Newsletter #3
March 2013

SANAE 52

So Brain, what are we doing tonight?

Preparing for Winter

by Wihann

Now all the hard work started. Preparing for winter.

During take-over the dozer guys dozed a few big heaps of snow for us in the winter depot to pull all the sleds and some of the vehicles onto them. The purpose is to prevent the equipment from getting covered with snow during the stormy winter months. Snow quickly makes anything disappear. The snow will cover an entire cargo sled and you won't find it again. Then it's big work looking for it and digging it out. While digging it out one can damage the sleds.

So the guys dozed heaps almost 2 meters high for us to pull the stuff onto. Some of us also had the opportunity to doze a few heaps for equipment. Craig's first one was a very long, long heap. It almost looked like he wanted to doze a hole to the North Pole, that's how deep the thing was. But at the end he did a very impressive job and it looked great. His second one he dozed very quickly and perfectly. It just shows you, practice makes perfect.

It's easy to pull the sleds or fuel bowsers onto to heaps, but getting off the heap is a different story. You can easily roll the dozer over if you're not careful. It almost happened to me.

Luckily, I had the dozer legend Bez to show me the ropes and what to do in a situation when the dozer starts to slip and it wants to flip over. So I got the dozer straight again and off I go. It was a bit scary.

Anyway, all the sleds, fuel containers and some of our vehicles are on the heaps ready for the winter. We also had to seal all the vehicles with buff and duct tape, so that the snow won't get into the vehicles and fill the whole thing, making even more hard work for us after winter.

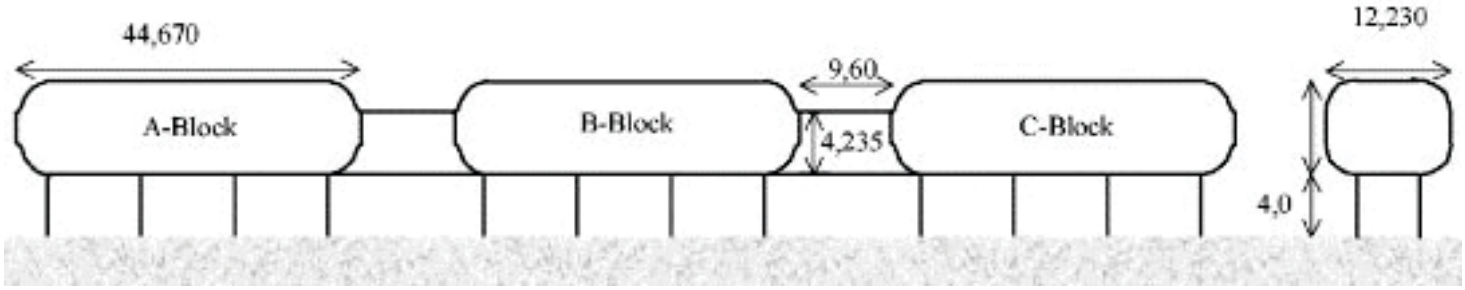
So now we wait to see how the snow will build up around our heaps. The oldest heaps have already formed impressive sustrugi's and we monitor the situation closely.

Base Layout

by Rob

The SANAE IV base is built at Vesleskarvet, 220 km due South of SANAE III. Vesleskarvet is a nunatak which is a rocky outcrop peeping out of a snowy surface.

The base frame is constructed from steel, and the insulation is of rigid, pre-constructed foam and glass fibre resin panels. SANAE IV consists of three linked modules, each double-story, 44 metres (144 ft) long and 14 metres (46 ft) wide. Two smaller nearby structures contain the satellite dish used for communications and the diesel fuel bunkers. Joined end-on-end in a north-south orientation, the base modules are complemented on the northern end by a large raised helicopter landing area with a lifting section allowing cargo to be brought up into the hangar for maintenance.



