



## **Winter and summer blocking variability in the North Atlantic region. Evidence from long-term observational and proxy data from southwestern Greenland**

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We investigate the relationship between the North Atlantic atmospheric blocking and winter and summer temperature variability as derived from long-term observational and proxy records from southwestern Greenland. It is shown that winter warm (cold) conditions in southwestern Greenland are related with high (low) blocking activity in the Greenland-Scandinavian region. Furthermore, the duration of blocking events in the Atlantic region during warm years in the southwestern Greenland is significantly higher than during cold years in this region. An index for the North Atlantic blocking is significantly correlated with an oxygen isotope record from Greenland ice cores suggesting a possible reconstruction of blocking variability in this region during the last millennium. During summer, high (low) blocking activity in the Euro-Atlantic region is associated with cold (warm) conditions in southwestern Greenland. The duration of summer blocking events in the Euro-Atlantic region is significantly higher during cold relative to warm periods in southwestern Greenland. We suggest that high resolution temperature records from southwestern Greenland can be used to reconstruct blocking activity in the North Atlantic region during pre-instrumental period.