

Project Cornerstone

Newsletter #1:

We arrived in Alert yesterday, the 21st of March, the first full day of spring. We travelled in comfort from Ottawa, being taken by First Air in a 737 jet. We stopped for fuel in Iqaluit, the capital of Nunavut, and in Resolute Bay. On the way north from Resolute we passed right over Eureka, where last year's Newsletters were written. The map shows Iqaluit, Eureka and Alert. Resolute Bay is on the south coast of the little island just west of Devon Island.

I still marvel at the comfort of a passenger jet – as opposed to the very noisy, propeller-driven Hercules aircraft that we used to take north from Victoria. On the 737 you can actually talk to your neighbour. We were fed royally, too. We left Ottawa at 0700 and, in spite of the two refuelling stops, we arrived at Alert a little before 1600. I understand that we will be going home by Hercules, so that should bring us back to a sense of reality and of how spoiled we have become.



The 737 flight was originally chartered by NRCan for their own use, and we would like to thank them for allowing us (and our freight to go with them). Special thanks are due to Michael Kristjanson and Timothy McCagherty, who were particularly helpful.

There were 25 of us on board. From Defence Research and Development Canada (DRDC) there were:

Garry Heard
Richard Pederson
Don Mosher
Derek Clark

Val Shepeta
Warren Connors
Nicos Pelavas
Dan Graham

From the Memorial University of Newfoundland (MUN) there were:
Ron Lewis
Peter King

From International Submarine Engineering (ISE) there were Chris Kaminski and an assistant, Alex Forest (PhD student at UBC).

There were several from DFO:

Dick MacDougall
Julian Goodyear
Janice Lang

George Schlangintweit
John Mercuri
Alain Belzile (NRCan)

The ones in the left column will be staying in Alert for a few days before moving on to Eureka. Those in the right column went directly to Eureka via a waiting DC3.

There were several Danes who were en route to Eureka. They left with the others in the DC3.

Christian Marcussen
Morten Solvsten
Henrik Agner

Uni Lamhauge Bull
Henriette Skourup

We don't know yet whether they made it to Eureka; the visibility there was not good. Their 'alternate' was the Ward Hunt camp, which has been going for about a week. More on that later. I hope that I haven't missed anyone and that I have the spellings reasonably correct.

Oh yes, I forgot to list myself: Ron Verrall. I'm retired but I contract my services back to DRDC when they want an extra Arctic hand.

Already in Alert were four from DRDC:

Jim Milne
Dave Wheaton

Al Tremblay
Sean Spears

They came up early (5 March) to get things started, and they have been working hard. After opening our building and getting a few skidoos running, they set up two tents on the ice just off Alert and made a large hole through the ice (about 5 x 22') for the large ISE autonomous underwater vehicle. (More details to come.)

Our trip north on the 737 really began on the 19th when several people from DRDC, MUN and ISE arrived at First Air in Ottawa to help load the aircraft. There had been a lot of concern that there was too much freight to fit on the aircraft and that some of the hazardous materials (HazMat) might be forbidden. Richard Pederson, Don Mosher, Val Shepeta and Ron Lewis showed up bright and early and spent the day moving equipment, repacking freight and making sure that all the hazardous materials had the appropriate paperwork. Darrel Moulard and Peter King arrived a little later in the day and helped out.

The picture on the right shows Val Shepeta stuffing miscellaneous gear (and a lot of coffee) into one of the sections of the underwater vehicle. (All space was used efficiently.)

Richard Pederson, this year's Chief Scientist would like to thank John Green, of PREP Services, who looked after much of the hazardous material. And, apparently, they all



worked well with Phil Davies of First Air (Assistant Manager – Cargo and Ground Services). From what I hear, it was a mutual admiration society.

When we arrived at Alert we were taken up to the main buildings and shown where we were to stay. Our luggage arrived a little while later, and we all got settled away. This year there are few enough people at Alert that we don't have to double-up. We each have a room, and it is quite comfortable. Also, it is not overly hot, which has been one of our complaints in the past.

Speaking of numbers, I found out that there are presently 21 military personnel at Alert, and they are augmented by 33 civilians, who look after such things as cleaning, repairs, heating, water, clearing the runway, etc. There are also three (I think) Environment Canada people.

This morning (Sunday, the 22nd) snow was falling, and the visibility was quite poor, so there was no great rush to get out and start doing things. Also, brunch is at 1030 on Sunday, and this is rather awkward meal time if you are trying to work. It was a convenient time to have a safety briefing and a short discussion of what we would be doing the rest of the day.

Now for a little description about what we are doing up here this year. You may know that Canada is quite involved with the United Nations Convention on the Law of the Sea (UNCLOS). UNCLOS is a convention (an agreement) that governs all uses of the sea. The following web site discusses this.

http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm

The first sentence gives a feel for the its all-encompassing nature. "The United Nations Convention on the Law of the Sea lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources."

There are over 300 articles under UNCLOS, and our work is focusing on only one, Article 76, which deals with the continental shelf.

Article 76 says that coastal states are entitled to a continental shelf that extends to the outer edge of their continental margin, or to a distance of 200 nautical miles if the continental margin does not extend that far. It also sets out the criteria for determining the outer limit of the continental shelf. Countries with a continental shelf that extends beyond 200 nautical miles must submit information to support establishing the outer limits to the Commission on the Limits of the Continental Shelf (CLCS) within 10 years of their ratification of UNCLOS. Canada ratified the convention in November 2003, so it has a deadline of 2013 for its submission to the UN.

The extended continental shelf beyond the EEZ is a legal concept of UNCLOS and includes the continental shelf, the slope and the continental rise. The types of information required include bathymetric data on the shape of the seabed to show the foot of the slope and the 2500 metre depth contour as well as natural prolongation of the continental to submerged elevations such as ridges. Geological information is also required to complement the bathymetric information and can show natural prolongation at depths up to 30-40 kilometres beneath the seabed. Geological information is also used to determine sediment thickness, a criteria for one of the entitlement formula.

If you got my Newsletters in 2006 and/or 2008, you will know that the Geological Survey of Canada carried out seismic surveys on the Lomonosov Ridge (out of Alert) and the Alpha Ridge (out of Eureka). The Canadian Hydrographic Service collected bathymetry in the same area during 2006 and 2008. This year we are testing new equipment that will be used for bathymetric surveys in 2010. In future Newsletters I will be giving you many more details.

You will notice that the project is called CORNERSTONE. I suspect that this is because it has a nice ring to it. However, one can imagine that it is an acronym. Sort of. Richard Pederson tells me that this is what it stands for:

CoRNERSTONE: Canadian aRctic uNder icE suRvey in Support Of uNclos

Best Wishes, Ron Verrall (ronverrall@gmail.com)