

Fig. S1a. Maps of multiyear monthly (Jan, Jun) and annual (Year) Pearson correlation coefficients ( $r$ ) between analyzed stations: BAR – Barentsburg, TIK – Tiksi, VRA – Ostrov Vrangeli, COP – Coppermine, ILU – Ilulissat and the rest of the Arctic (area  $>50^{\circ}\text{N}$ ) for the period 1931–1950 based on data from 20CRv3 reanalysis (Slivinski et al. 2019). Coefficients above 0.44 are statistically significant at  $p = 0.05$  level.

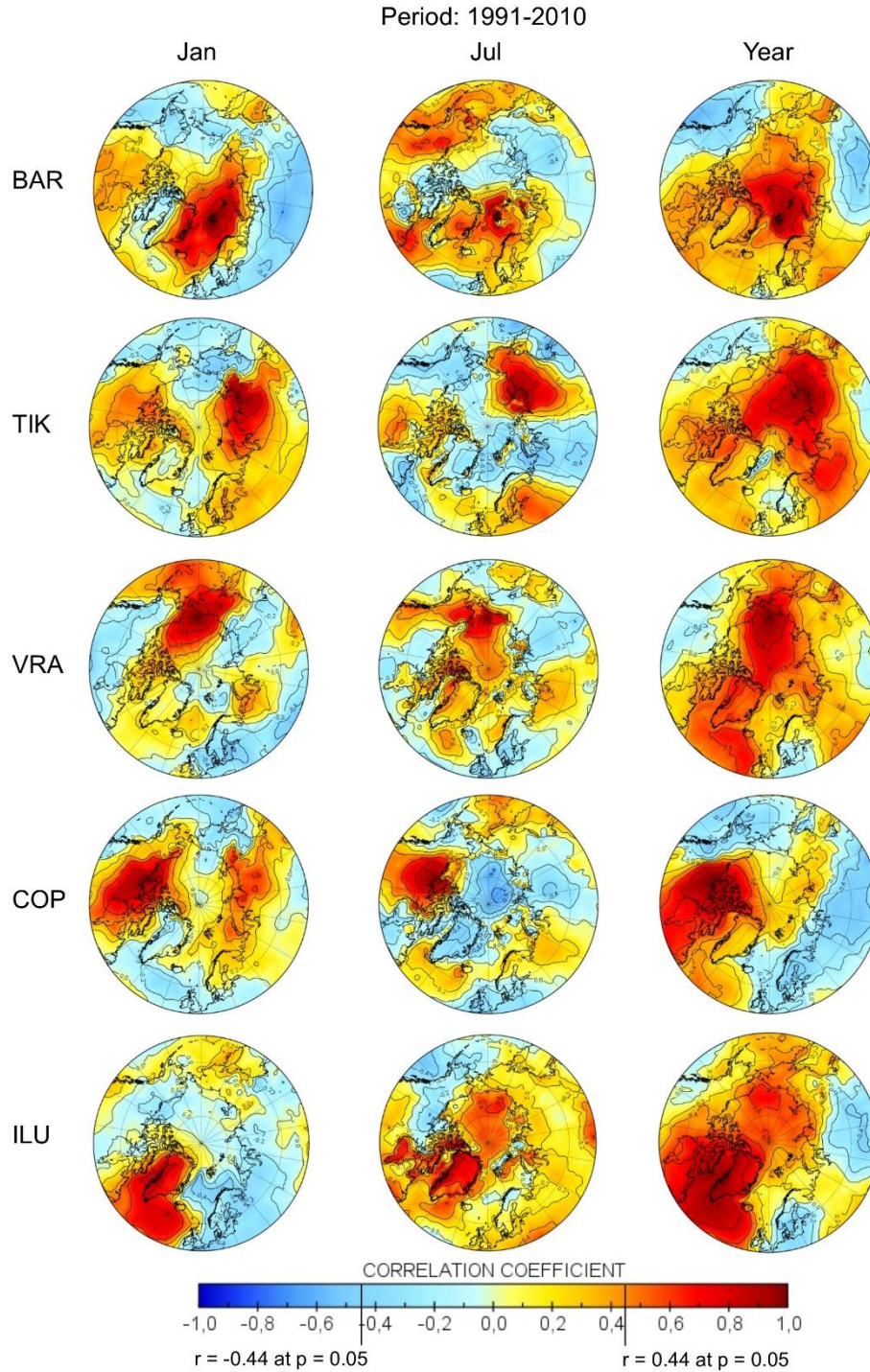


Fig. S1b. Maps of multiyear monthly (Jan, Jun) and annual (Year) Pearson correlation coefficients ( $r$ ) between analyzed stations: BAR – Barentsburg, TIK – Tiksi, VRA – Ostrov Vrangeli, COP – Coppermine, ILU – Ilulissat and the rest of the Arctic (area  $>50^{\circ}\text{N}$ ) for the period 1991–2010 based on data from 20CRv3 reanalysis (Slivinski et al. 2019). Coefficients above 0.44 are statistically significant at  $p = 0.05$  level.

