Instructions for the model used in 'The marine nitrogen cycle over the past 165 million years'

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Below, there are brief technical instructions for running the multi-box model used in 'The marine nitrogen cycle over the past 165 million years' and viewing its output. Please send an e-mail to anne.omta@case.edu, in case you encounter any problems.

1 General information

The model code has been compressed into the file NcycleModel.tar.bz2. When working under Linux or Unix, this file can be unzipped into a directory named NcycleModel through the command tar -xvf NcycleModel.tar.bz2. The FORTRAN code is in OMZbox.f; the parameter values are read into the model from the file inputparm_boxAW.dat. The first two values in inputparm_boxAW.dat are the number of time steps and the time step size in seconds, respectively. The initial values of the variables are in the file input_boxAW.dat. The last value in input_boxAW.dat is the time in seconds at the beginning of the simulation. During a simulation, output is written to the file time_boxAW.dat for some of the variables. The parameter write_years in inputparm_boxAW.dat is the number of years between subsequent write-outs. At the end of each simulation, the values of all the variables are written to output_boxAW.dat.

2 Running the model

Under Unix, the code is compiled with

f95 -o OMZb OMZbox.f

and the executable OMZb is run as a background process with

./OMZb &

Before starting the simulation, the output files time_boxAW.dat and output_boxAW.dat need to be renamed or moved to a different directory. At the end of the simulation, the file output_boxAW.dat can be renamed input_boxAW.dat to be used as input file for a subsequent simulation.