

# Year of Polar Prediction – Southern Hemisphere

## Second Special Observing Period: Austral Winter

In terms of meteorology, austral winter in the Antarctic is one of the least observed and studied time frames of the year. Due to the extreme cold, lack of day light, and increased storminess, most meteorological research and observational programs are limited or curtailed in austral winter. One example of this is the reduced radiosonde observing found around the Antarctic continent in winter, with many stations reducing observations from 2 to 1 observation per day (and in some cases other stations reduce radiosonde observations to only a few days per week rather than daily observations). Fewer observations are taken during the winter period due to the poor weather as well as the cost savings and limited operational need. With limited observations, and less direct study, our understanding of and, in some cases, our ability to make predictions during this period is likely not as advanced as other seasons.

Yet, national Antarctic program activities and research expeditions are expanding into the shoulder seasons of austral fall and spring. Further extending operations and logistical activities into the austral winter period requires an improved understanding of the Antarctic environment. Hence, we propose to have a Second Special Observing Period (SOP) during the extended Year of Polar Prediction – Southern Hemisphere (YOPP-SH). This observing period would have a dual focus on the transition period into austral winter and austral winter itself. This can aid in characterizing these seasons, further our understanding of the meteorological behavior, and improve prediction/forecasting for this time frame.

We propose that this SOP takes place between 15 April 2020 through 15 July 2020 to allow plans to be formulated and implemented. It would enable a study of both the transition into winter along with the core winter period. This time period is also of particular oceanographic interest as the sea ice cover rapidly expands from its February minimum and the summer water-column stratification is eroded. The thermal inertia provided by the deep oceanic mixing may extend the predictability in the atmosphere. Specific field programs, enhanced observations, and additional focused modeling will be more limited in comparison to the first SOP (15 November 2018 through 15 February 2019), but may be alleviated by a regional focus. Improved/enhanced observing, and modeling during the extreme Antarctic seasons will be a major contribution to the YOPP-SH effort.