SANAE 46th Expedition Newsletter

Report Number : **S46-NL-26/03/2007-12345ABCDEF**

To : **Parents, Family, Friends, Sponsors, Romans & Countrymen!**

From : **10 Crazy (-ish) 46th Team Members**

Date : **Today**

Hi All!

Welcome to our first official newsletter!

The ten crazy-ish members of the 46th South African National Antarctic Expedition has now been officially on their own for a month and a bit! And survived it, mind you! With the take-over personnel leaving us to fend for ourselves, we had to make some adjustments with regard to our daily lives. Suddenly we had time to catch up on some badly needed sleep!

Above is a photo taken from the SA Agulhas showing the rolling motion of the ship. The camera is true to the ship but the horizon does it's own thing! Needless to say, sleep was a luxury we only had as we approached the ice. Because the floating ice acts as a shock absorber, the sea is smooth and the beds lie still. The weather is also much calmer when leaving the Roaring Forties. Then again, the sun never sets on the Antarctic Empire (in summer anyway!), and one can easily stay awake all 'night' without realising you are way past bed-time (Sorry Mom!!)

Above is a picture of the kitchen window in the background on Christmas morning and the time the photo was taken. Quite confusing!

Take-over is the time when about seventy or so people invade the privacy and calm of the old

year-team, transforming the normally quiet SANAE IV base into a hive of activity. Because of the short span of fairly good weather during the Antarctic summer, people, equipment and supplies needs to be offloaded from the Agulhas onto the ice and transported to the base, 165 kilometers away.

verantwoordelikheid lê by twee spanlede om die aandete voor te berei. Gelukkig kan almal van ons die prentjies in die resepteboeke lees en moet ek sê, het ons nog nooit een aand blikkies oopmaak uit radeloosheid nie! Dit bring my by die volgende kwessie uit: Toe die take-over personeel weg is het hulle klaarblyklik die sjef

"A Bulldozer buzy preparing the ramp for off-loading of cargo"

Because of the yearly increase in the height of the ice-shelf, a ramp needs to be made with the use of bulldozers. Even in a harsh environment such as this, the Blue Bulls survives! Yes, believe it or not, The Bulls are represented even on this continent.

Nou ja, wat kan ons verder sê oor die take-over…oftewel, oorname? Daar is net 'n beperkte tyd om die uitstaande onderhoudswerk te doen en almal spring in en sit 'n hand by. Gedurende oorname is dit 'n warboel van wetenskaplikes, ingenieurs en skiewies wat die basis vol is!

Gepraat van skiewies. Die basis moet elke oggend skoongemaak word en daar is roosters opgestel om te help met skoonmaak, ys smelt vir water en kombuis skiewie. Kookbeurte is volgens die kombuis-skiewie-rooster, en die

per abuis saamgeneem. Ons het gepleit en mooigevra om iemand agter te los wat die kombuis ken, maar te vergeefs! Hulle kon nie omdraai om John terug te bring nie, en moes ons maar self inspring.

With the odd exception, very few complaints have been heard around the dining room table regarding the food is prepared each day. One thing that they did tell us before coming to SANAE was that no pets are allowed….

We have no idea where or how this one slipped past…

"a picture paints a thousand words!"

Living so close to other people, we become like family. As we are dependant on each other for so much, we have grown very close in the past month. It is with this team-spirit that the technical team attacked the two major problems that came up during the past month.

The cold room's refrigeration plant packed up, two days after the last maintenance personnel left the base. Believe it or not, we have a big cold room with a freezer on the base. This is not to keep to stuff cold, but rather to keep it warm! With outside temperatures always well below zero, it is imperative to keep the food from freezing.

We still have an amount of fresh produce in the cold room and we enjoy a bowl of carrot salad every so often. The apples are also still in very good condition, considering that they have been loaded on the ship, beginning of December, last year!

The other major problem we experienced during the month was a frozen smelly line. The smelly is a water-maker-device-thingy that is fed snow/ice and melts it so that the base can be supplied by water. A 180 meter waterline connects the smelly and the base and because of the extreme cold outside, the 2 inch water pipe is heated up by the same heater tapes as used for underfloor heating. This heater tape draws huge amounts of electrical power and a fault on the tapes caused the line to freeze up. This in turn caused the water levels inside the base's tanks to drop.

