

Project Cornerstone

Newsletter #8:

30 March, 2009 (Monday)

Several people have asked about the ice thickness, and others have asked how we made the big hole for the AUV. I'm sorry I haven't discussed all this. I guess too many other details have demanded attention, and, besides, I always think that I've talked about ice drilling so much that people must be bored by now. I forget that there are new people. The ice is six-ft. thick, almost exactly. It is annual ice – ice that has been formed this year. The large hole is made by cutting out big blocks of ice with



a hot-water drill. Several people (Dave Wheaton, Sean Spears, Al Tremblay and Jim Milne) came up early and worked hard in the cold drilling the hole and putting up the tent before the rest of us arrived. I don't have pictures of them working, but I do have some pictures from other years.

The picture above shows Garry Heard and Ron Verrall with Gerry White who is wielding a copper wand that is squirting hot water down

into a slot in the ice. The hot-water drill is in the background. With this technique, chunks of ice – large or small – can be cut out (like cookies). The second picture shows one way of getting the ice out of the hole. A rope is passed through a hole in the ice, tied off and sent to the steel A-frame. From the A-frame the rope goes to a large skidoo (out of the picture on the right). The skidoo pulls the A-frame, which swings up and lifts the block out of the hole. This year I believe that they used a Posittrak (a small tracked fork-lift) to lift out the blocks.

The last picture shows the much larger blocks that were hauled out of the ice during the Spinnaker Project



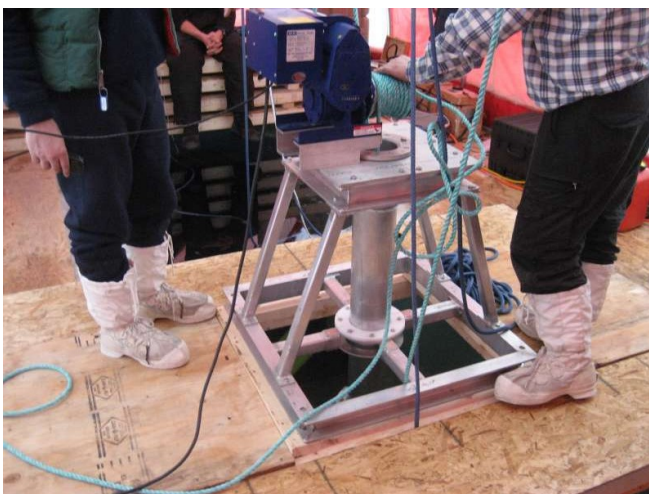
– again at Alert, but a topic for another day.

The weather has begun to warm up. I believe there is a region of low pressure over Resolute, and this has brought warmer temperatures and cloudy weather. Luckily, it hasn't brought any wind. The picture shows the dark and foreboding water-sky over Robeson Channel. The only complaint we had was that the very flat 'seeing' conditions made skidooing a little more risky than usual. You really can't see what lump you are going to run into next.



The temperature got up to about minus 23, and everyone was commenting on how warm it was. We all agreed that no one back home would think that temperatures around minus 20 could be considered warm.

The work today all went very well. At the AUV tent, the big test was with MUN's device called Catchy. Next year, when the AUV shows up at a recharging station, we will want to hook into the vehicle to download all the data that it has recorded, and we will want to recharge the vehicle's batteries. To do this without making a large hole, we plan to capture the vehicle in an upside-down cradle that will hold it steady for the wet-mateable connectors that will be attached. The cradle has another function. In order to align the fibre-

