Dear PPARR5 participants:

Coupled Physical/Biogeochemical Ocean Models

Thank you for participating in this model assessment effort for the Arctic Ocean (AO). As announced, we are sending out the PPARR5 input data set including the information of sampling stations and dates within the AO (65 deg. N and above).

The enclosed file, *PPARR5_ GCM_CASES.txt*, is for those who are running a coupled biogeochemical ocean general circulation model including, but not limited to, ESMs and BOGCMs.

The data file has 8 columns, as following:

Column 1 = PPARR5 Station number
Column 2 = Case number
Column 3 = Latitude (degree North)
Column 4 = Longitude (always reported as degree East, i.e. 75 deg. West is reported here as 285 deg. East)
Column 5 = Year
Column 6 = Month
Column 7 = Day
Column 8 = Year-day (day of year)

Please carefully note the following:

(1) If your model has euphotic layer information, please provide estimates of net primary productivity (NPP), in units of mg C/m2/day, integrated from surface to 1% and 0.1% light levels as well as down to 100m by adding the following 5 columns in the data file (*PPARR5_ GCM_CASES.txt)*. If your model computes a euphotic layer depth at every time step in a day, please provide a daily-averaged value.

Column 9 = Your NPP (mg C/m2/day) estimate from surface to 1% light level
Column 10 = Daily Mean Euphotic layer depth (m) at the 1% light level
Column 11 = Your NPP (mg C/m2/day) estimate form surface to 0.1% light level
Column 12 = Daily Mean Euphotic layer depth (m) at the 0.1% light level
Column 13 = Your NPP (mg C/m2/day) estimate from surface to 100m

(2) If your models cannot integrate PP from surface to 1% and 0.1% light levels that we suggested in (1), then you can instead integrate PP from surface to 100m (skip columns 9 to 12). We need estimates of net primary productivity (NPP), in units of mg C/m2/day, in the upper 100m at the station that we provided.

Column 13 = Your NPP (mg C/m2/day) estimate from surface to 100m

(3) Additional information is needed on the model grid in the following three columns in the data file (*PPARR5_ GCM_CASES.txt*). In column 14, please indicate whether the NPP estimate is located inside the ocean grid cell with the PPARR5 station (“1”) or whether the NPP estimate is taken from the closest grid cell (“0”) and provide the distance between the station and the model grid in column 15. In column 16, please denote with a "1" those grid cells that are ice-covered and a “0” those grid cells that are ice-free if your model has a sea-ice component.

Column 14 = Grid information (1 = inside the ocean grid cell with the PPARR5 station and 0 = from the nearest ocean grid cell)

Column 15 = Distance (km) from the PPARR5 station to a center of model grid.
Column 16* = Sea-ice presence (1 = ice-covered and 0 = ice-free).

[*] If your model is able to compute fractional coverage of ice-covered cells, you can provide a fraction of sea ice in a grid cell between 1 (100%) and 0.01 (1%) in column 16. For example, 0.37 means 37% of sea ice-cover on a grid cell where NPP is estimated. However, if a grid cell is partially ice-covered without any information of fractional coverage, then denote a grid cell as "0.5".

(4) Please provide vertical profiles of chlorophyll-*a* (in units of mg Chl/m3) and PP (in units of mg C/m3/day) in two separate matrices: one for chlorophyll-*a* and another for PP. Each matrix should include the first two columns of *PPARR5_GCM_CASES.txt* (i.e. Station # and Case #) followed by your chlorophyll-*a* or PP estimates from 0 to 100 m with 1-m interval in column 3 to 103 (the estimates can be interpolated if necessary).

(5) If you wish to run an additional simulation assimilating SST and/or surface chlorophyll-*a*, please let us know and we can provide these fields to you for this purpose.

(6) Feel free to submit results from more than one model or model variation, however it would be helpful to know ahead of time how many sets of results we should expect.

(7) Please send all correspondence regarding the PPARR5 project to Younjoo Lee (ylee@bigelow.org), who is our post-doc working on this project with us and who will be presenting our results in the future.

(8) Finally, and most importantly, we would really like to have your results by May 31st, 2014, including the reference(s) and/ new update(s) that best describe your model(s). If you haven't already, let us know if you will be able to make this deadline, or if you might need additional time. And of course, please let us know if you have any questions!

Best regards,

Paty, Younjoo, Marjy, and Vince

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