Once again, the technical team saved the day and had to work in -17 degrees Celsius conditions to fix the problem. Needless to say, now that the water is pumping again, do the showers also work better! When a water crisis exists, water restrictions are enforced to extend the life of the water in the reservoir tanks. This means that one can easily go for up to 6 days without a shower, especially during take-over.

Gedurende die afgelope maand, is verskeie ontspannings projekte aangepak. Soos reeds genoem was die eerste en grootste projek om verlore slaap in te haal. Gedurende die take-over het ons sewe uur in die oggend begin werk en somtyds tot nege uur in die aand aangehou.

Die volgende projek wat aangepak was en moedig voortgedryf is, was die bou van 'n 2000 stuk legkaart.

Needless to say, a feeling of dread developed amongst the most hardened puzzle builders. We could not finish the puzzle as a lot of pieces were missing. This has been puzzling us all the time and it was ultimately decided to break up the puzzle and start working on an un-opened one.

A very special thanks goes out to all our sponsors! Without the assistance from you guys we wouldn't have been able to go as far as we have!

Although the 10 expedition members are provided with food and protective cold-clothing, we are expected to bring a 15 month supply of basic clothing and other goods. The cost of these supplies accumulates quickly and with the help from the sponsors, we were able to save a lot on basics such as Toothpaste, Brushes and Mouthwash (Colgate), Senwes Co-Op for Torches, Eiger Equipment for Petzel Headlamps, Johnson & Johnson for toiletries such as Soap and various other Lotions and Potions. A big thanks also goes out to Signature Cosmetics for keeping our girls' beautiful.Thanks also to KWV and Brandhouse for helping us to keep the cold away with the finest of KWV Brandy and Captain Morgan Rum.

Furthermore, we also like to thank Namibia Breweries, South African Breweries and "The Wine Village" in Hermanus for helping us with beer and wines to go with the lovely Frescarini Pizza sponsorship from General Mills. For saving our eyes from harmful UV radiation, Bondi Blu provided us with various sunglasses, including the new range of Polar Blu Polarized Sun glasses.

"Nothing refreshes like a cold Windhoek!"

Below is 'n picture of a typical pizza 'night' at SANAE!

Now over to Tamara Spinks for her arctic-le on strange behaviour and other strangenesses…

ALIEN NATION

On the 12th of January this year I departed for one of the farthest most extreme environments on earth to be the medic for a team I did not yet know.

What did I know? Well the Antarctic is a huge desert with the largest amount of inaccessible water, it's practically sterile of land-life, the temperature can drop to -60 degrees C° in winter and the wind speeds can reach 240 km/h. There are months of day and months of night and during winter the base is inaccessible as the sea freezes over and the storms pull in.

So what is this alien world really like? Well, when I arrived I realized that some residents of this base have far more body hair than is socially acceptable. Maybe Santa came from the South Pole not the North! We have a room set aside for the 'Garden and Library'. Yet there are no plants and the books are locked in another store room. We have the most amazing range of Challengers, cranes, tractors and skidoos; but if you want to use them you have to get out a spade and dig them out of the ice first. As for fast travel; well forget about it. A trip of 160km can take you

