

## **SUPPLEMENTAL MATERIAL**

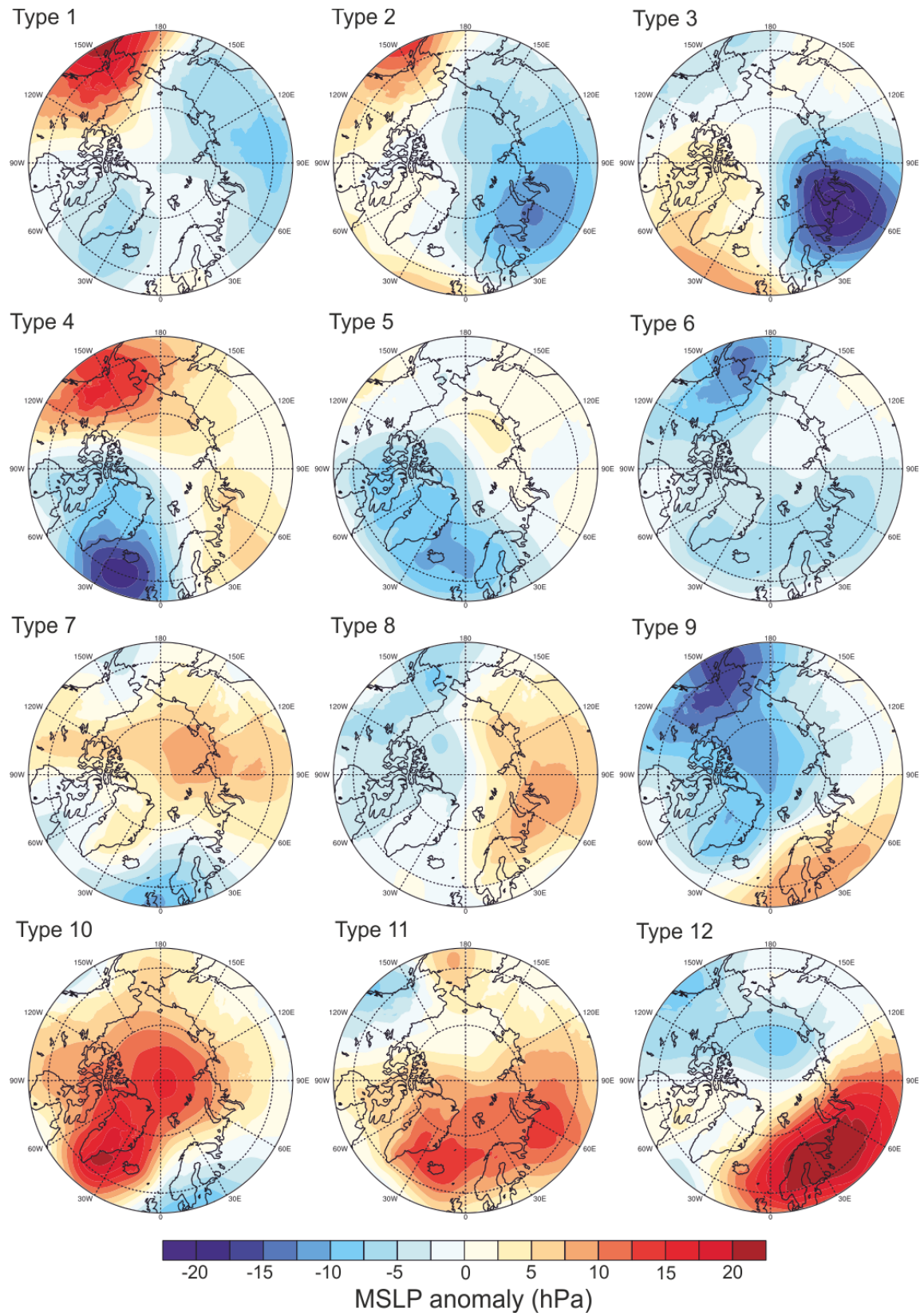
# **Winter thermodynamic vertical structure in the Arctic atmosphere linked to large scale circulation**

