

Supporting Information for "Evolution of ocean circulation in the North Atlantic Ocean during the Miocene : impact of the Greenland ice sheet and the eastern Tethys seaway"

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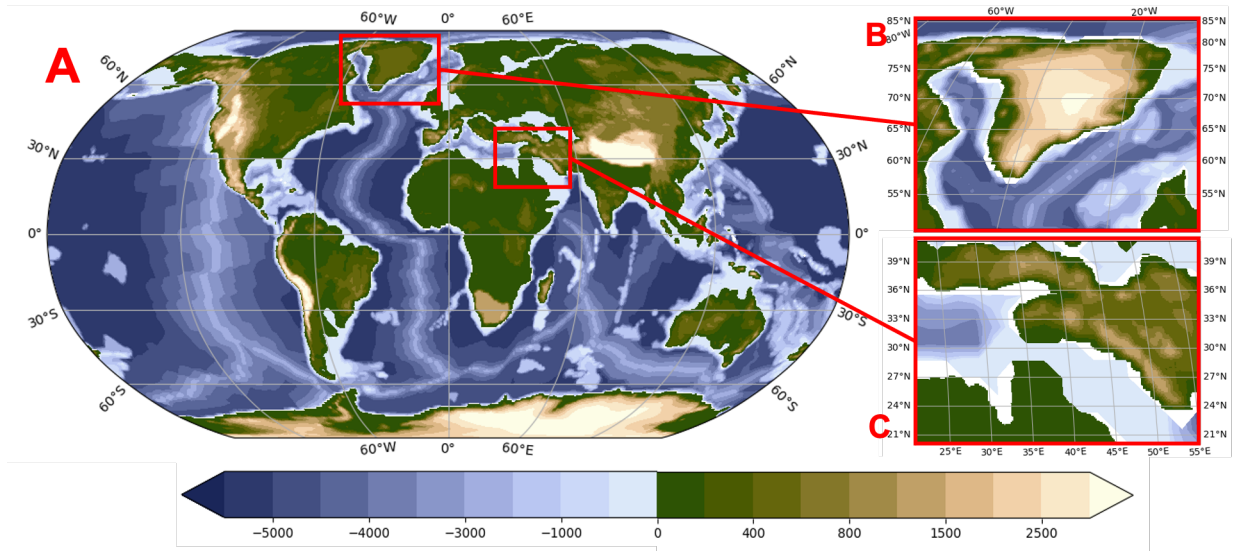


Figure S1. Topography and bathymetry of the simulations (in meters). (A) MioCTL, (B) MioGIS and (C) MioTet120.