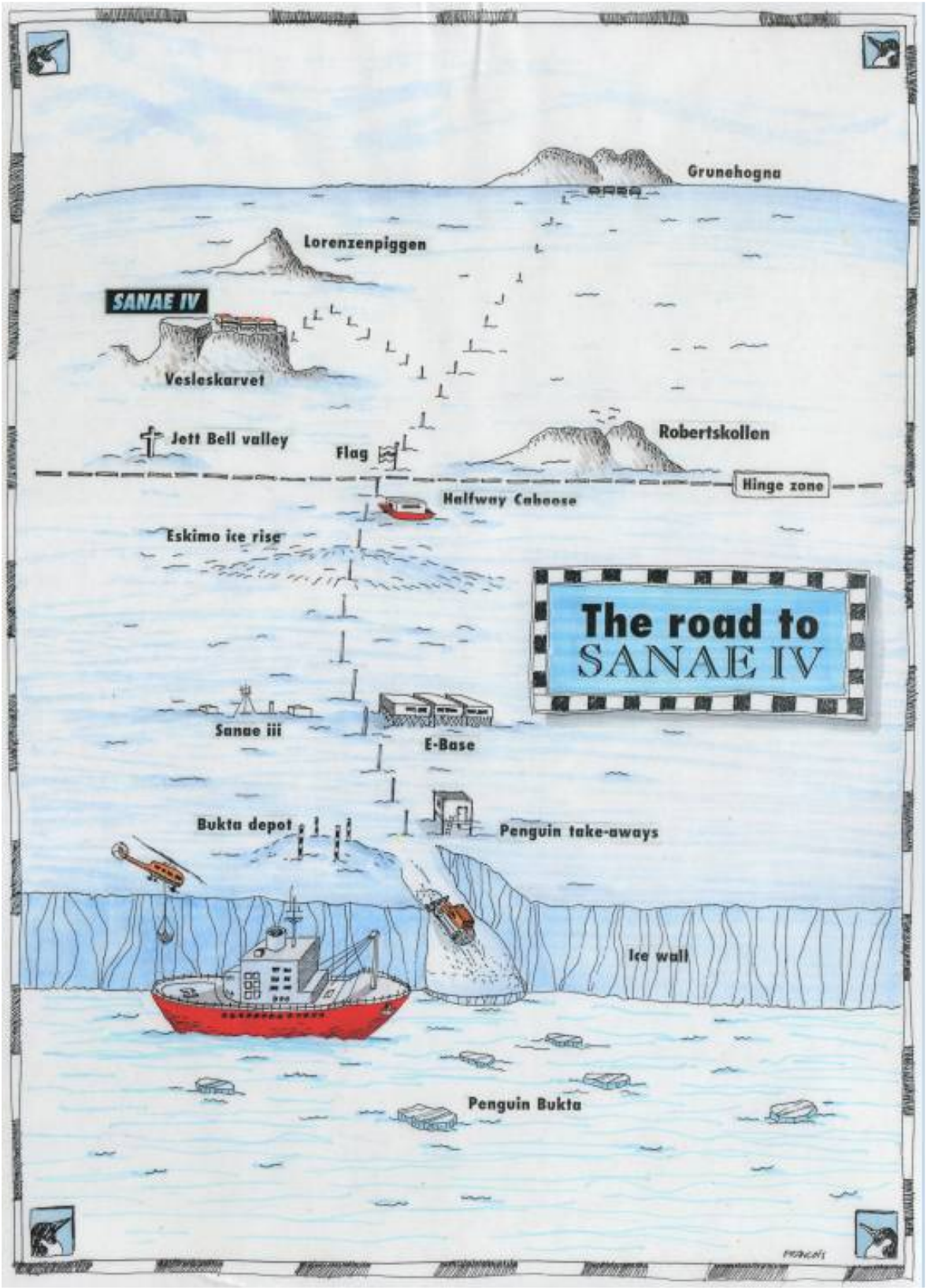
12hrs at the break neck speed of 12-17km/hr. The break neck part comes in with the bone breaking shuddering of the tank like tracks passing over ice and snow uninhibited by shock absorbers. This results in the sensation of your various body parts departing in different directions simultaneously on different errands. I found that snow sports are overshadowed by the annual take-over competition of seeing what the maximum amount of people are that can get onto the bar table simultaneously. The current record by the way is 21, and yes, the table has been specifically designed and stabilized for this activity. Then there is the interesting confusion of awaking at 4 o'clock and not knowing if it is the middle of the night or day as the sun continues to shine through the porthole like windows all hours.

Currently the favorite dinner-table conversation is whether to put baked beans or peas into the survival dome and what the actual chances are of the base burning down. There is lively debate as to how much MSG is too much and how often serving vegetable soup is acceptable, if at all.

Frankly after one month of being here I started to wonder if we aren't more alien than this alien nation, and whether we all had to pack up our lives and move away from our families half way round the world to discover our own strangeness.