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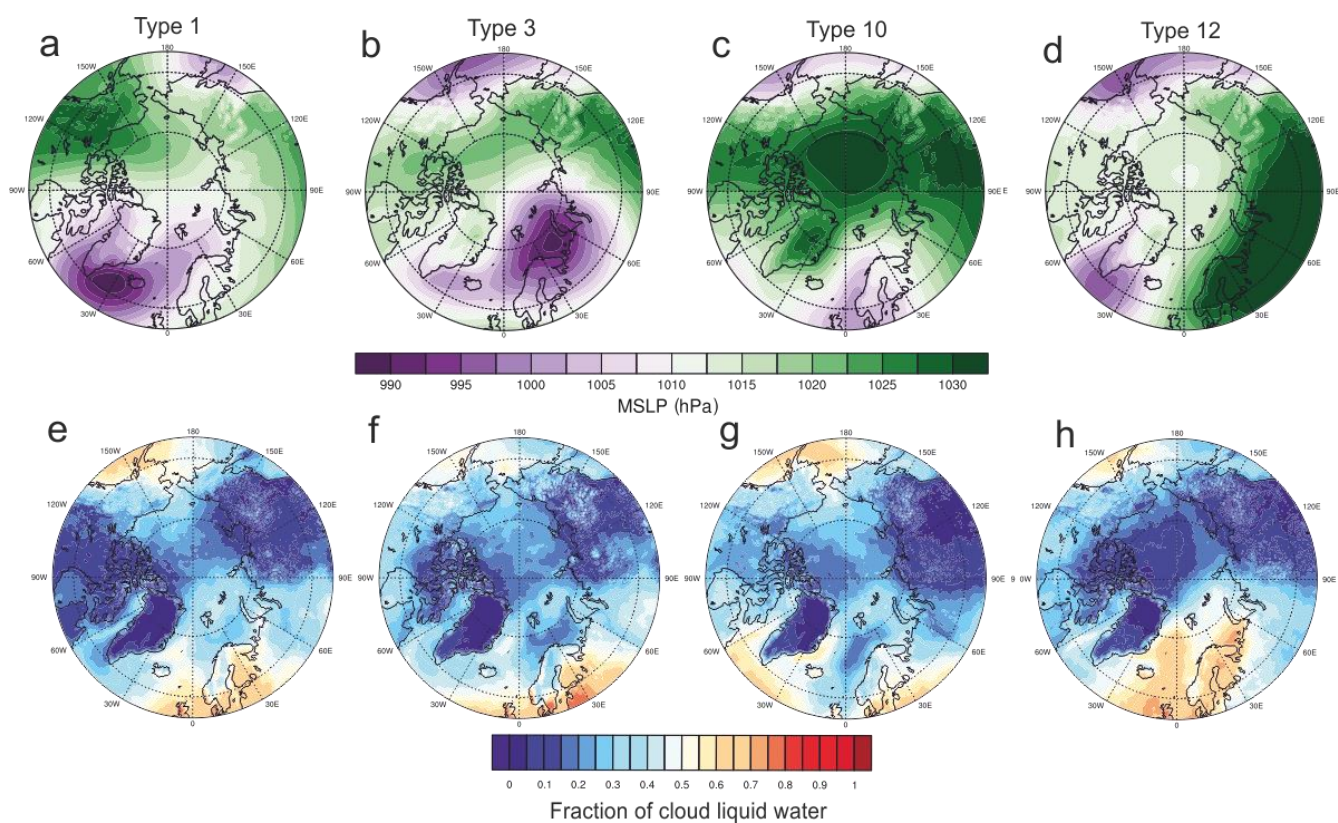
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**Figure S1: Anomaly of mean sea level pressure (MSLP) averaged over the cases belonging to each of the circulation types (SOM nodes) in winters (Dec-Feb) of 2009 – 2018.**



**Figure S2: Mean sea level pressure (a–d), and fraction of liquid cloud water of the total cloud water (e–h) in four SOM circulation types (indicated on the top of the column) during December–February 2009–2018 based on ERA5.**