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Evaluating the skill of seasonal forecasts of sea ice in the Southern Ocean: insights from the SIPN South project 2017-2022

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The SIPN South project is an international, coordinated initiative endorsed by the Year Of Polar Prediction (YOPP), that aims at identifying the skill of current seasonal predictions of sea ice around Antarctica. Here, we review and analyze the results of five years of predictions of summer sea ice conducted by 20 groups since 2017, having contributed together more than 1000 forecasts. A wide range of approaches is considered, ranging from statistical data-driven to dynamical process-based models. We evaluate the ability of the forecasts to reproduce observed sea ice area at the circumpolar and regional levels and their skill relative to trivial forecasts (climatology, persistence). We find that a substantial spread exists already at day one in the dynamical forecasts, pointing at problems with the initialization. We also find that the forecasts based on statistical modeling perform generally better than forecasts based on dynamical modeling.