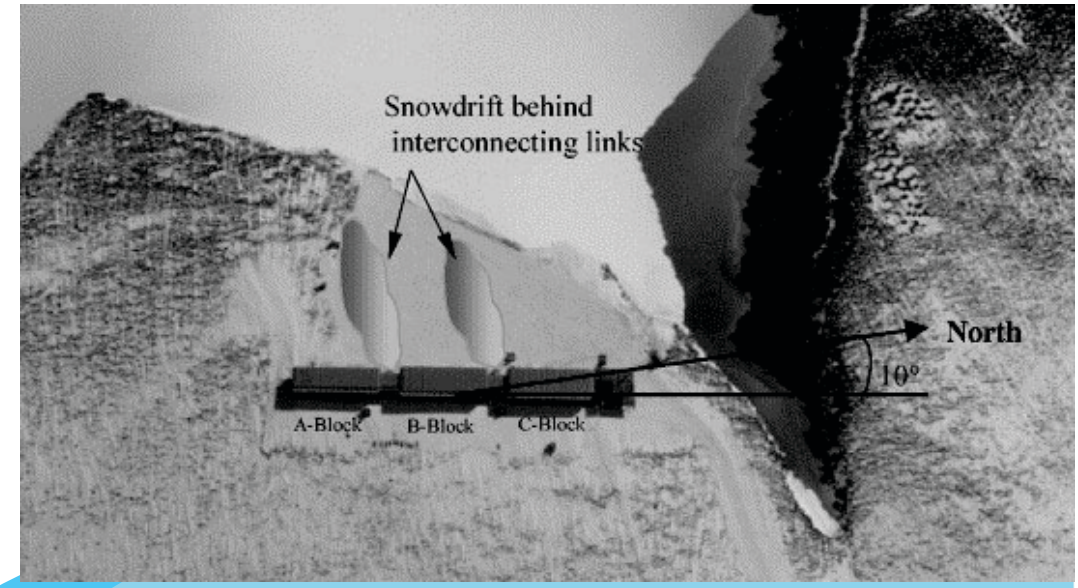
All three units are raised 3,5m above the rock surface of the nunatak on stilts.

The base is able to accommodate 10-12 over wintering team members and 60-90 summer take-over personnel.

Wind tunnel tests were conducted at the Council for Scientific and Industrial Research (CSIR) to determine the most ideal shape and proportion of the structure. Rounded corners and smooth surfaces have been employed to minimize the effects of wind.

As seen on this aerial picture, the two staircases form minor sustrugis and there is still some snow build-up during storms, but not nearly as bad as it would have been if the base was situated on the ground.

All in all the base is well adapted to survive the harsh elements here in Antarctica, and it is built in such a way that it can last much, much longer that it's predecessors.



Where is Everyone?

