

Following referee#2'2 comment, we added two additional statements about the differences how transports from the reanalyses and observations are derived (see below). We additionally changed two words in the last paragraph to avoid word repetition and made one small clarification in the legend of Fig. 4.

In section 2, we changed the paragraph

*We note that quantification methods of oceanic transports in reanalyses and observations are fundamentally different, which needs to be kept in mind when intercomparing. While the former estimate is based on surface to bottom, coast to coast temperature and velocity sections across the Arctic Mediterranean, the latter estimate is based on the sum of 11 major ocean current transport estimates that is categorized into three major water masses – AW, PW and OW (Tsubouchi et al., 2021).*

to

*We note that quantification methods of oceanic transports in reanalyses and observations are fundamentally different, which needs to be kept in mind when intercomparing. The reanalysis-based estimate is based on surface to bottom, coast to coast temperature and velocity sections across the Arctic Mediterranean. This ensures conservation of volume and avoids projection of potentially biased positioning of currents in the reanalyses onto the transport estimates. The observational estimate is based on the sum of 11 major ocean current transport estimates that is categorized into three major water masses – AW, PW and OW (Tsubouchi et al., 2021).*

In section 5 (conclusions), we changed

*Reanalysis-based oceanic transports show generally good agreement with observations on the scale of single branches of the GSR, both in terms of mean and variability of volume and heat fluxes. There is some indication that the higher resolution products have a better representation of AW inflow in the I-F and F-S branches. All considered products underestimate net heat flux into the Arctic Mediterranean. The magnitude of the low bias is correlated with the strength of AW volume flux but a warm bias in OW and cold bias in Davis Strait inflow further add to the found net heat flux bias. The energy-budget-based estimate from Mayer et al. (2022a)...*

to

*Reanalysis-based oceanic transports show generally good agreement with observations on the scale of single branches of the GSR, both in terms of mean and variability of volume and heat fluxes. There is some indication that the higher resolution products have a better representation of AW inflow in the I-F and F-S branches. All considered products underestimate net heat flux into the Arctic*

*Mediterranean. The magnitude of the low bias is correlated with the strength of AW volume flux but a warm bias in OW and cold bias in Davis Strait inflow further add to the found net heat flux bias. We reiterate that reanalysis-based and observational transport estimates are obtained in different ways (closed line integrations versus measurements from 11 branches with an inverse model applied) but, as elaborated in section 2, we deem this a fair and robust approach for an intercomparison. The energy-budget-based estimate from Mayer et al. (2022a)...*