Changes in Atlantic Water (AW) circulation patterns and volume transports North of Svalbard over the last 12 years (2008-2020)

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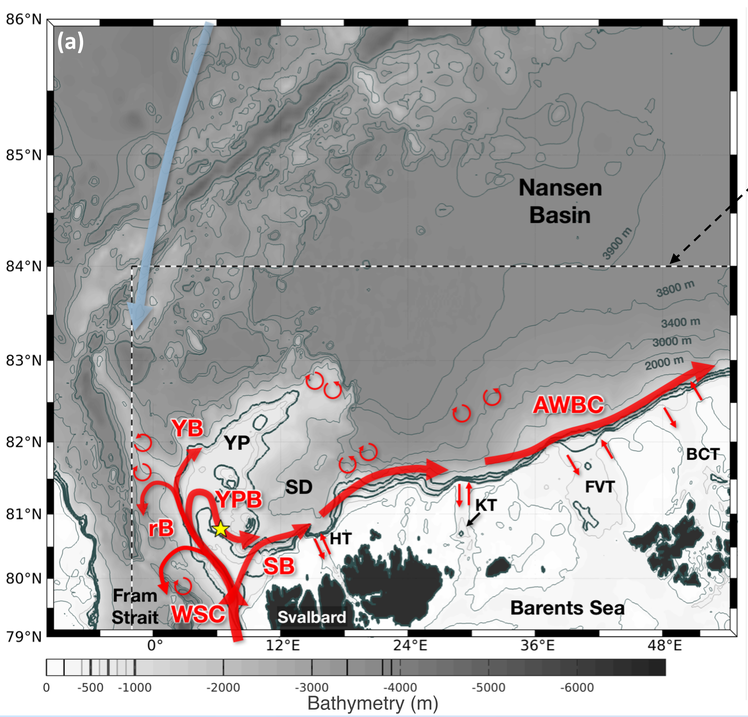
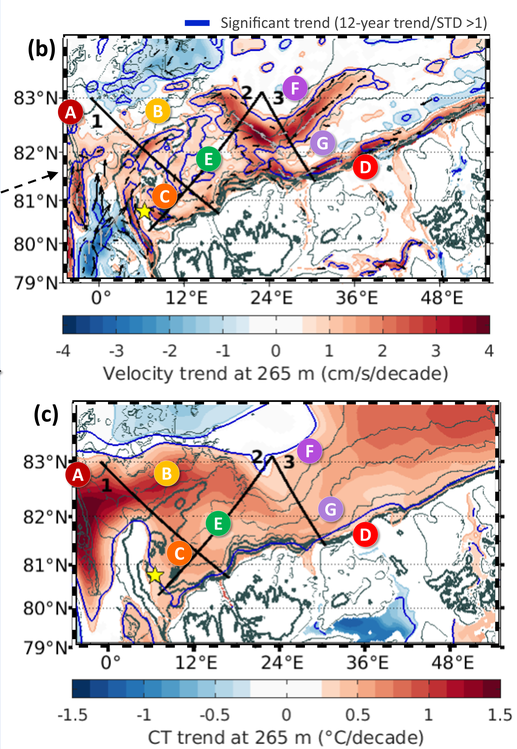
The 1/12° Mercator Ocean model showed a north-eastward AW progression & new AW pathways, consistent with the few observations available

- **A** Northward shift of **AW recirculation branches (rB)**
  - **1** In good agreement with IAOOS 2017 observations (**AW2** structure)
- **B** Strengthening of the **Yermak Branch (YB)** over northern Yermak Plateau,
- **C** feeding the **Return Yermak Branch (RYB)** on the eastern flank of the Plateau
- **D** Intensification of the **AW Boundary Current (AWBC)** velocity
- **E** Intensification and organization of the **Sofia Deep** velocities into a **recurrent anticyclonic flow**
- **F** Development of a «V-shaped» **offshore AW flow** along the 3800m isobath
  - **2** Consistent with large SSH gradients following this current
- **G** Eastern side of the V-shaped flow: additional AW volume from the boundary current injected through **enhanced basin-ward mesoscale activity**
  - **3** Several eddies observed along this track, including **AW1** in IAOOS 2017

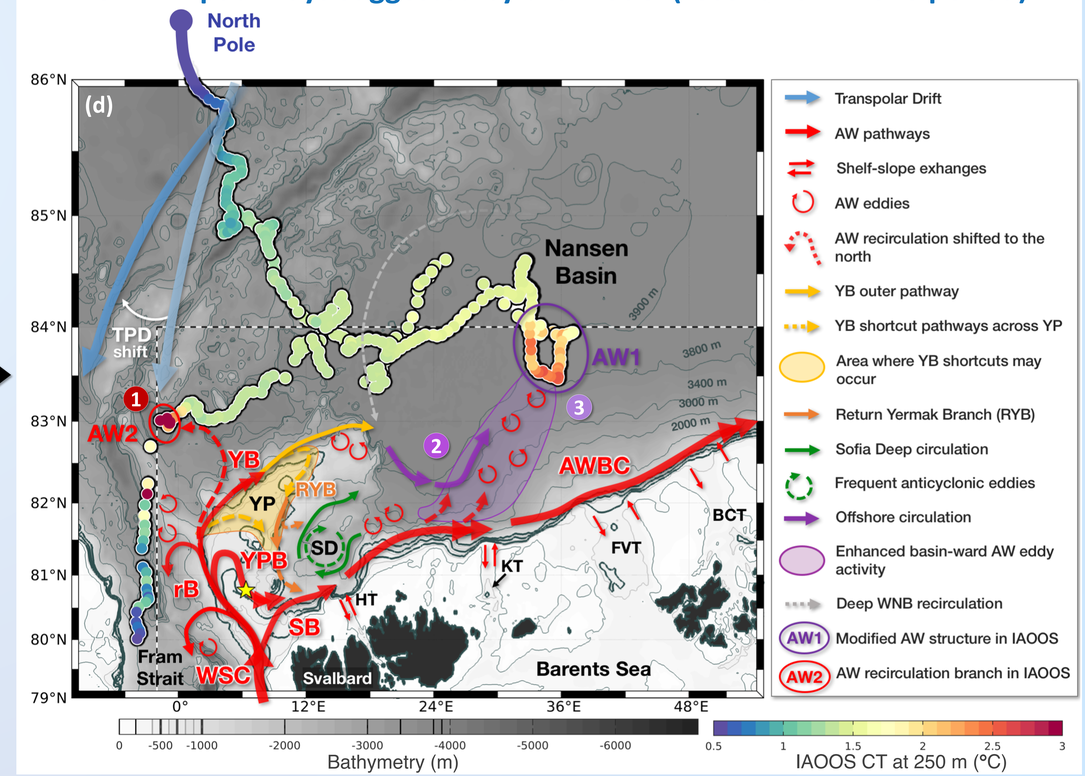
AW circulation previously described (before 2011)



Model linear trends



New AW pathways suggested by the model (recent 2011-2020 period)



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