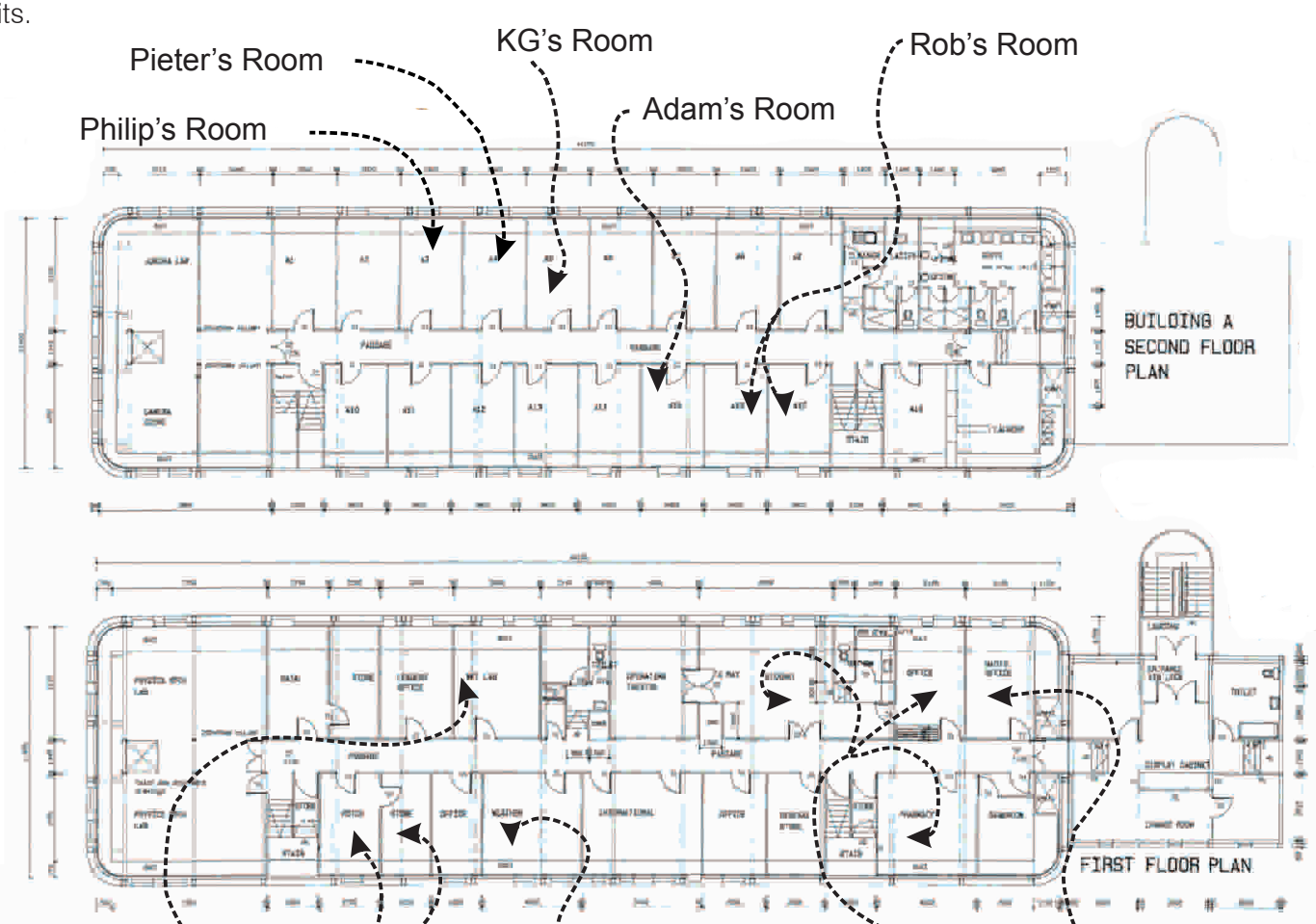
by Grethe

It is crazy how big one building can become for only 9 people. Some days you would think a crazy zombie apocalypse movie came to life and you are the sole survivor. Your mind briefly drifts off to all the worst case scenarios, thinking how would I keep this place running by myself.

Luckily at that point something would distract your crazy brain; footsteps, the knocking of pool balls and a shriek in the background. Sometimes it might just be hearing someone fart through a wall, whatever it maybe, you breathe a sigh of relief and then you try to remember why you were walking in the direction you are heading now. They say this will get even worse in winter, I'll have to start making notes on my hand. But to get back to the point of it all, where is everyone hiding out. Lets take a look inside the base:

A Block

A-block, the southern module, contains the radio room and communications hub, medical facility, darkroom, various research project offices, leader's office, two physics labs, wet lab, store-rooms, another laundry, and accommodation units.



Wet Lab - where Craig boils poo every month, not the nicest of smells, but a man's got to do what a man's got to do.