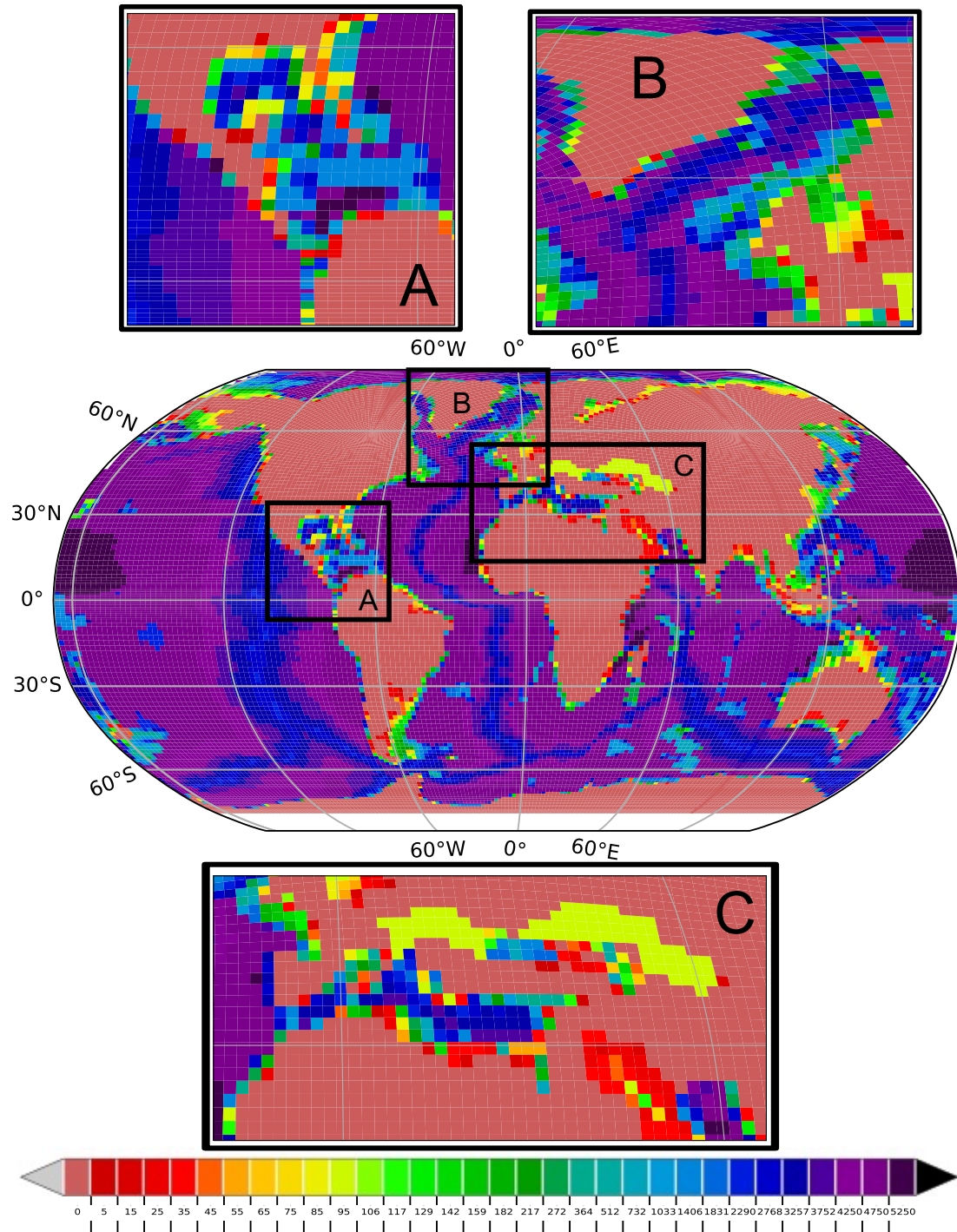


Figure S2. Bathymetry of the simulation MioCTL (in meters) for the 31 levels of the model.

