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Theme
Sub- Theme 3: Operating Observing Systems and Networks
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Poster title (brief)
Air-Launched Autonomous Profilers in the Arctic

Abstract - text box
Seasonally ice-covered marginal seas are among the most difficult regions in the Arctic to observe. Physical constraints imposed by the variable presence of sea ice in all forms of growth and decay make sensing the ocean and air-sea-ice interface in this domain especially challenging. The inadequacy of observing systems hampers sea ice and weather forecast services in the region and is thought to be a major contributor to large uncertainties in modeling and related climate projections. The Arctic Heat Open Science Experiment helps fill this observation gap with innovative air-deployed autonomous floats and other near real-time weather and ocean-sensing systems. These capabilities allow continuous monitoring of the seasonally evolving state of the ocean, from initial melt in the spring, to autumn freeze-up and into the winter. ALAMO (Air-Launched Autonomous Micro-Observer) floats deployed in 2016 and 2017 have revealed in real time oceanographic features not otherwise observable. These include, for example, detection in the spring of thin layers of Atlantic Water on the central Chukchi continental shelf below the typical sampling depth of standard oceanographic moorings and CTD casts, and the presence of anomalous heat below the mixed layer in the autumn that likely impact sea

ice formation later in the season. Data collected by this project are distributed in near real-time on project websites and on the Global Telecommunications System (GTS), with the objective to provide timely delivery of observations for use in weather and sea-ice forecasts, for model and reanalysis applications, and to support ongoing research activities across disciplines. This research supports improved forecast services that protect and enhance the safety and economic viability of maritime and coastal community activities in Alaska. Data are free and open to all.