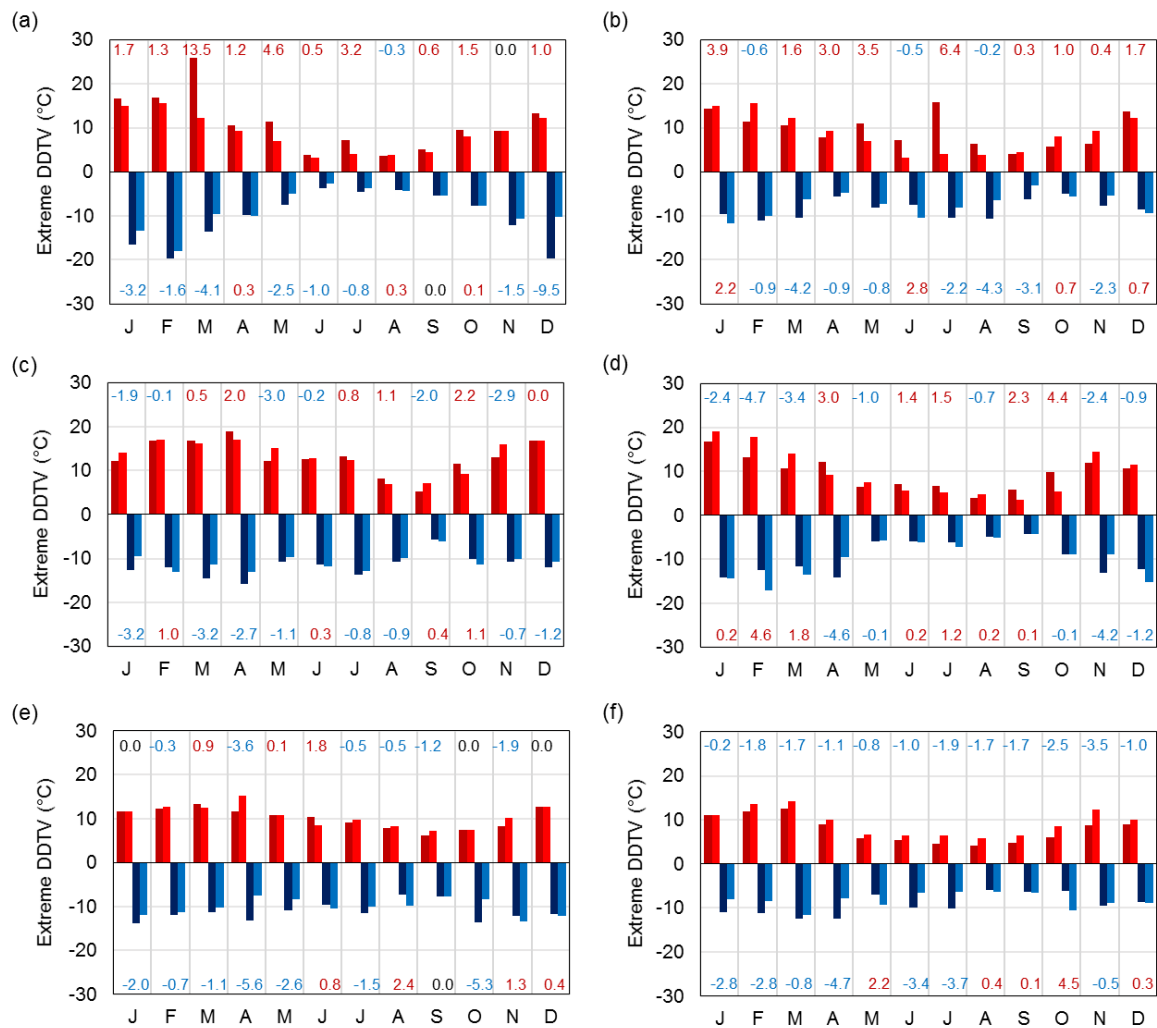


Fig. S2. Extreme DDTV rises (red) and drops (blue) in ETCAW (dark) and CAW (light) periods in (a) Barentsburg, (b) Kanin Nos, (c) Tiksi, (d) Ostrov Vrangeli, (e) Coppermine and (f) Ilulissat. Numbers show difference between periods (ETCAW minus CAW) for the rise (upper row) and the drop (lower row).