But then I stand in the windscoop and take in the magnificence of a blue frozen lake, of millennia of white ice crystals stretching as far as the eye can see. I hear what true silence is and watch the ocean of snow drift in the arctic winds likes a massive undulating ocean at the foot of the breathtaking cliffs that are our home. I realize that yes, we may be the aliens here in this lunar-like landscape, and that the strangeness may emanate more from us than our environment; but we have made it home and although we don't have a green indoor garden, we have a sastrugi garden! (Sastrugii are formed when any object is placed on the snow surface. The wind blows the snow over and around it and interesting patterns are formed, mostly behind the object. They are also formed as wind passes over the surface and small dune-like patterns are made in the ice. You can't beat that in SA!)

"The Windscoop In All Its Magnifiscence"



"A Cartoon Showing The South African National Antarctic Programme"

Leonard's Take On Things…

Have you ever seen the mirages at E-base? Or rode in a shaking Tractor for 13 hours continuously, bumping your head now and then while a lonely but seemingly very hungry Skua swoops down from time to time to investigate the possibility of a quick human snack.
Have you ever stayed in a caravan that is so cold inside that you have to put your beer in boiling water to defrost before drinking?
Yes, this is Sanae. A Place that was definitely not meant to be inhabited by human beings but which we, the lucky few, have the opportunity to visit for scientific reasons.
Getting here was also an amazing experience. Breaking through and getting stuck in walls of ice with a creaking ship (luckily a very reliable old lady) is definitely not for the faint hearted and rolling around the ocean for 16 days was enough to upset even the toughest of tummies.
Then why do you do it, might you ask? Well---After being fortunate enough to have ventured to Marion and Gough for over wintering experience nothing in the world would have been able to discourage me from experiencing Antarctica's majestic beauty and brutality.

After takeover I thought we would be alone but Air traffic got so hectic at some stage I thought I was manning a control tower at a big international airport and we were lucky to make a few new international friends. Observing a DC3 landing in the snow is a sight to behold for any aeronautic enthusiast like me but sitting all cramped up with all your emergency clothes on in a Bell Helicopter for an hour and a half while being transported from the Bukta (Bay) to Sanae is something else. However having an aerial view of our new home, the mountain and the wind scoop was spectacular.
There was also a rumor of a certain group of people who tried to entice a Boeing 747 to land at Sanae Base. I'll rather not publish any names in fear of revenge.

Weird things also happen at Sanae base. We had a milk explosion in the waste room with the unfortunate Gert at the receiving end, I heard aliens knocking on my window one night and the recent lunar eclipse was enough to cause a total eclipse of the brain and made me realize how small and insignificant a few human beings is on this great white expanse.

Forget about all the scientific gadgets at Sanae.It seems the most important piece of equipment on Antarctica is a spade. If you're not digging to make water or searching for your snow vehicle then you might find yourself digging the whole day to find buried sledges and drums or trying to uncover a teammate that might have been forgotten under the snow from a previous birthday party ritual. (Luckily whisky does not freeze).

Fortunately the weather at Sanae is a little more predictable than at the Islands with their temperamental mountain behavior and one can easily plan short trips for a bit of fun in the sun and snow. But for stormy days I was wise enough this time to pack as many hobbies as possible including a few model aircraft, flight simulators, cameras and electronic projects to last me the whole winter. (Yes we have one here also. And how do you tell the difference? Easy—
Summer: -17˚C , Winter: -47℃)

To my family and friends back in the good old sunny Free State as well as the DEAT department I just want to thank you for all your moral and logistical support during this trip. Without you this would surely become a very lonely and desolate place. Even the smallest E-mail or hello over the phone is enough to keep us going.

Leo

"Challengers On Their Way To The Bukta"

"Leonard's Snow Bath for His Birthday"

Research At SANAE:

The Where, Why, How and Wow:

Because we live in a physical world, it is imperative for us to understand how things around us fits together.

Marvels of modern technology such as cellphones, Satellite Comunications, GPS's, and Space Flight are some of the areas that benefit from our research.

During the course of the following newsletters, Chantal and Anton will explain more about the research they conduct and how it affects our daily lives.

