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## **YOPPsiteMIP: Year of Polar Prediction site Model Inter-comparison Project**

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YOPPsiteMIP is a coordinated process-based model evaluation projects using based on high-frequency multi-variate observations at some selected Arctic and Antarctic supersites, during the Year of Polar Prediction (YOPP). The aim of YOPPsiteMIP is to deepen our understanding on the representation of environmental prediction systems of polar processes, both in the atmosphere, land, sea-ice or ocean components, and in the coupling at their interfaces. Both Arctic and Antarctic sites are selected at key location which host multiple multiple systems deployed for long-term monitoring and suites of instruments (such as lidars, radars, ceilometers, radiometers), that provide detailed measurements characterizing the vertical column of the atmosphere as well as the surface conditions and energy fluxes. These observations extend far beyond the traditional synoptic surface and upper-air observations, and offer the opportunity for deepening our understanding of the physical processes governing the polar environment weather and climate.

The unique open dataset of paired model -output and multi-variate observations enables detailed process-based diagnostics, where the target processes include: the vertical representation of cloud and hydrometeors microphysics, low level (mix-phase) clouds; the representation radiation, turbulence, energy and momentum fluxes; stable boundary layer; atmosphere-snow interaction and ocean-sea ice-atmosphere coupling; ocean mixing; etc.

Several numerical weather prediction and climate model centers participate in the activities and some multimodel evaluation results will be presented and common biases are identified. Activities ongoing and planned for the MOSAiC observational site will also be presented.