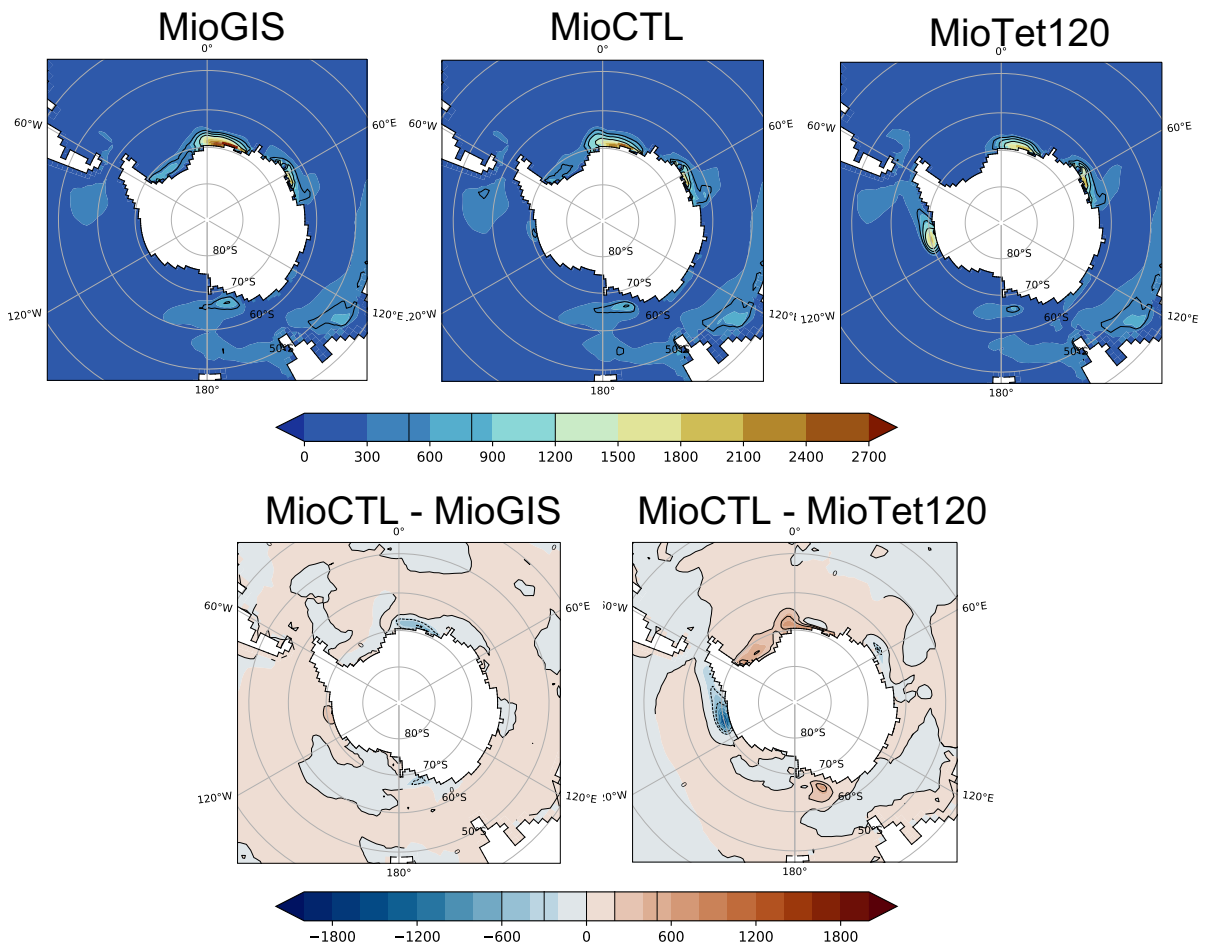


Figure S3. Depth of the mixing layer in meters, averaged over the southern winter, in the southern ocean for MioGIS ,MioCTL, MioTet120 and the differences MioCTL-MioGIS and MioCTL-MioTet120.

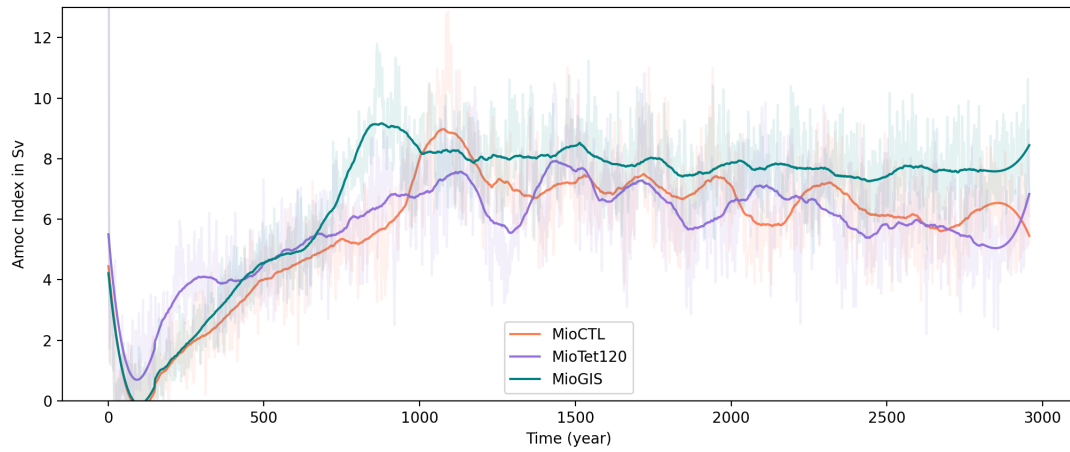


Figure S4. Temporal evolution of the AMOC index in Sv (yearly maximum of the meridional stream function between 38°N and 50°N and between 500 and 2000 m depth) on the 3000 years of simulations (average over 300 year).

