. Fast, H. Haak, E. Maier-Reimer, D.Stammer, 2012: Vertical eddy fluxes of heat, salt and momentum simulated by the 1/10o STORM OGCM. J. of Advances in Modeling Earth System (submitted)

It would be great, if you could further include the following into the acknowledgment:

Computing resources were provided by the German Climate Computing Center (DKRZ). The STORM NCEP simulation is part of the German STORM consortium project. It is acknowledged by various institutions inside Germany in general and by Max-Planck Institute for Meteorology, the CliSAP Cluster of Excellence of the University Hamburg, Institute of Coastal Research of the Helmholtz Zentrum Geesthacht, and Alfred Wegener Institute for Polar and Marine Research through their financial support in particular.

We appreciate, if you could update us with your publications.

Known issues

1) Different short wave (SW) radiation penetration schemes

In course of the STORM NCEP experiment the source code of MPIOM was updated a number of times to benefit from concurrent model developments made for performing of CMIP5 experiments. Unfortunately, this caused an inconsistency in the treatment of the penetration depth of SW radiation within experiment: old radiation scheme (roughly corresponding to the Jerlov parameterization with water type I (JI)) was used in the time periods 01.1948-12.1956 and 10.1972-12.2010, but Jerlov IB (JIB) in phase 01.1957-09.1972. Different radiation penetration schemes affect SW absorption in the upper 4 model levels (effect of clear versus turbid water). The difference is mostly pronounced above thermocline. To resolve this problem the time period from 1957 to 1972 was re-simulated using old radiation scheme (Figure 1). Obviously, this cannot eliminate the jump in the second transition period around 1972, so that results must be interpreted carefully. We assume that after recalculation merged output before 1972 and STORM NCEP output after 1981 are safe for a broad range of scientific analyses. The recalculated data (01.1957-12.1972) from the STORM NCEP r2 experiment are available in the directory

/work/im0454/m211054/experiments/tp6ml80_srtm30plus_ncep_r2/outdata

or from HPSS tape archive

/hpss/arch/im0454/m211054/tp6ml80_srtm30plus_ncep_r2/outdata

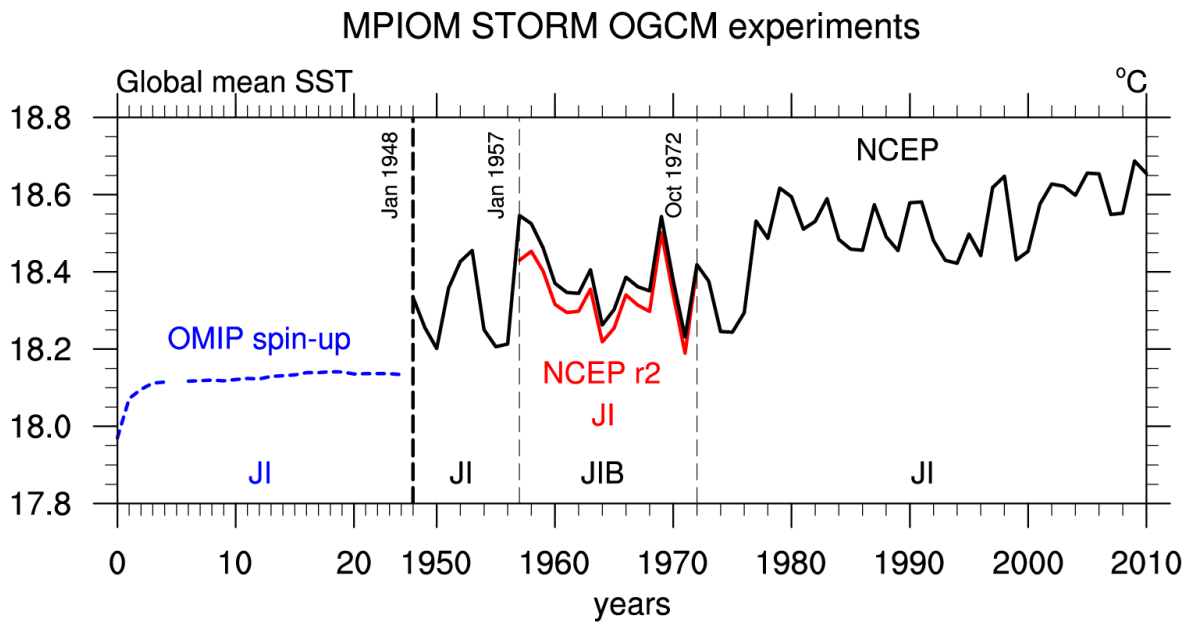

Figure 1: Global sea surface temperature in the 25-year long spin-up simulation forced by daily climatological OMIP forcing (blue), STORM NCEP simulations started in 1948 from the end of the OMIP driven spin-up experiment (black), and STORM NCEP r2 simulation covering the period 1957-1972 (red). JI means usage of the old SW radiation penetration scheme; JIB stands for Jerlov parameterization with water type IB.