

JGR-Oceans

Supporting Information for

Composition and variability of the Denmark Strait Overflow Water in a high-resolution model hindcast simulation

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Contents of this file

Figures S1 to S3
Table S1

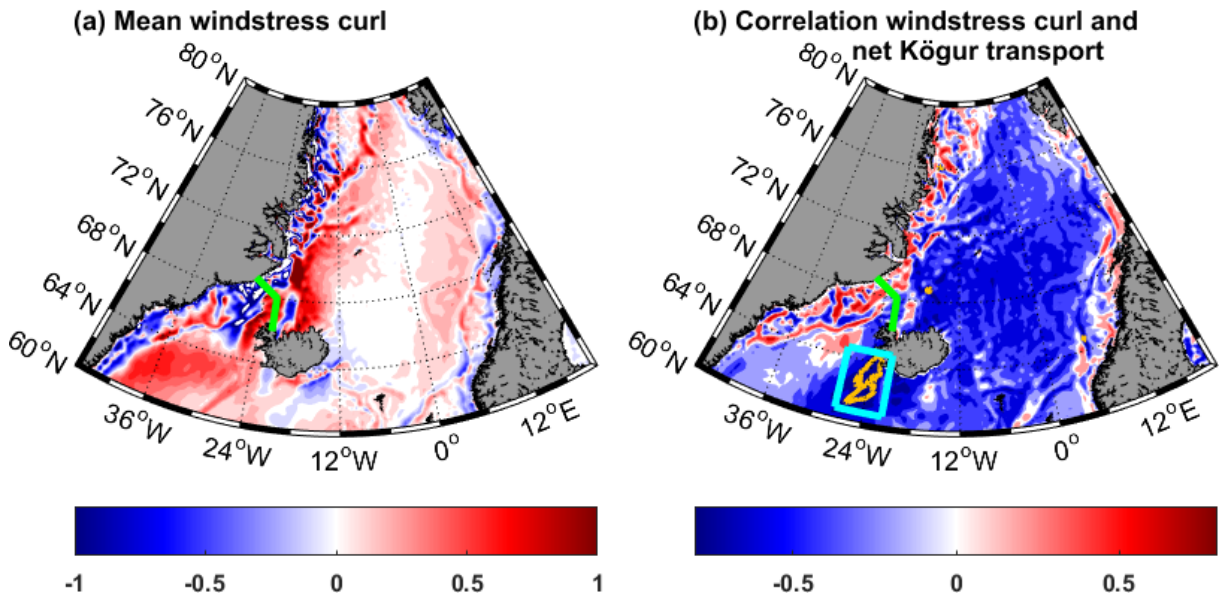


Figure S1: (a) Mean wind stress curl over the period from 1960-2009 (in 10^{-6} N/m²); (b) Correlation coefficient between annual means of net transport across the Kögur section (green section) and the wind stress curl over the subpolar North Atlantic. Turquoise region south of Iceland marks the region with the highest correlation (orange contours mark -0.7). This regions has been used to construct the area average shown in Figure 4.