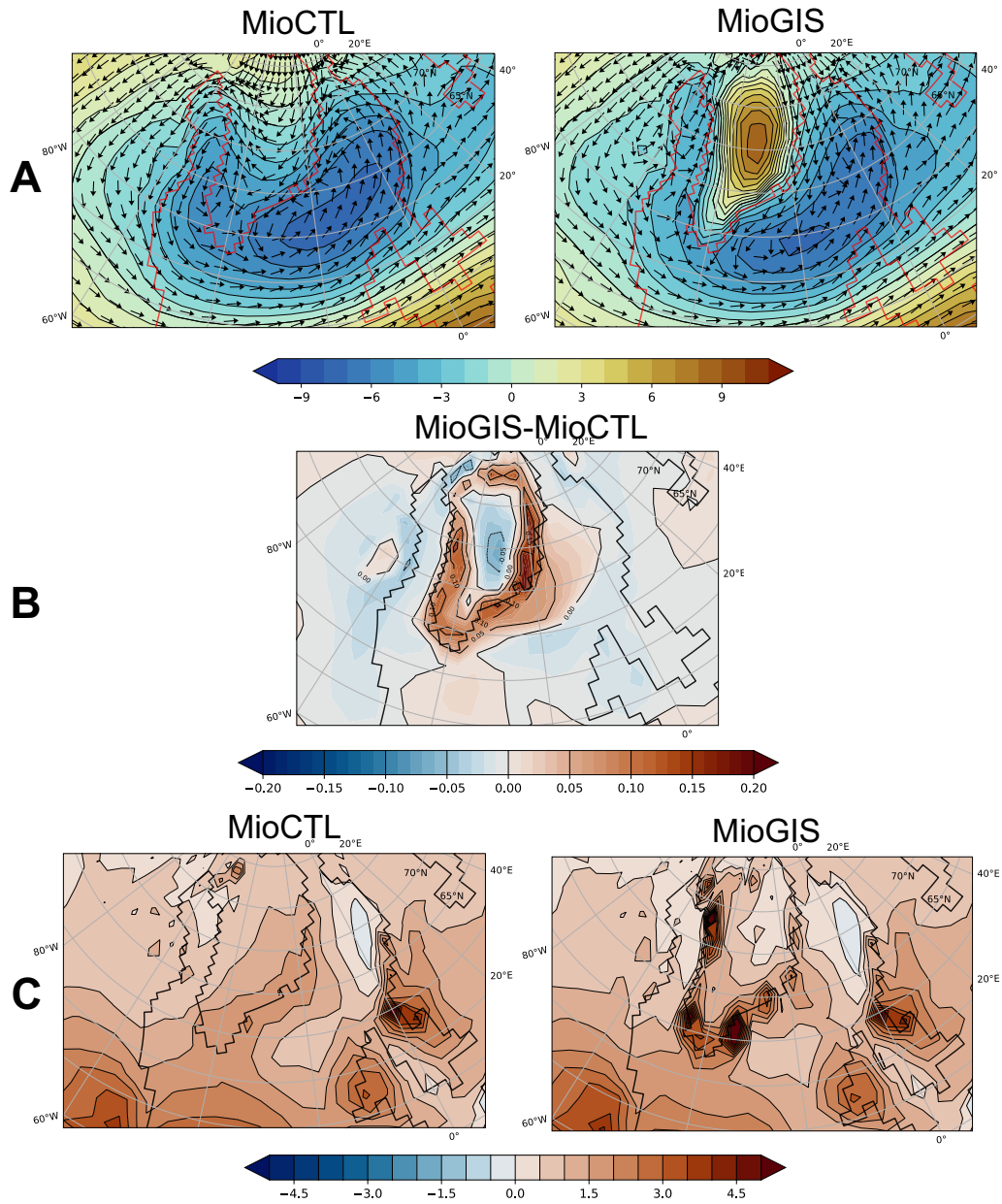


Figure S5. (A) In color, pressure anomaly (hPa), averaged over the winter, at ground level. The arrows indicate the average wind direction at 850 hPa. (B) Difference in wind stress averaged over the year MioGIS-MioCTL. (C) Precipitation - evaporation (mm/day), averaged over the year.