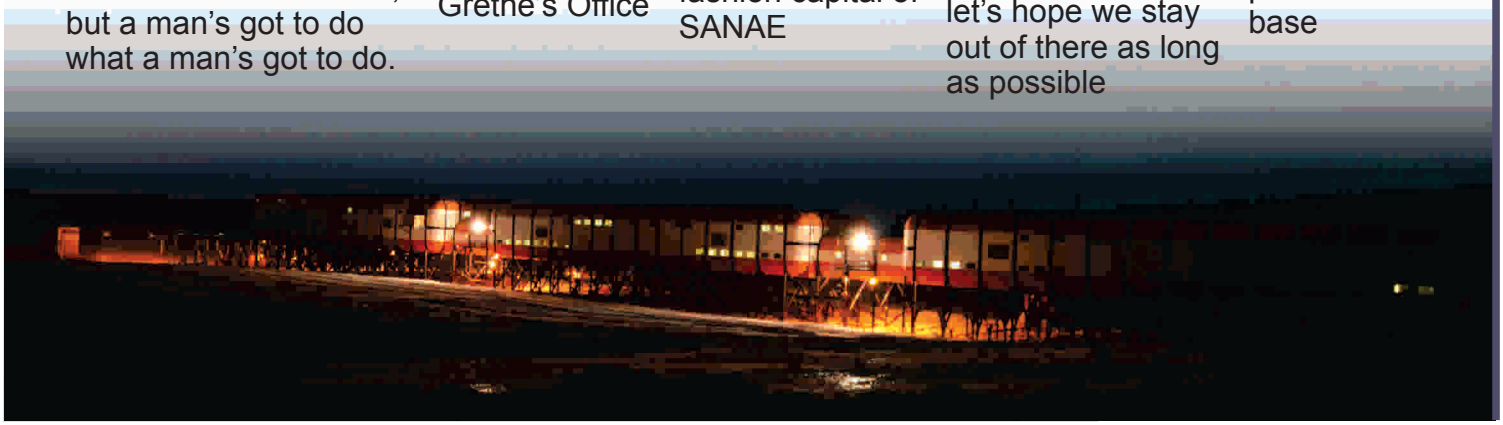
Philip's Office

Grethe's Office

Karabo's Office - it's the Milan fashion capital of SANAE

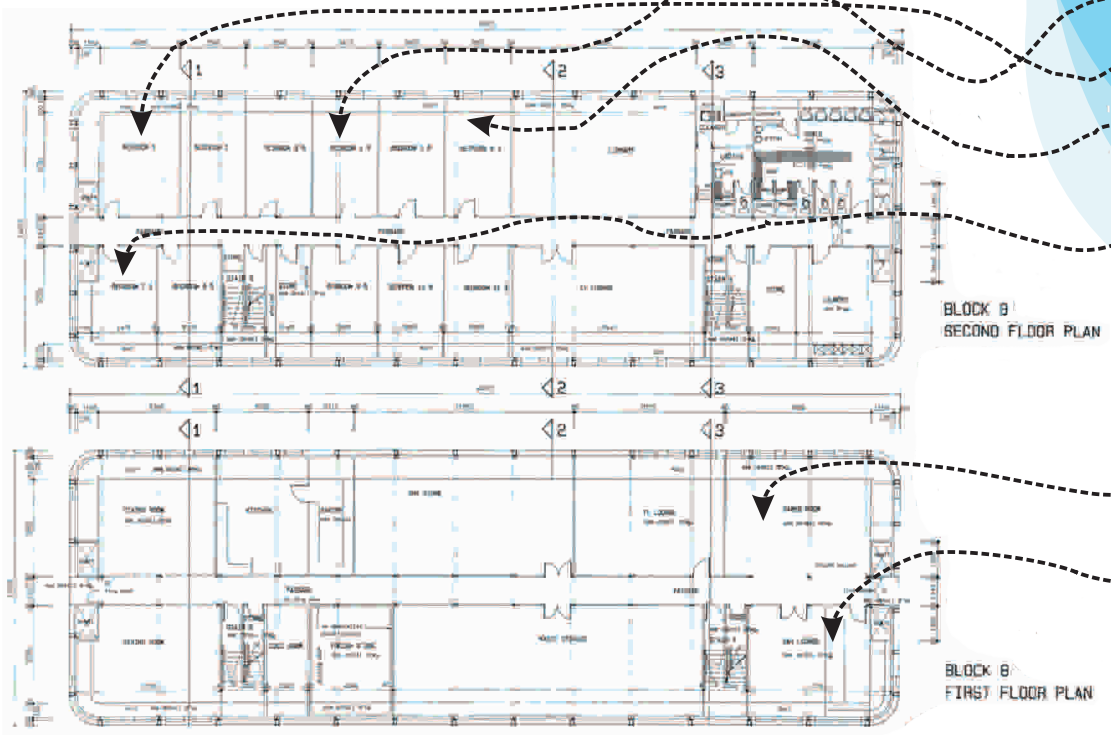
Rob's Office and Pharmacy and Operating Room - let's hope we stay out of there as long as possible

Adam's Office - his favorite place in the base



B Block

B-block, the middle module, contains the kitchen, dining area, two TV lounges, bar, games room, smoker's room, library, a laundry and accommodation units.



C Block

C-block, the northern-most module, contains the large hangar, generator room, workshop, water storage, sewage processing plant, equipment stores, offices of the mechanical and electrical engineers, flight operations office, gymnasium and sauna. The neutron monitors of the North-West University are also housed in this area.

Water Treatment Plant - also known as Poo Plant, Inside Smelly or Stinky - where Craig spends some time getting high on poo fumes while dosing and backwashing.

The Workshop - Pieter and Wihann make many cool things here, I just smile and nod, because I don't have a clue what half of the stuff is.

