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Coastal Greenland air temperature extremes 1890–2010

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We use observed air temperature data series from fourteen meteorological stations in coastal Greenland (located all around the Greenland Ice Sheet (GrIS)) for 1960–2010, where long-term records for five of the stations extend back to 1890, to illustrate the annual and monthly temporal and spatial distribution of temperature extremes. We find that the 2000s (2001–2010) had the highest number of mean annual air temperature (MAAT) warm extremes, and the 1890s (1891–1900) the highest number of cold extremes. For the 2000s the number of warm extremes was significantly higher by around 50% than the number in the 1940s (the Early Twentieth Century Warm Period): the decade with the second highest occurrence of MAAT warm extremes. Since 1960, based on MAAT the number of cold extremes has decreased on the decadal timescale, while warm extremes have increased leading to a higher occurrence of extremes (cold plus warm extremes): an almost similar pattern occurred on mean monthly and on monthly mean daily maximum and minimum scales. Further, a division of Greenland into east and west sectors shows that the occurrence of cold (warm) extremes was more pronounced in the East than in the West in the 1960s and 1970s (mid-1980s to the 2000s).