Sometimes One Gets Lucky…

By Anton Feun

The ever changing nature of nature has brought about yet another extraordinary global scale phenomenon – right on our doorstep! Strange how it seems that things in nature always become less – the ozone, the oil and now this opportunity befalls the earth's magnetic field. Anyhow – less is more – and this is certainly true for the degree of international interest in a region which has become known as the South Atlantic Magnetic Anomaly.

The aforementioned anomaly covers a vast area which ranges between the Eastern South Americas, South Africa and the Antarctic continent. By virtue of comprising essentially "open ocean" with very few islands, magnetic observations in this extensive area only realised with the advent of observations performed by satellite. It is presently accepted that the total magnetic field in this area, over the last 20 years, has declined approximately 33% faster than in the surrounding areas. A very rapid change indeed.

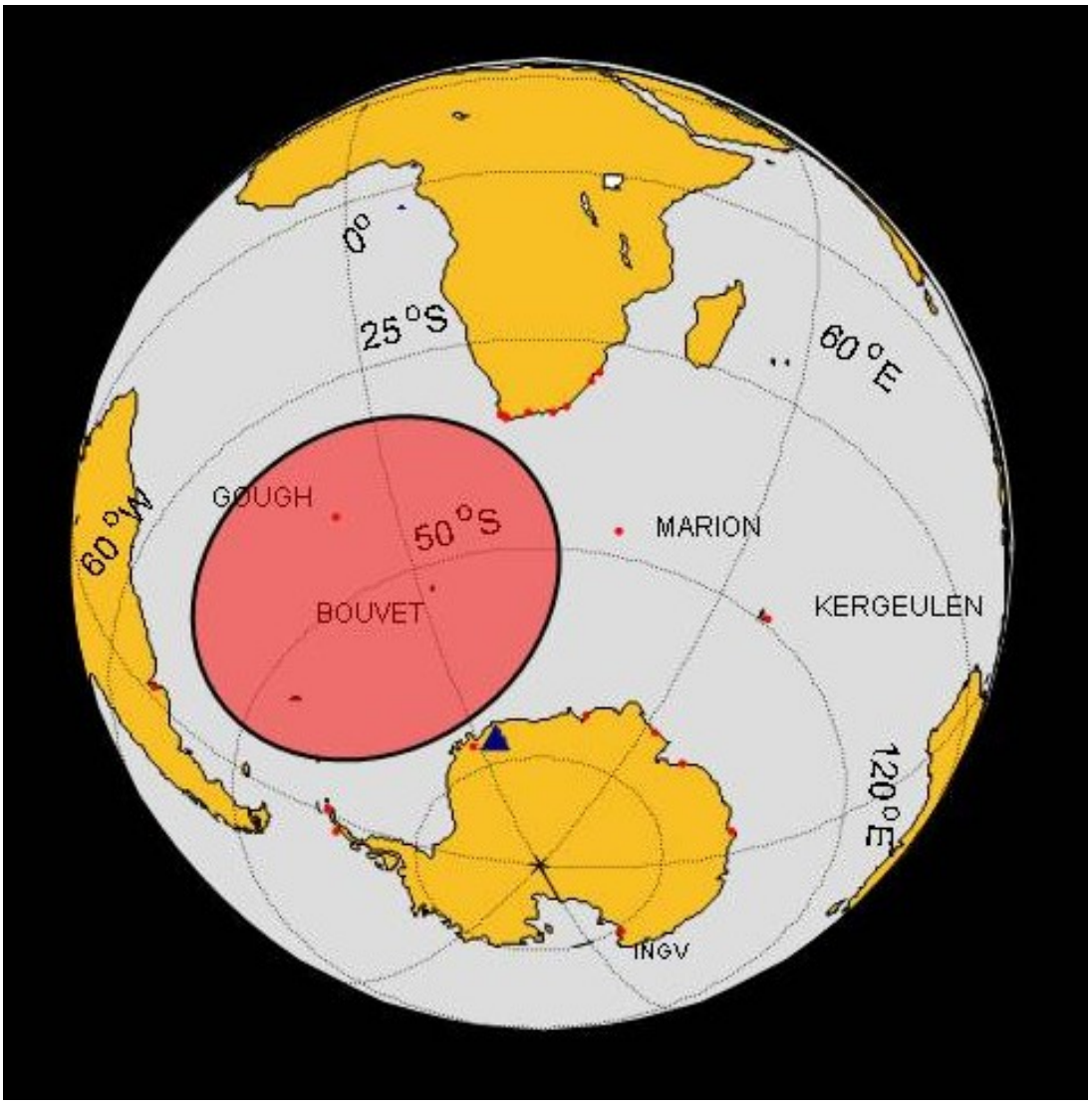
The possible reasons for a decline in the magnetic force and the influences on life – in particular human life – is a subject for another article altogether. Suffice to say here that the South Atlantic Magnetic Anomaly is an international "hotbed" of scientific investigation. Since there is nothing we can do to prevent this occurrence, the next best option is to monitor the unfolding situation in association with the international community and adapt our behaviour in accordance. And we are right here! No other country in the world is as well represented in the vicinity of this anomaly as South Africa is. Besides on the African continent, South Africa has permanent representation on Gough Island, Marion Island and at the South African National Antarctic Base SANAE. As such South Africa is becoming a key international partner in monitoring this significant large scale phenomenon.