Science in Antarctica

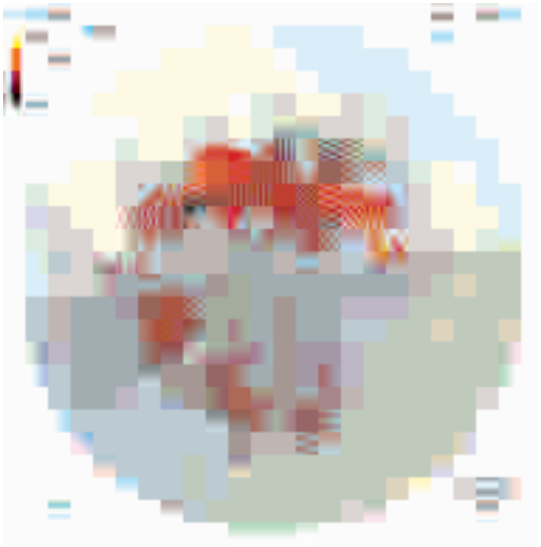
by Philip

Super... DARN - The radar network at SANAE IV

So what's it all about... Well you've heard about Area 51 right? Is it really that difficult to believe that we are tracking unidentified flying objects (UFOs) in Antarctica? Ok, so we cannot officially comment on that and we would rather tell you that the radar system is used for observing the motion of plasma through the Earth's ionosphere.

Space weather has an effect on technological systems such as global positioning systems, high frequency communications and even power distribution systems. In March 1989, a geomagnetic storm caused satellites to lose communication and caused fairly large power outage in Quebec, Canada.[1]

As one can see it is important to study and understand these phenomenon, and the Super Dual Auroral Radar Network (SuperDARN) is one of the tools used for observing space weather.



Example of a plasma convection map (obtained from http://www.superdarn.ac.uk)

The radar system at SANAE IV has sixteen antennas that are secured to 18m tall masts. It operates in the high frequency band between 8MHz and 20 MHz. These antennas give the radar an operating range of over 3000km and also overlaps with the radar networks at Halley base and Syowa base in Antarctica among others.

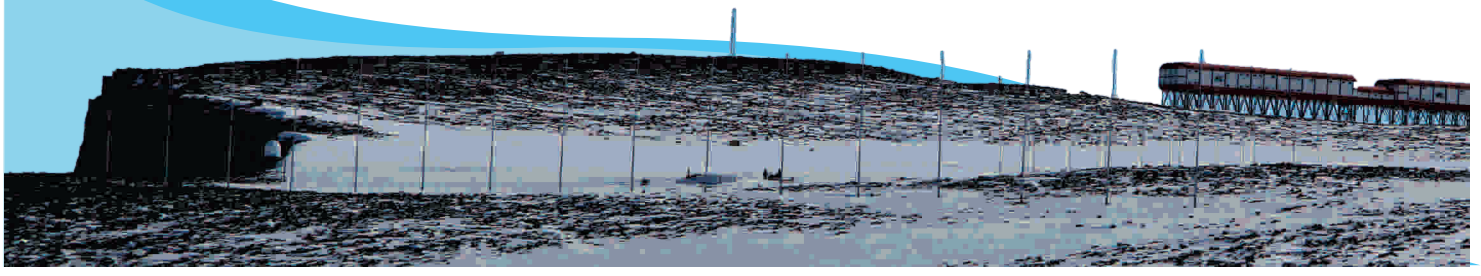
The data products from these radar systems are similar and can be compiled into a map illustrating the convection of plasma in the ionosphere. That is a little insight into the science behind the radar and the one responsible for keeping this system up and running in Antarctica is the radar engineer.

The job of the radar engineer entails keeping the electronic hardware up and running – and it needs a lot of maintenance due to the amount of static electricity build-up in Antarctica. Secondly he/she also needs to climb the antenna masts and fix the antenna stay ropes so that the antenna's shape is preserved to transmit and receive good signals.

For more information about the SuperDARN network, visit the following websites:

http://superdarn.jhuapl.edu/
http://en.wikipedia.org/wiki/Super_Dual_Auroral_Radar_Network
http://www.superdarn.ac.uk/

