

1 **Below: Figures for Supplementary Information**

2 Figure SI 1: Monthly averaged spatial extent of the different biogeochemical provinces  
3 generated by the SOM.

4 Figure SI 2: Climatological monthly averaged  $p\text{CO}_2$  reconstructed by the artificial neural  
5 network method SOM-FFN.

6 Figure SI 3: Climatological monthly averaged  $p\text{CO}_2$  generated by the artificial neural network  
7 SOM-FFN method for the Arctic regions. The red line represents the edge of the sea ice cover.

8

9

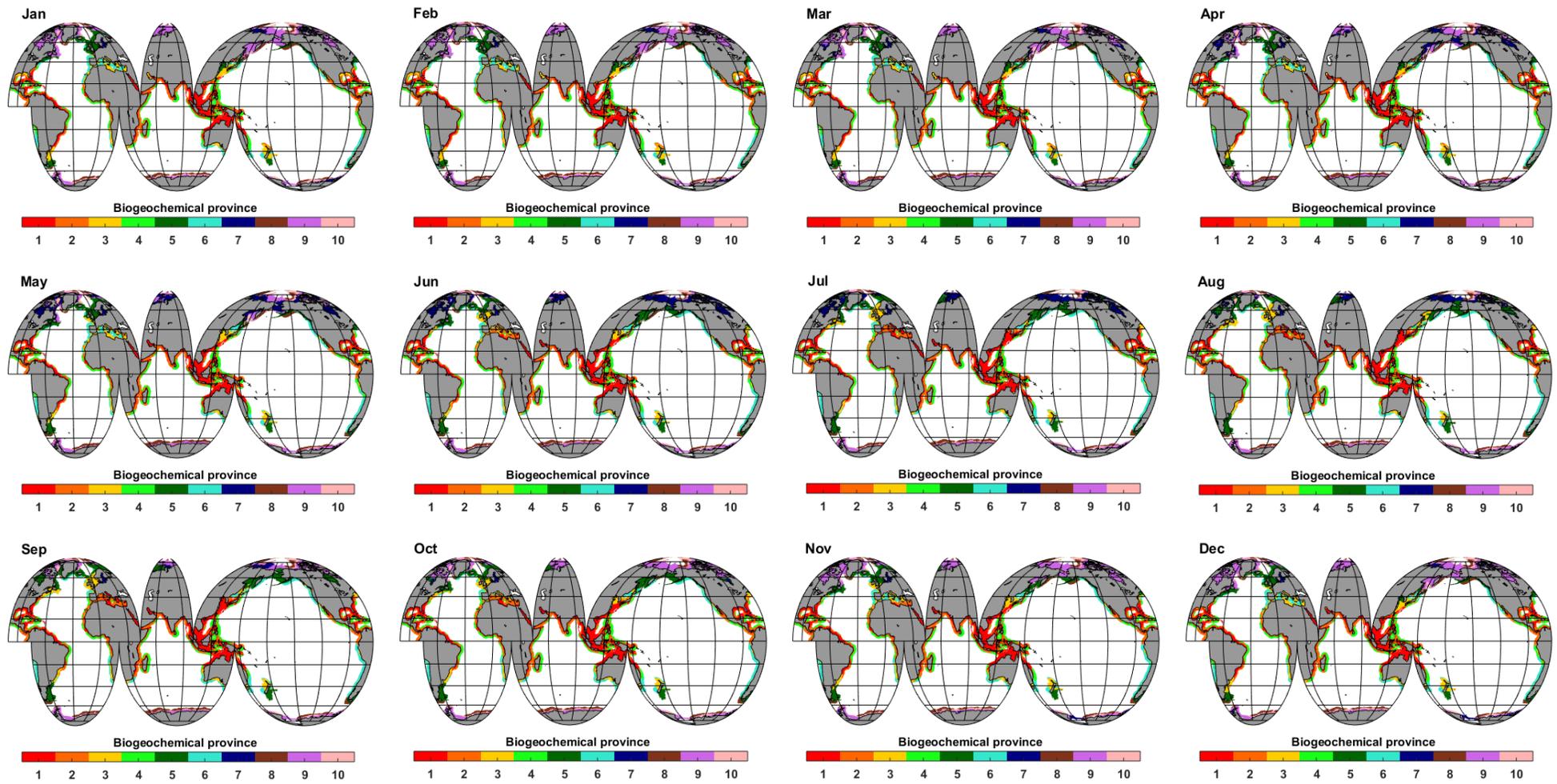


Figure SI 1

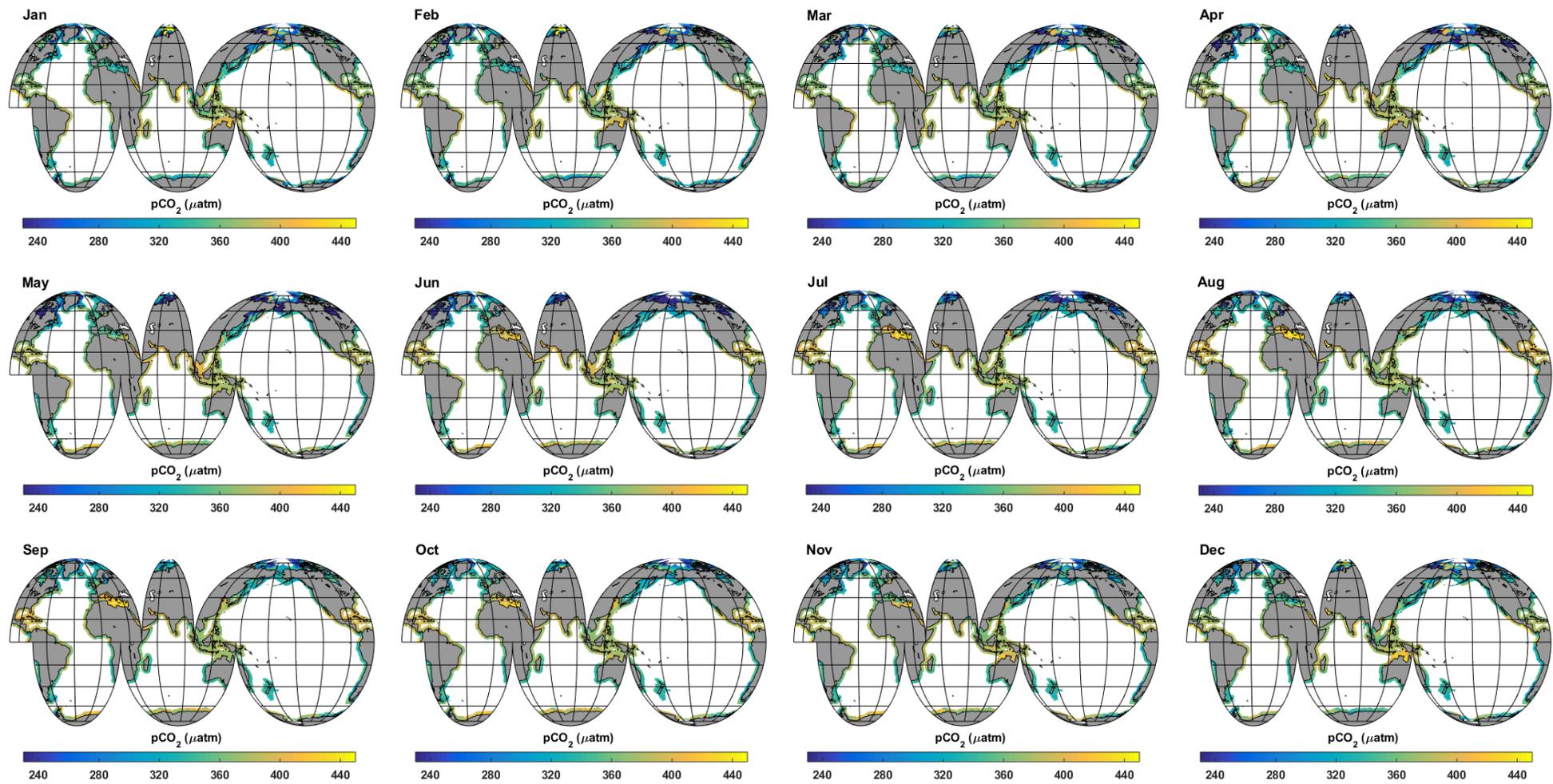


Figure SI 2

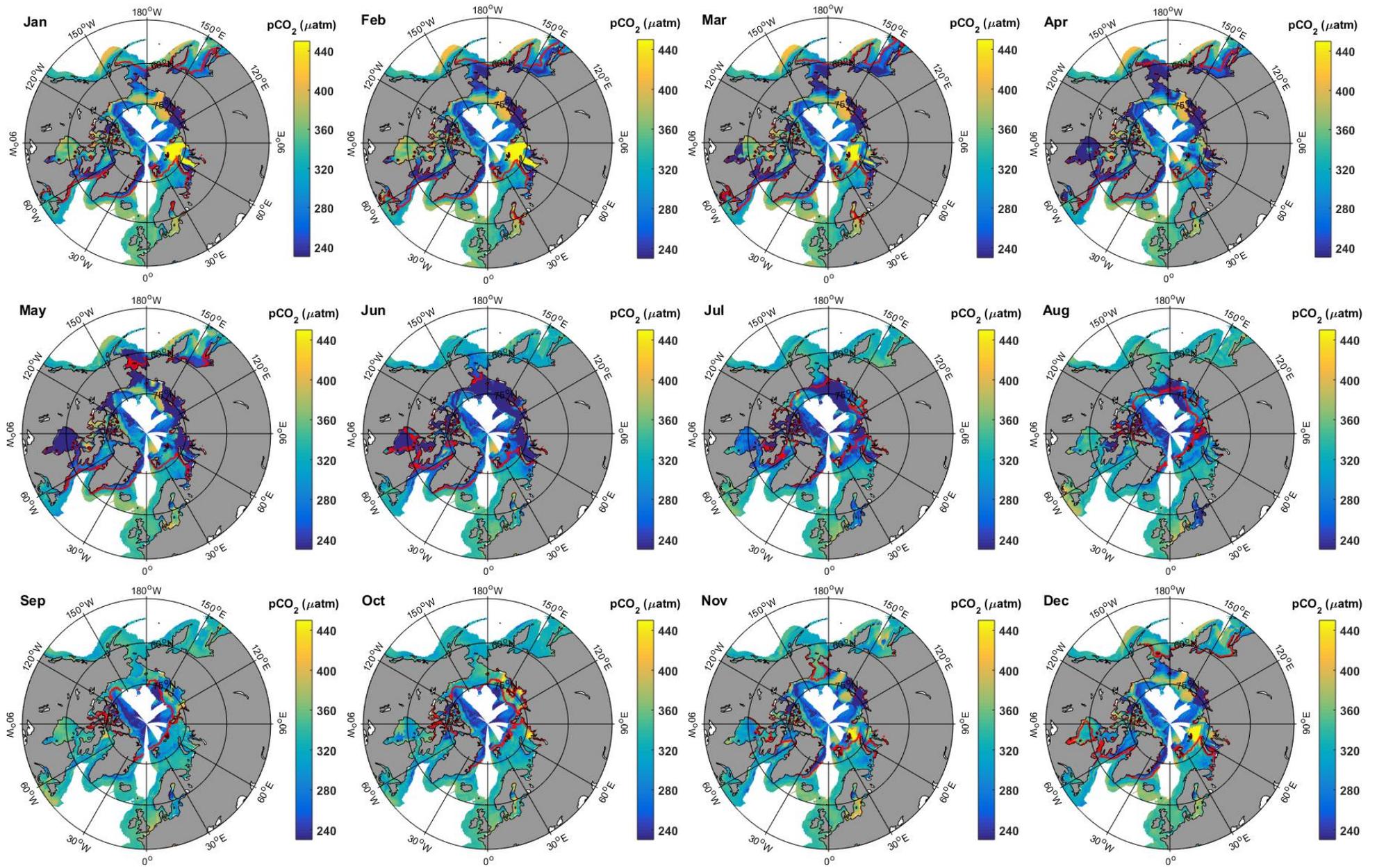


Figure SI 3