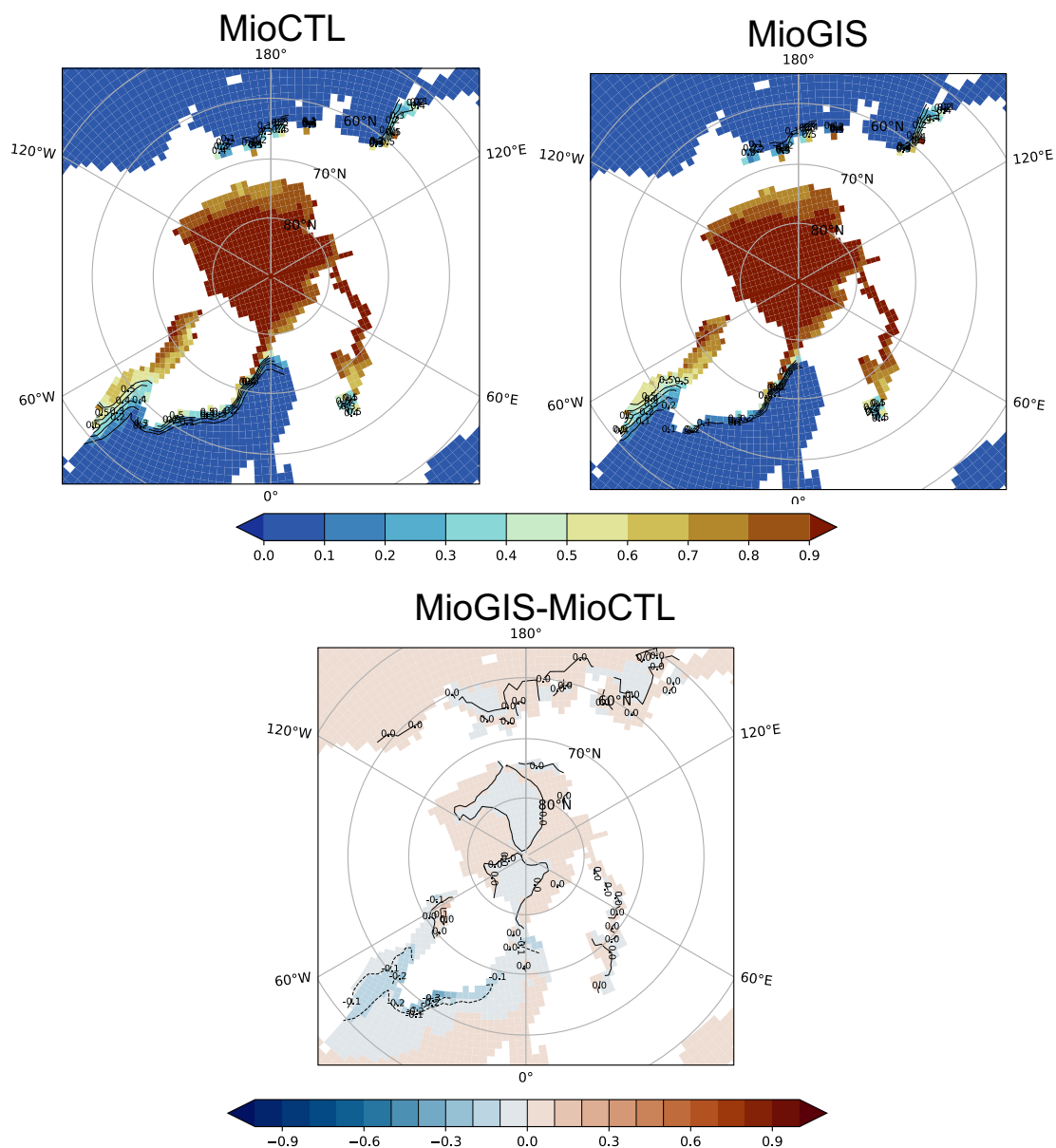


Figure S6. Sea ice concentration (%), averaged over the winter for MioCTL, MioGIS and the differences MioGIS-MioCTL.

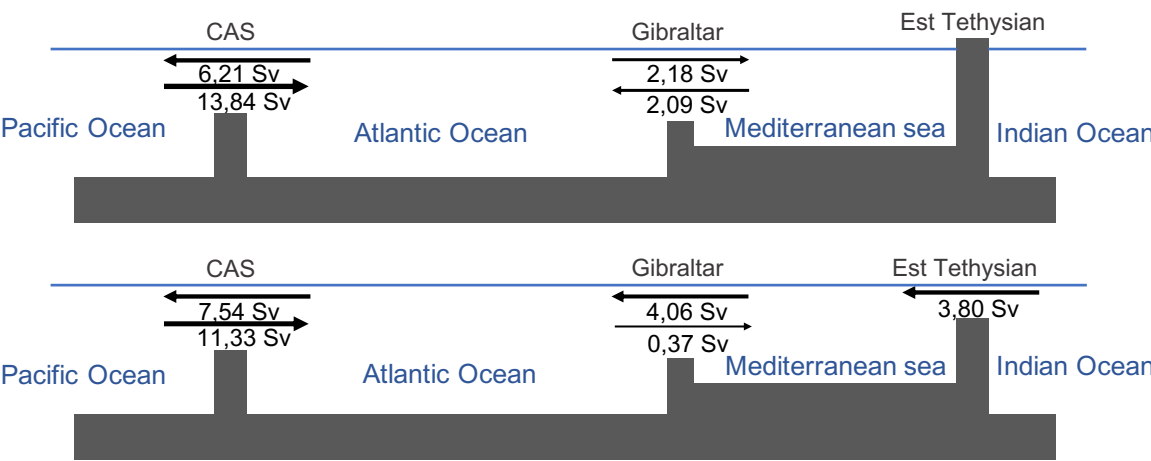


Figure S7. Diagram of the flow exchanges (Sv) through the CAS seaway, the Strait of Gibraltar and the eastern Tethys seaway. At the top, the MioCTL simulation and at the bottom, the MioTet120 simulation.

