

Beaufort Gyre Exploration Project: Dispatch 20: Almost an IBO

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Up North, even the most thorough plans can dissolve in the face of the Arctic's true arbiter: the weather.

Stormy weather can toss the ship around the sea and prevent bongo net deployments. Howling winds can make rosette casts impossible. Or, like today, it can prevent setting up an Ice-Based Observatory (IBO) on a floe of multi-year ice.

IBOs consist of a group of buoys that monitor the conditions of the ice, ocean water, and atmosphere in order to further scientists' understanding of the Arctic. Right now, several scientific groups from around the world are collaborating to establish the Arctic Observing Network, which will consist of a drifting array of IBOs that will provide data on the Arctic's changing environment.

Today's thick fog cover prevented WHOI's Rick Krishfield and helicopter pilot Jim Myra from identifying a floe both large and thick enough to support up each of the three IBO buoys.

Pack ice can be deceptive in appearance. Snow cover can obscure melt ponds and other surface imperfections that detract from the ice's strength. They contain fault lines that can break under pressure from gear or people.

In choosing a site for a mooring deployment, the helicopter is used to observe the ice from a high elevation. The aerial perspective allows for assessing the ice's strength but also estimating their age and thickness by looking at shape, ridging, and color. Generally, a crystalline blue hue indicates that a floe has lasted through several winters.

Foggy conditions obscure views of the ice and estimations of strength. Today, Krishfield and Myra found a floe four meters thick, but that was not big enough to support only the installation of an Ice-Tethered Profiler (ITP) and to allow for scientists to take ice core samples. The IBO, they determined, they decided that conditions are predicted to improve and larger floes can be found.

The small team that flew out found a pristine environment and thick ice ideal for an ITP installment.



Coast Guard crewmembers stand ready to receive equipment being lowered to the helicopter platform.



Chief Officer Rod Strowbridge ensures that everything is ready before takeoff.



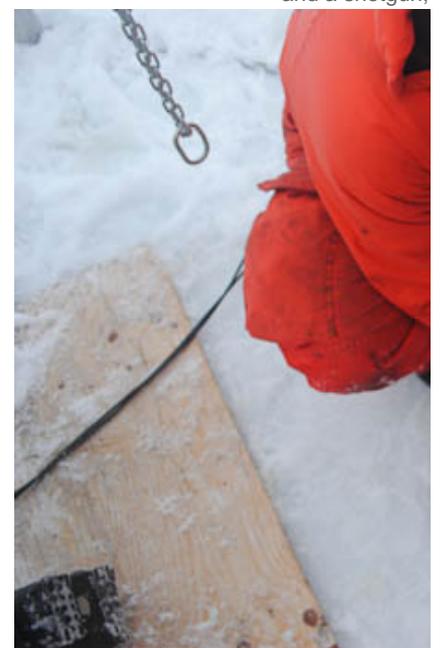
The helicopter ride provided sweeping views of the *Louis* and ITP site.

The floe was roughly the size of a hockey rink.



Disembarking the helicopter. The *Louis* looms in the distance.

Winchman Ed I and a shotgun,



A gas-powered auger drills a hole in the ice to begin the ITP installation process. An anchor, a line, and a Conductivity, Temperature, and Depth monitor (CTD) will be lowered through the hole to complete the process.

WHOI's Jim Dunn guides the CTD through



Kazu Tateyama from the Kitami Institute of Technology collects ice samples. His orange Mustang suit burns with color in the white environment.

Alice Orlich and fresh ice core samples allow for temperature



WHOI's Kris Newhall captures the ITP line in a "Yale grip." The Yale grip functions like a trap to stop the descent of the anchor so instruments can be attached to the line. Like its namesake, the grip is strong, trustworthy, and very attractive.



Though it looks like a candy cane, the ice core is not delicious.



Next to the top of the ITP, Myra and Hogue resemble Lilliputians beside an electric cord.



Orlich and Brown saw the core samples in segments to allow for transport. Whoever cut tub will be disappointed to learn that the ice cream.



WHOI's "Buoy Boys" stand proudly next to the ITP. The white beacon atop the yellow float will transmit ocean profiles via satellite to Woods Hole laboratories. The profiles will then be posted online for public viewing.



Orlich and Tateyama and drill to determine the ice's depth.



Alice Orlich loves her job.



During takeoff and landing, the helicopter crouches down, turns away from the blades, and

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