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Title Robotic Observations of Air-Sea Fluxes in the Chukchi and Beaufort Seas
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Theme -Theme 5: Arctic Observations in the context of Global Observing initiatives

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Poster title (brief) Robotic Observations of Air-Sea Fluxes

Abstract - text box
The recent unusual early sea ice retreat and late arrival in the Arctic expose vast areas that were covered by sea ice before. In consequence, the energy cycle of the Arctic is changing and so is its feedback to the variability of Arctic sea ice. The accuracy of estimating sea surface fluxes over the exposed water is critical to the assessment of the new Arctic energy balance. There is no replacement of in situ observations in estimates of sea surface fluxes. Surface measurements of the ocean and atmosphere from saildrones over the Chukchi and Beaufort Seas were made in June – September 2019. These measurements were used to estimate air-sea energy fluxes in different scenarios of sea ice: open water after ice melt, free-floating ice bands, and marginal ice zones. We compare air-sea fluxes based on in situ observations to gridded flux products based on satellite data and numerical models. We demonstrate their agreement and discrepancies. Our results provide quantitative information of changes in the surface energy fluxes due to rapid sea ice reduction, uncertainty margins in the gridded flux products, and research efforts needed to improve their accuracy.