

Supplementary files for ‘Global high-resolution monthly pCO₂ climatology for the coastal ocean derived from neural network interpolation’

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Short description:

This archive contains a netcdf file containing the pCO₂ for ice-free cells at a 0.25° spatial resolution for each of the 216 month of the simulation period (from January 1998 to December 2015).

Climatologically averaged monthly maps for the pCO₂ field and the spatial distribution of the biogeochemical provinces are also provided.

Content:

File 1: Coastal_SOM_FFN_2017.nc

This netcdf file contains the monthly pCO₂ fields generated by the SOM-FFN algorithm from January 1998 until December 2015 (2016 month) for all coastal cells (192775). Cells with an ice coverage >50% are identified by the value -9999. For the sake of optimizing the size of the file, the data have been rescaled and saved as integer. The data thus need to be multiplied by the scaling factor (20) to be converted into µatm. The size of the matrix containing the results is 192775 by 216. The coordinates of all the 192755 are provided in the ‘latitudes’ and ‘longitudes’ variables.

File 2: Coastal_pCO2_convert.m

This short matlab script loads the data contained in Coastal_SOM_FFN_2017.nc and uses the scaling factor to convert them into µatm. It also creates a time by latitude by longitude matrix of the size 216 by 720 by 1440 and saves it as Coastal_pCO2.mat. All non-coastal cells are filled with NaN as well as cells covered in ice (i.e. >50% coverage).

File 3: Supplementary_Figures.zip

This archive contains 36 picture files in .jpg format:

- 12 files (P1 – P12) corresponding to climatologically averaged pCO₂ global maps for each month.
- 12 files (A1 – A12) corresponding to climatologically averaged pCO₂ maps for each month using a Northern polar projection.
- 12 files (B1 – B12) corresponding to climatological modal distribution of the biogeochemical provinces for each month.

Inquiries:

Inquiries should be sent to Goulven G. Laruelle: goulven.gildas.laruelle@ulb.ac.be. Other data formats (e.g. matlab, non-compressed netcdf...) are available upon request.