References: [1] http://en.wikipedia.org/wiki/March_1989_geomagnetic_storm



Cold Weather Gear

by Adam

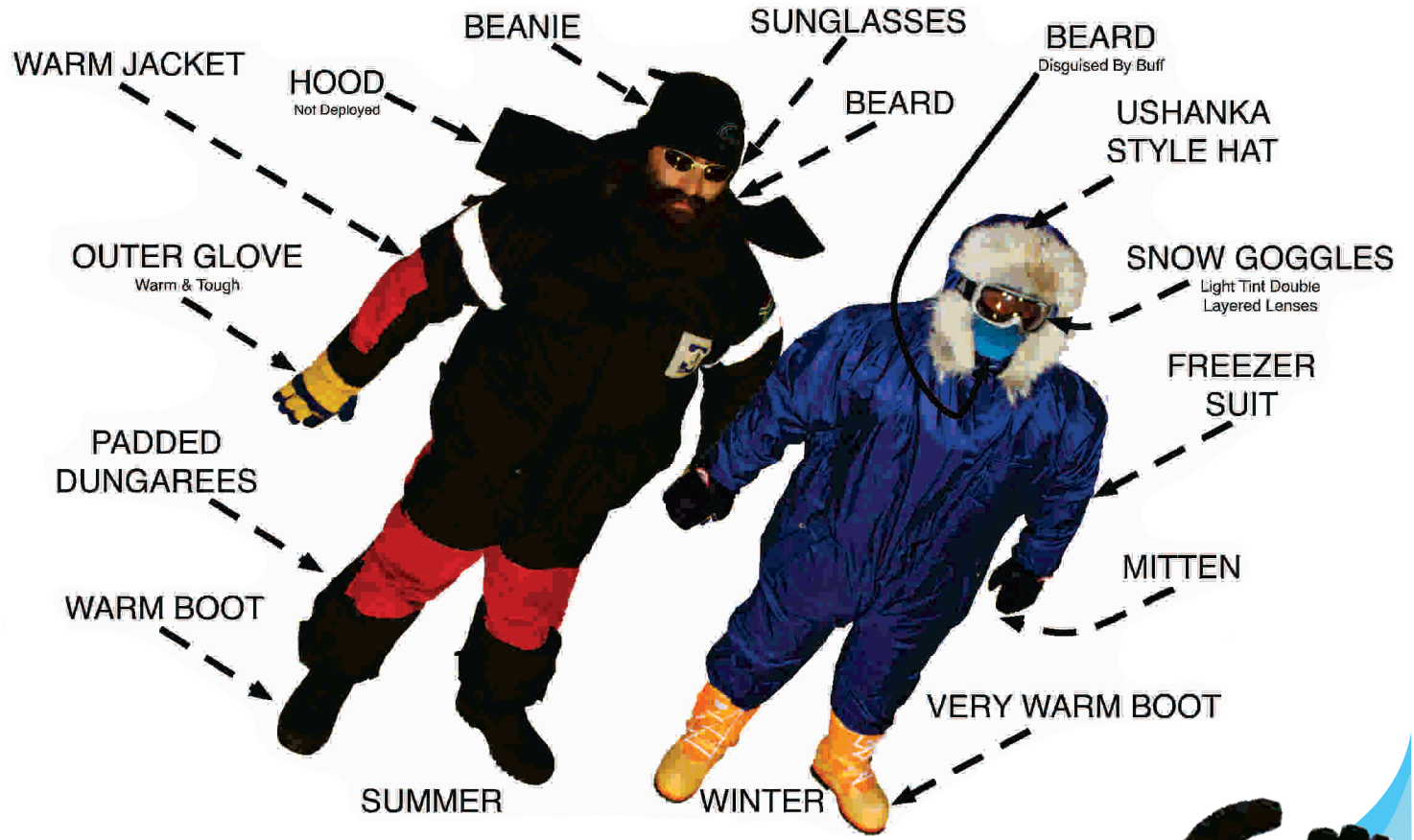
Due to the extreme temperatures it is essential that one is correctly dressed when going outside. This can mean putting on everything that you own or even just a t-shirt and pants.

For example, at the time of writing it is - 6 degrees and 2 knots, meaning that it is pretty much a day on the beach.

Rather than bore you with text, we found some guy at the base tied him to the ceiling and had a fashion shoot.

Unfortunately superman capes are not standard gear issue which in this case is unfortunate

Since cold weather gear does make one look like a super hero, we went for a Louise and Clark theme



Smelter

by Craig

Life: life is food and water, hence life is also smelter. The smelter holds a lot of us for ransom. it may be to get out for 3 hrs, so as not harm your fellow team mates in the base. It is sometimes also just the PUMP HOUSE, where you spend time throwing snow into a hole to make water.

The smelter is a big tank in a big hole in the ground with lots of big heater elements which are used to melt the snow and ice into…yes LIFE. Yet at times it brings some of the toughest challenges. Going out to make water, getting punched in the face by swinging poles, as you battle to break ice bridges that have formed above the opening to the tank, and then shoveling the snow and ice for 30 minutes into a thirsty opening, just so that we can all take 30 minute showers to try to smell as beautiful as Karabo.