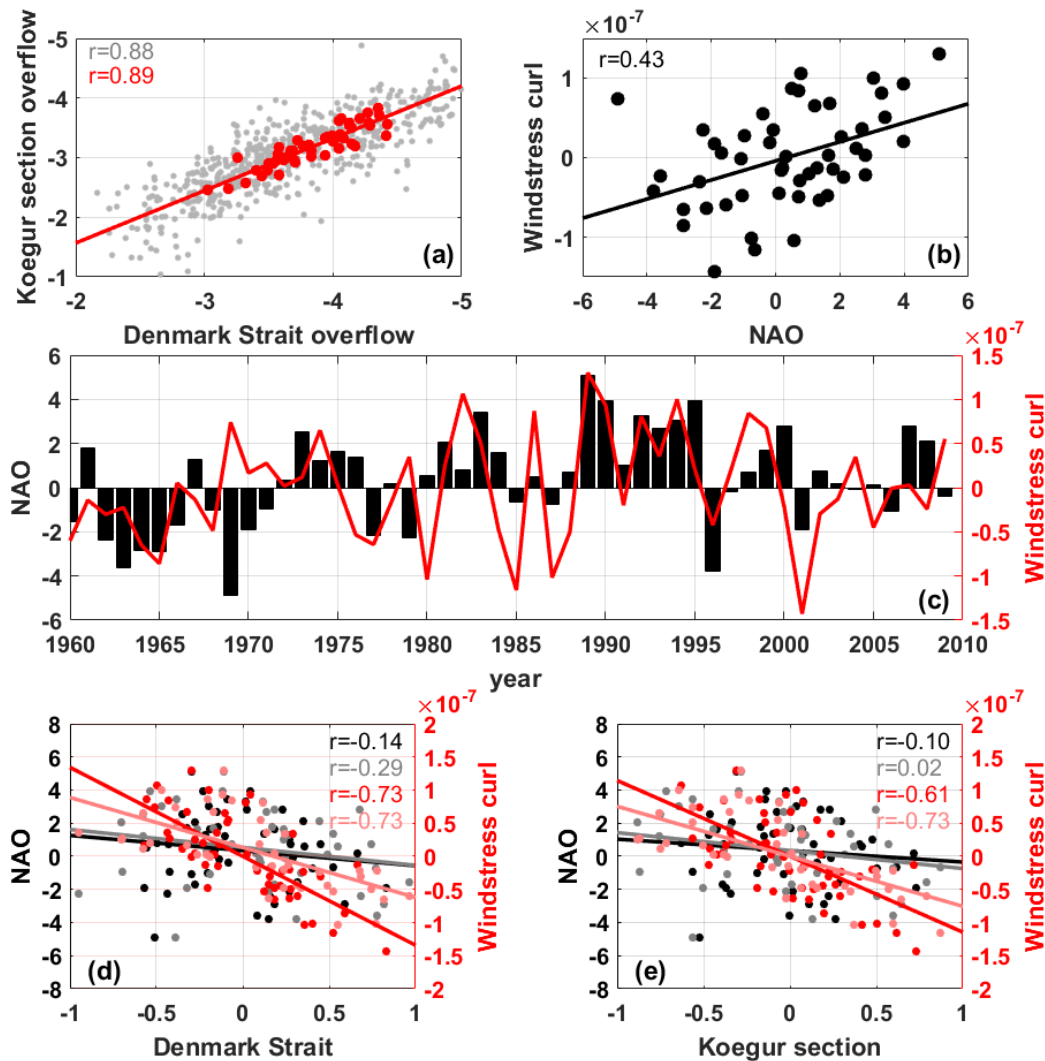


Figure S2: Transport variability and its connection to atmospheric conditions: (a) Correlation between overflow transports ($\sigma_0 > 27.8 \text{ kg/m}^3$) across Denmark Strait and Kögur section in Sv (monthly/yearly means in grey/red) for the period 1960 to 2009. Negative signs indicate a southward transport. Correlation coefficients are provided. (b) Relation between NAO (DJFM, <https://climatedataguide.ucar.edu/climate-data/hurrell-north-atlantic-oscillation-nao-index-station-based>) and wind stress curl south of Iceland from Figure S1, annual means for the period 1960-2009. (c) Annual time series for NAO and wind stress curl. (d) Correlation between annual transports across Denmark Strait, NAO and wind stress curl south of Iceland for the period from 1960 to 2009. Net transports are in light and overflow transports in full color. Correlation coefficients are accordingly provided. (e) Same as (d) but for transports across the Kögur section.

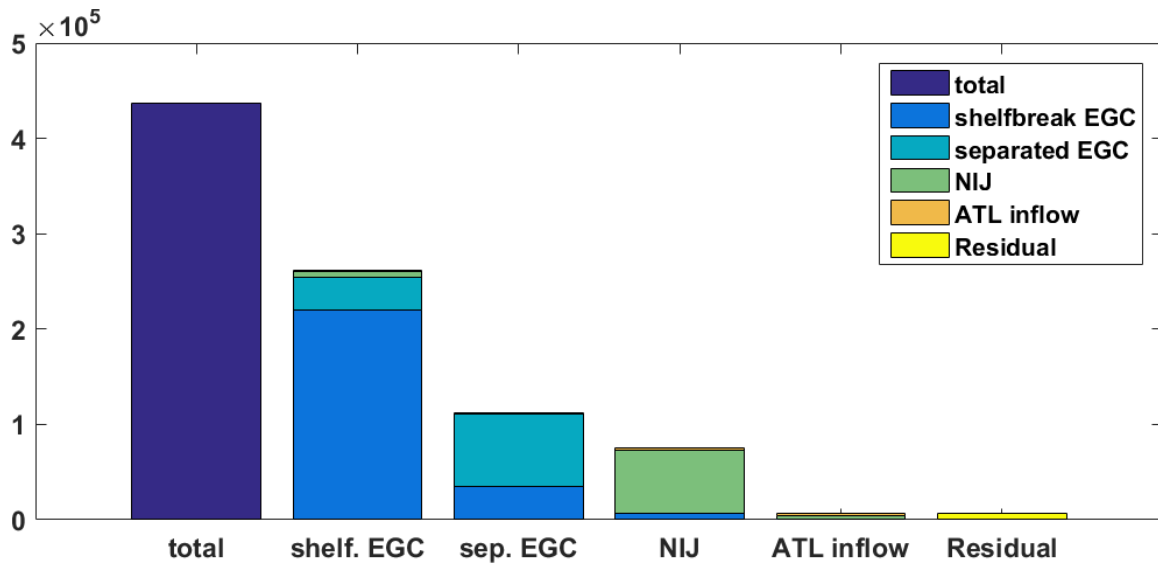


Figure S3: Particle distribution. 437206 particles have been seeded, shelfbreak EGC (219792particles), separated EGC (76079particles), NIJ (65677 particles), and Atlantic inflow (3069 particles). Particle which have not been reached any section (6798 particles).

Table S1: Particle categories*

TOTAL = 437206 NO CATEGORY=6798	SHELFBREAK EGC	SEPARATE EGC	NIJ	NIIC
SHELFBREAK EGC	219792	34765	6212	761
SEPARATED EGC	34765	76079	956	323
NIJ	6212	956	65677	2645
NIIC	761	323	2645	3069

*Number of particles which cross certain sections and/or combinations.