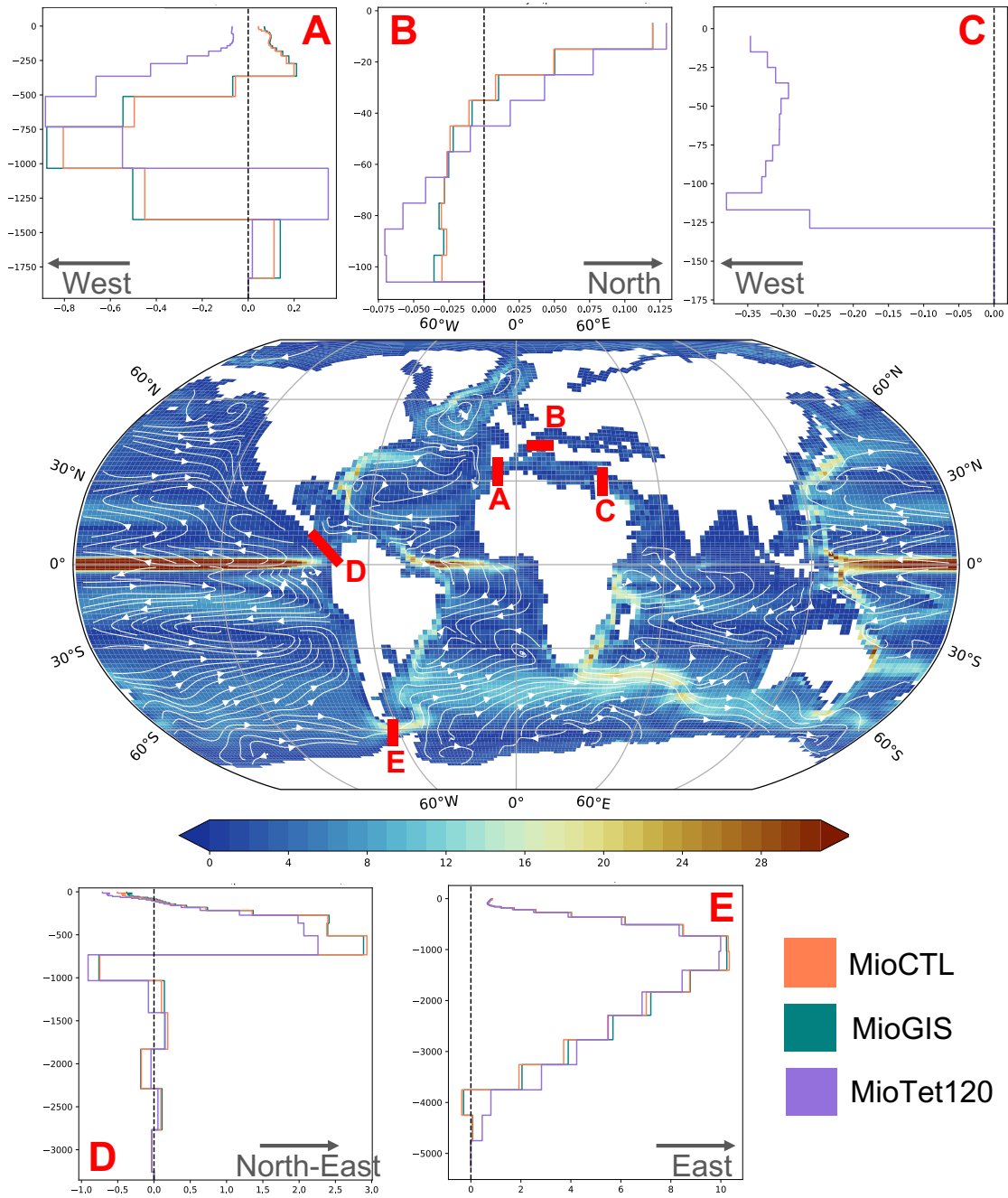


Figure S8. Water mass transport in Sv through different seaways with depth (A: Gibraltar, B: Paratethys, C: East-Tethys, D: Panama, E: Drake). A,C,E : positive eastwards and negative westwards, B : positive northwards and negative southwards, D : positive eastwards/northwards and negative westwards/southwards. Map: water mass transport in Sv, averaged over the first 100 metres and over the year for the MioCTL simulation.