WP 4: Unpredictable Arctic extreme weather events

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Aim: to document and improve awareness of the many consequences of extreme weather events in the Arctic that are of importance to ecosystem services, local and global communities, so that appropriate timely responses can be made.

The specific objectives of this work package are to
1) document the effects of extreme weather events on rapid changes in biodiversity
2) identify the societal impacts of extreme weather on local communities through community engagement
3) evaluate the ability of current state-of-the-art weather predictions to forecast such events.
Progress made during the last year: Task 4.1

- Paper published September 2022: *Extreme event impacts on terrestrial and freshwater biota in the Arctic: A synthesis of knowledge and opportunities.*
- This synthesized 48 research articles, published over the past 25 years, highlighting a wide variety of extreme events throughout the Arctic.
- Formed the basis of a monitoring plan put in place under the SMF.

van Beest et al. (2022)
Progress made during the last year: Task 4.4

Multi-model evaluation of forecasting systems at Arctic/INTERACT stations YOPPsiteMIP – a flagship activity of the WMO’s Polar Prediction Project

• Observatory files archived produced for 7 Arctic stations and archived at Met Norway's YOPP portal.
• Completion of forecast evaluation at these sites for during winter.
• Co-organised and presented at workshop 17-20 April in Stockholm on Model Intercomparison and Improvement Projects (MIIPs) for the polar regions and beyond.
• Completion of 3 papers on forecast evaluation and data descriptions.

Morris et al. (in revision)
Progress made during the last year

Scientific highlight:
Underestimation of temperature variance common in all models.

3 papers produced:

1. Day et al., (submitted to GMD): The YOPP site Model Intercomparison Project (YOPPsiteMIP) phase 1: project overview and Arctic winter forecast evaluation.
3. Uttal et al. (in prep), Merged Observatory Data Files (MODFs) for the YOPP site Model Intercomparison Project (YOPPsiteMIP)

Applying for a Copernicus cross journal special issue to include these contributions.
Ways forward

- Link to YOPPsiteMIP data from the INTERACT data infrastructure?
- Wrapping up publications, review process and promotion.
- Use of Merged Observatory Data Files for other applications (meteorology and beyond).
- Completion of Merged observatory Data File production toolkit (led by others).
- Evaluation of YOPPsiteMIP dataset focussed on summer (led by others).