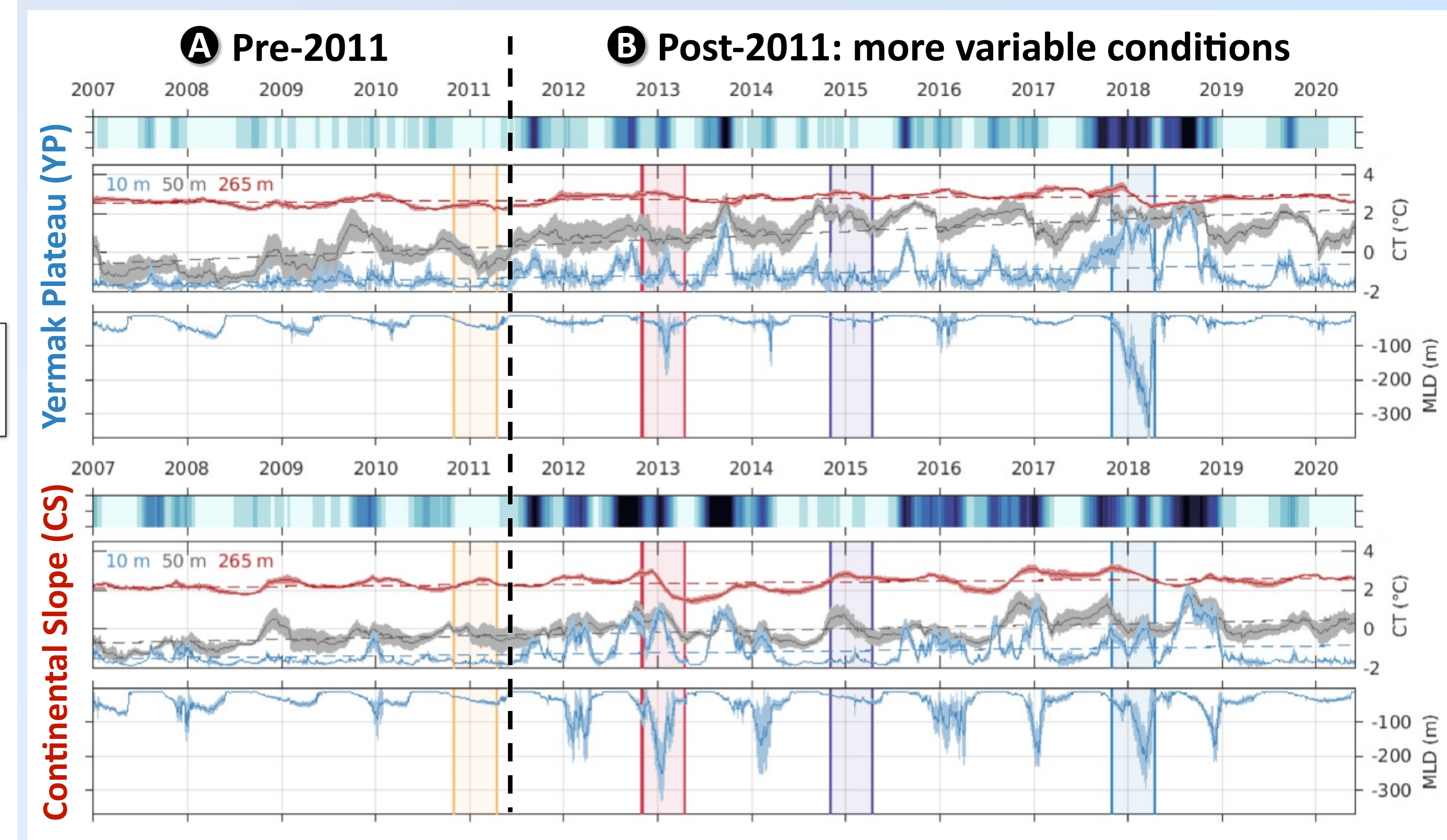


◀ Figure 1 ▶ Figure 2



The 1/12° Mercator Ocean model showed the increasingly important role of winter convection in the modification of AW, North of Svalbard

1. Winters with extreme Deep Mixed Layer events

Two winters stood out with widely spread extreme mixed layers depths (MLD>300 m) and ice-free conditions North of Svalbard:

- YP 2017/18 over the northern Yermak Plateau (YP)
- CS 2012/13 on the Continental Slope (CS) northeast of Svalbard

2. Emergence of new « Marginal Convection Zones »

The northern Yermak Plateau and Continental Slope areas became Marginal Convection Zones from 2011:

- A Before 2011, these areas used to be ice-covered;
- B After 2011, occasionally ice-free conditions emerged, with occurrences of deep mixed layers (>200 m) and large ocean-to-atmosphere heat fluxes.

3. Contribution of Local and Remote Convection

AW properties significantly modified through (e.g. Fig. 1a):

- 1 Deep local winter convection, in the two new Marginal Convection Zones.
- 2 Year-round recurrent trough outflows of modified AW (via convection over the shelf, i.e. remotely) over the continental slope.