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# A Popup-Data-Shuttle (PDS) capability to support CPIES operations in the Arctic Ocean

Chanhung Jeon<sup>1</sup>, Samuel Boury<sup>2</sup>, Kyoung-Ho Cho<sup>3</sup>,  
Jae-Hun Park<sup>4</sup>, Thomas Peacock<sup>1</sup>

<sup>1</sup>Massachusetts Institute of Technology

<sup>2</sup>ENS de Lyon

<sup>3</sup>Korea Polar Research Institute

<sup>4</sup>Inha University

An array of six current-and-pressure recording inverted echo sounders (CPIES) with popup-data-shuttle (PDS) capability, called PDS-CPIES, was deployed in the Arctic Ocean; three of them in the Northwind Abyssal Plain in 2017 and the other three on the Chukchi shelf slope of the Canada Basin in 2018, respectively. The newly developed PDS capability is a popup-type release system, physically separated from the main instrument (CPIES), in which data pods are released to the surface at desired intervals, allowing remote retrieval of data via Iridium without CPIES recovery. The data acquired through the PDS has 30-min interval records of deep current and bottom pressure and hourly-averaged round-trip acoustic travel time. The deep currents give an insight into behavior of near-inertial waves in the deep layer, which is not well understood due to sea-ice and complex stratification of the Arctic Ocean. We first introduce the PDS system and then present the variability of deep near-inertial waves associated with sea ice changes.