After fighting like a beast against toughened ice, you are out of breath, and have managed to accumulate 1 litre of sweat in your extreme cold weather gear. You become so drenched that it is running into your boots. At this point there is nothing better than climbing down the hatch into the pump room.

However sometimes getting into the pump room poses a few problems: finding the hatch – hhhmmmm requires more shovelling. Opening the hatch on all fours, you finally position yourself to climb down the ladder, opening the big fridge door you run into…yes LIFE, it somehow finds its way in everywhere. You are now tasked with setting up a pump and climbing out again with the pipe to remove the unwanted water.

You now have 1 litre of liquid in each boot….hhhmmmm LIFE, do I put it back into the smelter? Now, one is thawing out in the strange smelling pump room with the wonderful ambience of the warmth and droning motors.

You may then proceed to take a chair, while you pump LIFE up to the base and, yes, ponder life at the same time.

So to sum it up; SMELTER is life, be it for water, be it for solitude, be it for your daily workout of shovelling, but not for Kgmotso who quite honestly believes it is a place that has come to challenge him.

WATER IS LIFE....

Birthdays

by Adam

Three of the team have had birthdays so far. Karabo was early during takeover, so there were lots of people around to celebrate. Nezaam, the cook for takeover, kindly made Karabo a cake.

Wihann celebrated his birthday at E-Base and was lucky enough to have 3 birthday cakes. The first was great tasting, but had structural issues, so it sort of fell over into a pile of sticky goodness. The second was a present from the German team at Neumayer II who saved the day by providing a structurally sound cake. When we arrived back from E-Base to SANAE IV he was given cupcakes with candles on them to celebrate along with the rest of the team.

For his birthday, Rob received what on the surface was just a cake with candles and his name on it, but under the surface, though it turned out to be filled with rainbow goodness.

Wihann taking his snow bath like a man - don't worry folks, no Wihanns or Wihanns's tools were hurt in the making of this photo - we are taking strictly mechanics here ;)

Recipe for Rainbow Cake:

5 eggs (1 per colour)
25 ml lemon juice (5ml per colour)
250 gr sugar (50 gr per colour)
40 ml warm water (8ml per colour)
250 gr flour (50 gr per colour)
7.5 ml backing powder (1.5 ml per colour)
pinch of salt (teeny weeny pinch per colour)
5 gel colours (available at speciality baking stores like Value Baking Supplies)

1. Separate egg, white into one bowl and yellow into other bowl.
2. Beat the egg white until soft peaks form.
3. Add lemon juice and 25gr (½) of the sugar.
4. Beat till hard stiff peaks form.
5. Move to egg yolk bowl and add water and beat.
6. Add about ¼ tsp of desired gel colour and mix well.
7. Add 25gr (other ½) of sugar
8. Beat until lighter and well aerated.
9. Fold egg white mixture gently in to egg yolk mixture.
10. Sift dry ingredients together and fold into mixture gently.
11. Repeat for 4 other colours
12. Layer as desired in 2 round buttered and floured cake pans.
13. Bake for less than 30 min at 180°C

Ice and decorate with normal butter cream if desired.

German Cake

Cupcakes

Under the surface lurks rainbows

Weather Stats for March:

Temperature

Minimum:	- 24.2 °C	(on 22/03)
Average:	- 16.1 °C	
Maximum:	- 5.8 °C	(on 03/03)

Pressure

Minimum:	864.4 hPa	(on 24/03)
Average:	877.2 hPa	
Maximum:	893.3 hPa	(on 09/03)

Humidity

Minimum:	22%	(on 03/03)
Average:	66%	
Maximum:	94%	(on 17/03)

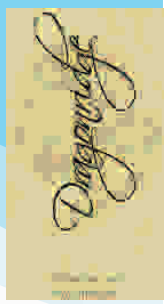
Wind Gust

Maximum:	32.9 m/s	(on 24/03)

Average Daytime Length:

13 hours 2 min

Stats & Sponsors



Special Thanks to:

A. Zięba
G. Moriss

Photo of the Month: See Above
Taken by Adam

Quote of the month:
"Ah man, you took my breath away" - Karabo, every night after dinner

Movie of the month:
Underworld - all of them

Song of the month:
Ek wil jou soen - Kobus

MEERLUST