

Alpha Ridge Test of Appurtenance (ARTA)

Newsletter #17

April 14 (Late Monday)

At the end of Newsletter #16 we were waiting for decent weather. Both fog and a light snowfall were keeping the helicopters on the ground. However, a few hours later the snow had stopped, and the fog had thinned enough for the machines to fly. By 11:45 the helicopters had left for the Cross-Line with the intention of firing the nine charges that had been deployed on the 12th. John and Kirby were with Shanne in CFARE, Tim and Lloyd were with Steve in CFPHO, and Thomas and Bob were with Orin in CFCNG.

The picture at the right shows Kirby detonating one of the charges. John Shimeld took an avi file (a movie file) with Kirby's camera, and I extracted a frame that showed the puff of snow kicked up by the primacord running along the surface. The primacord runs down to the large charges below and detonates them. The people on the surface don't see that explosion, of course, but they certainly feel it since it makes the ice jump.



Note that the helicopter is parked off at some distance from the hole. This is primarily for its own safety.

The next picture (from Thomas Funck) shows what happens when the big bubble of gas rises to meet thin ice. Usually, you see nothing at all except some gas bubbling through the drilled hole. However, if the ice is thin enough, as it was here, the gas bubble will lift and break the ice. Note that it was the gas – and not the explosive shock – that did the damage. (In any case, it pays to stand on the thick ice when the shot goes off.)



Things did not go as smoothly as they have on previous shot-runs. Out of nine shot-locations, there were three misfires. In the previous twenty-two shot locations we had had only one such misfire. In all the failed cases the detonator went off properly and detonated the primacord, but the primacord did not set-off the big charges down in the water. Ruth very quickly made the decision not to pick up the recording boxes. The problem holes would be recharged and fired tomorrow.

April 15 (Tuesday) after supper:

The wind increased yesterday afternoon, and it blew from the south all night. It wasn't a storm, but the wind was strong enough to pick up a little snow. We noted that the temperature was rising and that the wind had changed direction, and this sometimes portends bad weather. We were concerned that foul weather might cause a delay for a day or two, and this might allow the seismometers to drift a long way before we could set off the new explosives. This morning the wind and low cloud were still present, and the outlook wasn't great, but by 1000 the sun was shining through, and the weather was clearing satisfactorily. Back in Eureka, Dave Maloley loaded a Twin Otter with explosives.

The Otter brought out enough explosive for three holes. Included in this was a new batch of Primacord. The blasters had speculated that the old batch might have been responsible for the problems.

Once we got started, the day went well. The helicopters were loaded with ice drills and explosives, and they were on their way by 1300. The three shots were fired successfully, all 114 recording boxes were picked up, and the helicopters were back in camp by 2300.

The completion of this line is cause for celebration. We have been very successful. All three of the runs planned by the seismologists were completed as planned. All shots were detonated, and all the recording boxes were set out and recovered. I understand, too, that the data that has been examined so far is very good. (A good signal-to-noise ratio.)

Jon Biggar's two helicopters also put in a good day measuring bathymetry and gravity. The day may have begun shakily, but it has ended very satisfactorily.

The picture on the right shows Jon at his office door checking something – probably the state of his helicopters.



Best Wishes,
Ron Verrall.

We'd like to hear from you. Send your comments to:

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I got back to Eureka today (16 April). Thank you to everyone who has sent me a note. I'll try to respond in the next day or so.