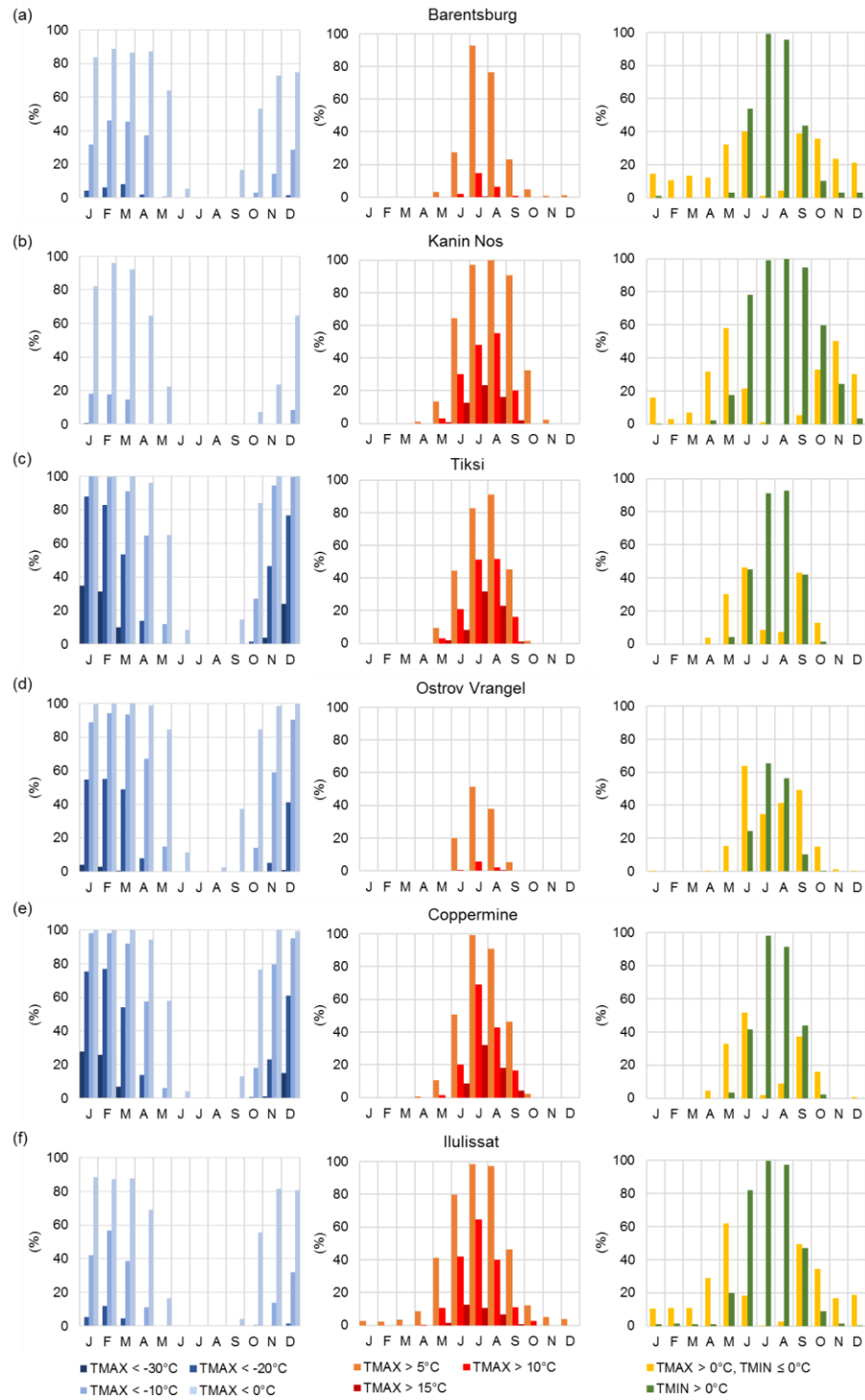


Fig. S3. (a, b, c, d, e, f) Annual courses of relative frequency of occurrence (in %) of characteristic days in the analyzed Arctic stations during the ETCAW period. Order of characteristic days from coldest to warmest is shown from left to right.