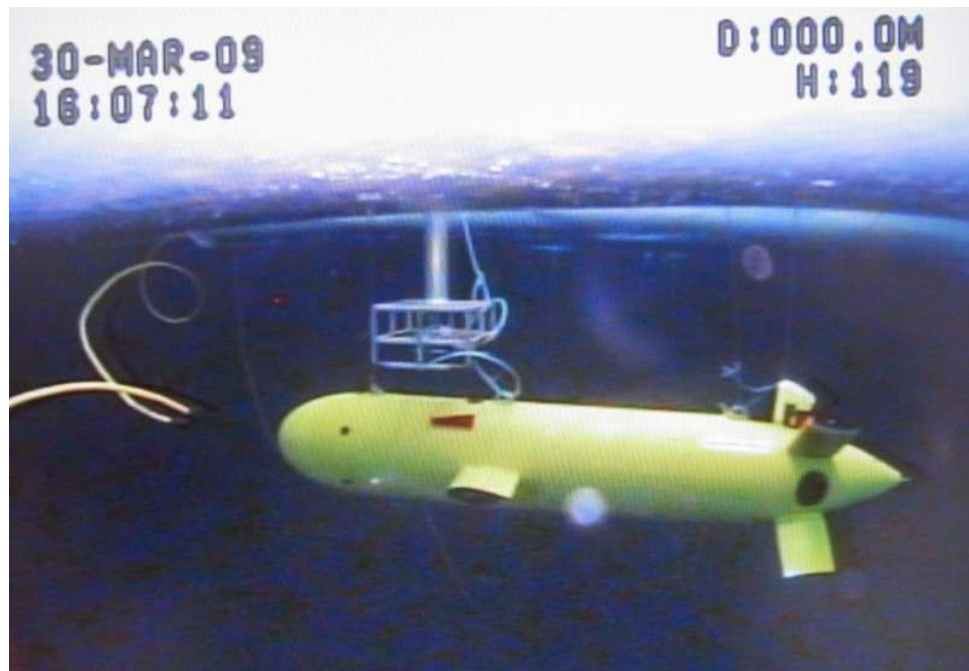


optic gyrocompass, we have to be capable of turning the vehicle by 90 degrees. This we will be able to do quite easily if Catchy works well.

The above picture shows Ron and Darrell on their knees putting it together. Basically Catchy consists of an underwater cradle (not shown here) attached to a pipe that is firmly fixed to the surface. Here it is fixed to a wooden frame; next year it will be attached to the ice. A line goes down the pipe, attaches to a lift point on

the vehicle and pulls the AUV up into the cradle. The next picture shows it fixed in place. It also shows the capstan winch that pulls the AUV up into the cradle.

The picture on the right shows the AUV hanging under the cradle just before it is pulled up into place.



This picture was taken by the ROV looking upward into the cradle. The rope on the right is the one that will pull the AUV up into the cradle. The line on the left is just a safety line.



This shows Dan Graham at the console of the ROV. He did a fine job of manipulating the ROV so that we could get a close inspection of the underwater equipment. And, just as importantly, he did it in a safe manner. There were no collisions, and the lines never got tangled.

Everything worked as well as expected. Ron Lewis is very pleased. He wanted there to be a headline on this Newsletter: **'Catchy – A Great Success'**.



Chris Kaminski and Alex Forrest worked with their Wireless Fibre System (WFS). It is meant to find the vehicle once it is up against the ice, and once we have learned its general location from the acoustics. Also, it can communicate with the vehicle, so it will be very useful if they need to give the vehicle instructions. Chris and Alex put the transmitting unit under the ice, and placed the receiving antenna



on the surface of the ice. The picture shows Alex with the receiving antenna. (The junior member of any team is always the one who goes outside.) The transmitter is under the ice a couple of metres on this side of the tent. The ice is roughly 2 m thick, and they were able to get contact at a maximum horizontal range of about 8 m. (This was just one of the experiments that they did.) They, too, were quite happy with their results.

Garry and his people were pleased with their results, too. They drilled four more holes and did their modem communications at five different depths at each hole. Garry says that he expected the contacts to be made faster, but that is his only complaint.

Garry Heard striking a pose while he holds the surveying rod.



Just for fun, this picture shows the fog that is produced in the warm humid tent when the front door is opened. It dissipates within a few seconds after the door is closed. You can well believe that a ruckus is raised if someone goes out and leaves the door open.



Best Wishes, Ron Verrall
We'd like to hear from you. (ronverrall@gmail.com)