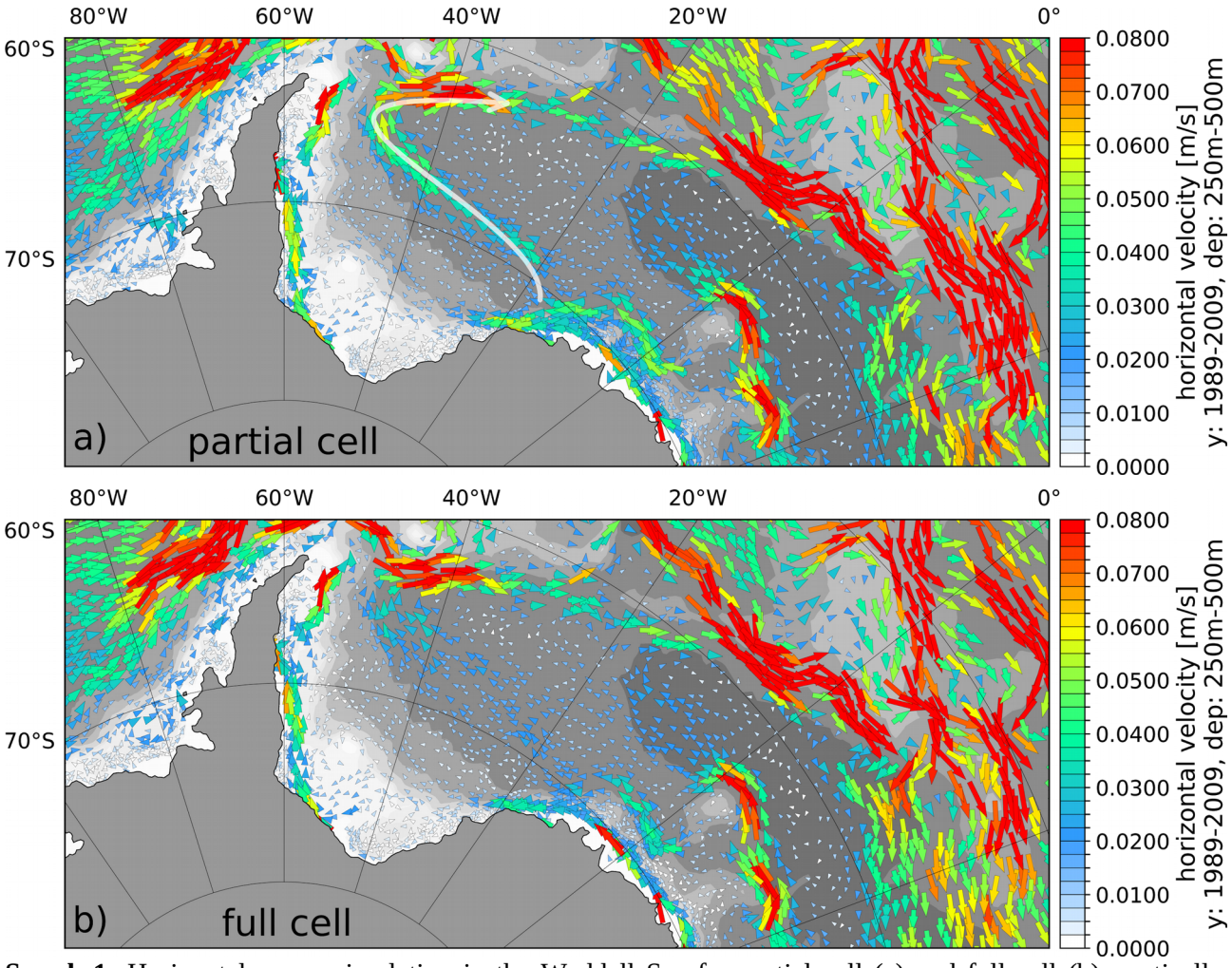
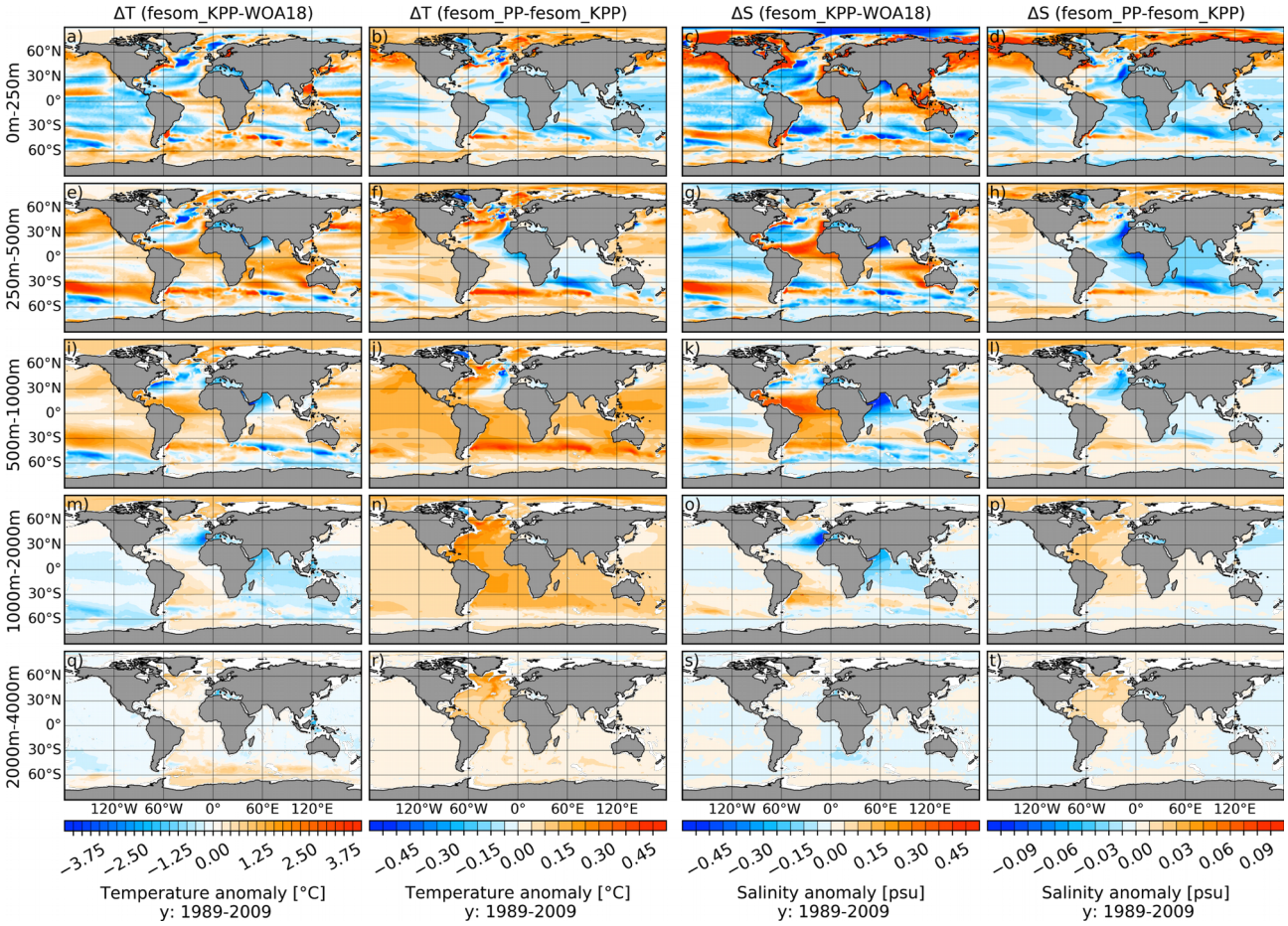
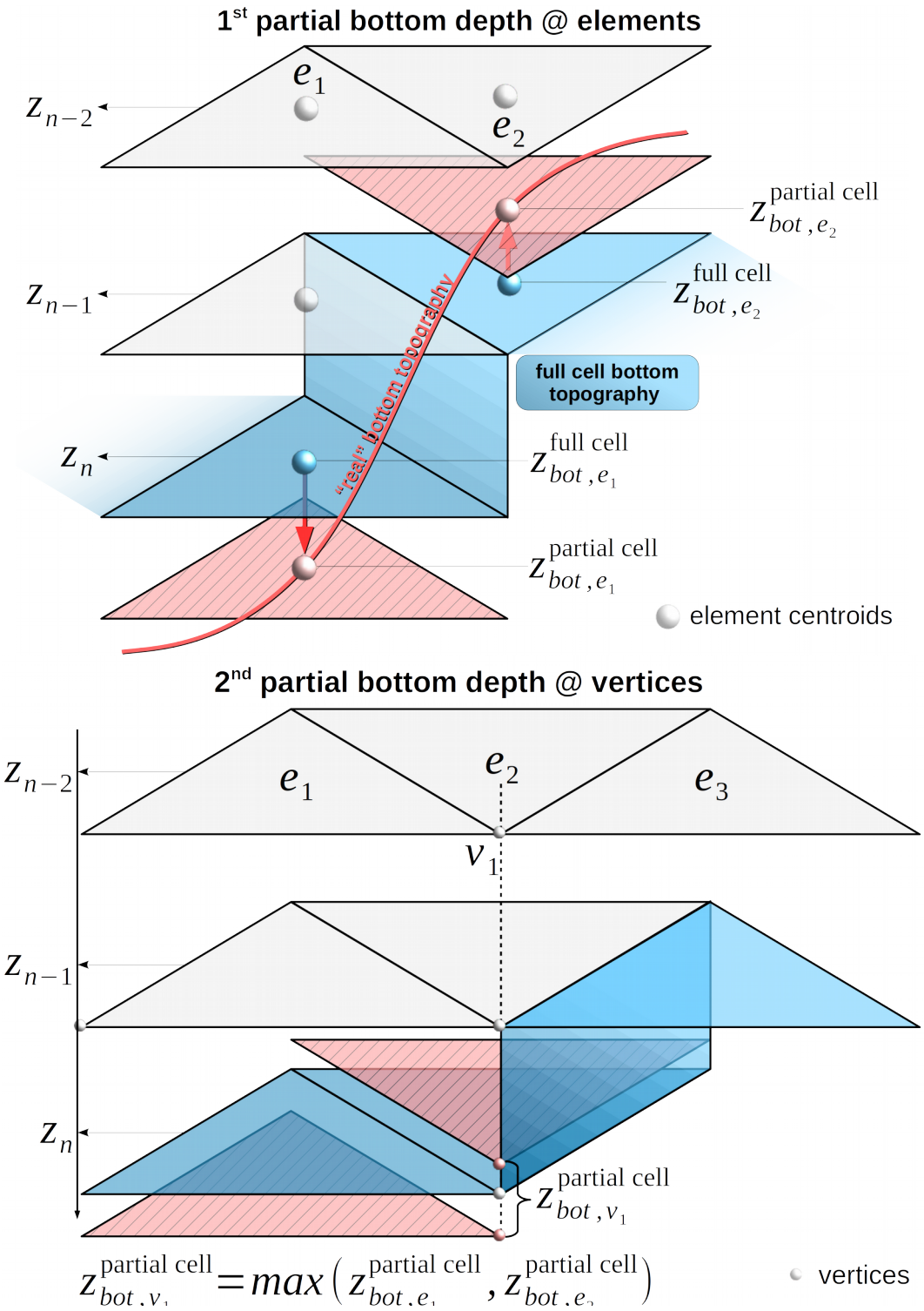
Supplementary:



Suppl. 1: Horizontal ocean circulation in the Weddell Sea for partial cell (a) and full cell (b), vertically averaged for the depth range 250-500 m and averaged for the period 1989 to 2009. The white arrow marks the enhanced warm deep water current when using partial cells.



Suppl. 2: Temperature (1st and 2nd column), salinity (3rd and 4th column) difference between fesom_KPP and WOA18 (1st and 3rd column) as well as between fesom_PP and fesom_KPP (2nd and 4th column) averaged for the period 1989 to 2009. From top to bottom, panels show the vertically averaged fields for the depth ranges of 0-250 m, 250-500 m, 500-1000 m, 1000-2000 m and 2000-4000 m.



Suppl. 3: Schematic representation of partial bottom cell implementation in FESOM2.0 at elements and vertices.