Beaufort Gyre Exploration Project: Dispatch 11: Recovering a Mooring

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Today Jim Dunn, Will Ostrom and Rick Krishfield from WHOI will recover a mooring that has been sitting underwater up here in the Arctic collect year. The mooring has several data collectors on it: among them are a upward-looking sonar to measure ice thickness and a MMP that travels u mooring line collecting CTD (conductivity (a measure of salinity), temperature and depth) and water current information. This system allows scie 27/7/365 in this remote and inhospitable climate and adds data over time to our "ocean water sandwich". Click here to see a schematic drawing

Uh huh, you say. So what? Well- you know that arcade game where you put your money in to try to pick up *your* prize out of a jumbled mess o using a joy stick and a claw? Now image that the glass box is the Arctic ocean and *your* prize is a 3800 meter-long mooring. There may be sig

Rick determined that the mooring was under this ice floe. The ship gave the floe a nudge to start it moving, and inertia and wind continued to move it out of the way.

Before recovery, the ship breaks up surrounding ice so that float into the mooring operations, they are small enough to be pushed aside by the bubbler (see below).

To win the game, you have to locate it, steam an icebreaker over the location, breaking and moving any ice that may be in the way, then send a hook on the bottom telling it to let go of the anchor and send *your* prize to the top.

About 20 seconds after Rick sent the signal to the release to let go, the top float popped up right next to the ship. The foaming action comes from the ship's bubbler system, which gives the Captain precise control over moving the bow and can move away any ice that drifts nearby.

To bring the top float on board, it has to be caug A hook is lowered with a control rope (white, to t right of the line) and not unlike that arcade game you maneuver a joy stick to pick up a prize, the t float is hooked.

Once the top float is at the ocean surface , it is hooked and brought on board. This is not quite as easy as it sounds..... Today is relatively calm w wind, so hooking top flotation sphere (or top float) takes about half an hour of dangling and ship maneuvering. Your prize is 30 feet below the sh

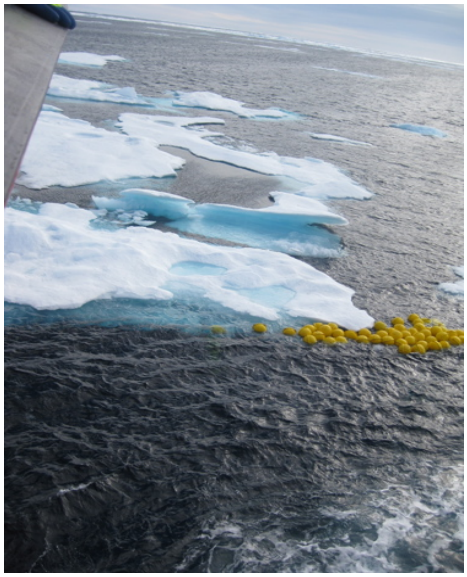
About 20 minutes after the mooring is released, the glass balls are spotted off the starboard side. These will be the last part of the system to be brought on board.

Once the mooring is on board, Rick removes the upward-looking sonar, which collects data on ice thickness.

Once the orange top float is brought on board, the rest of the mooring can be recovered.

This is a long process, taking about 6 hours. 3800 meters of wire must be reeled on board. The MMP is recovered, and finally it is time to bring i spheres (glass balls), all 58 of them. Each ball provides 50 pounds of buoyancy. This 2900 pounds of buoyancy plus an additional 2500 pounds float give the mooring a total off 5400 pounds of buoyancy.

Question: WHY is so much buoyancy needed? (Hint: the anchor on the bottom weighs 4000 pounds).



The glass balls are the last thing to be brought aboard.

Another successful WHOI mooring recovery!

Stay tuned--tomorrow they will put the whole thing *back in* for another year of data collecting under the ice.

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