

Beaufort Gyre Exploration Project: Dispatch 21: ITP

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It was a beautiful day to be on the Arctic Ocean - the fog lifted, the clouds parted, and we even had some blue sky! The sunny afternoon also made it a great day to deploy the first Ice Tethered Profiler (ITP) of this year's program. The ITP is an autonomous package of sensors fixed to an ice floe. It provides continuous observations of the water below the ice as the floe drifts around in the Beaufort Gyre.

With the weather on their side, the WHOI team set out aboard the ship's helicopter to find a suitable location for the ITP deployment. After some reconnaissance, they chose a 100m diameter multi-year sea ice floe embedded within continuous first year sea ice. Once the team and their gear were transferred to the 2.65m thick floe, they drilled a 2ft diameter hole for the ITP installation using a hydraulic auger head. The ITP system consists of 750m of wire anchored with 250lbs of lead weight, which will keep the line taught for the instruments to profile along its length. Attached to this wire are a CTD (measuring Conductivity, Temperature, and Depth), and a MAVS instrument, which measures velocity and turbulence. A microcat sensor also sits at 5m depth in the water column, recording temperature and salinity at 15 minute intervals throughout the deployment. Once the installation is complete, this sensor package (CTD + MAVS) will take a pattern of profiles and stationary measurements every two days, descending down to 150m, 750m, or staying at 7m. After recording, an iridium telephone talking to a modem on the ITP instruments sends the data and GPS location via satellite. There is enough battery power on the system to keep the sensors recording and the iridium transmitting for 2 to 3 yrs.

Today's ITP was number 71, you can check out its location and transmitted data on the WHOI website once it comes online in the next few days: www.WHOI.edu/itp. In total, 71 ITP systems have been deployed since the WHOI program began, including in the Antarctic and some high elevation lakes. This year 4 ITP systems will be deployed during the JOIS program in the Canada Basin, 5 deployed from a Russian ship in Eastern Arctic, 1 deployed from a Korean vessel in the Makarov Basin, in addition to the ITP system deployed last April at the North Pole.

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