What is required is to systematically establish professional magnetic observation facilities at the superb remote observation stations under South African control. Scientists at the Hermanus Magnetic Observatory recognised this magnificent opportunity and utilised the impetus provided by the advent of the International Polar Year to bring about the first step, which is to expand the magnetic observation facility at SANAE. This is my task. Second time Lucky! A unique task, which abounds with creative opportunities. Let no one

tell you that there are no top jobs in government available anymore!

In the next issues we will have a look at what comprises a magnetic observation, and have an adventure with sastrugi.

"Approximate Location of South Atlantic Magnetic Anomaly"



“….In memory of Dewald”

The SANAE Space Physics Programme

North-West University - Potchefstroom

Introduction:

The earth is continually bombarded with electromagnetic waves and high-energy particles from space. The stars are the source of all this matter and energy.

The main objective of our research programmes at Sanae is to investigate the effects that these particles and electromagnetic waves have on the earth's atmosphere and magnetic field.

Theory:

Basic physics: If a charged particle moves in the vicinity of a magnetic field, the forces acting on it will cause it to spiral around the magnetic field lines.

The sun, being our closest star, is the main source of electromagnetic energy and high-energy particles. 5 Million tons of matter is blasted away from the sun every second at an average speed of 400km/s. The sun's magnetic field is also carried with the matter.

If a solar flare occurs, much more particles are ejected and at much higher speeds.

Research programmes:

AMIGO – Antarctic Magnetosphere, Ionosphere Ground-based Observation

1. **Riometers** – Relative Ionospheric Opacity –meters

"Imaging Riometer – East of base"

A Riometer receives radio waves from all stellar bodies in the universe. Since the positions of the stars are relatively constant, the signal looks the same every day except for a shift due to the earth's travel around the sun.

If a burst of high-energy particles reach the ionosphere, the ion-density changes and the radio waves are absorbed. This is observed as a decrease in the signal of the riometer receiver.

We have two types of riometers:

a) Wide angle riometer antennae which "looks" at the whole sky above us.

b) Imaging riometer antennae are used to scan through 64 small areas above us. Thus enabling us to build a "picture" of what happens in the ionosphere.

2. **Magnetometers**

We have two magnetometers, one situated in rock and the other one in ice. A magnetometer measures the horizontal and vertical component of the earth's magnetic field which is influenced by events which occur on the sun and in near earth space.

"Magnetometer"

3. **Aurora**

We are responsible for recording the very spectacular light phenomenon, namely the Aurora Australis. This is done with two cameras, a whole-sky- and narrow-angle camera.

"Aurora to the South"

"Aurora to the South-West"

As the darkness creeps up on us, the Aurora will become visible.

Watch out for next month's news letter for an in depth discussion and an update on our first Auroral experience.

ANOKS – "Antarktiese Navorsing Op Kosmiese Strale"
(Antarctic Cosmic Ray research)
Particles exceeding a certain energy level (very high energy), are classified as Cosmic rays.

"Neutron Monitors"

High-energy particles colliding with gas atoms in the atmosphere, split up in constituent parts. Neutrons from these collisions activate the gas in the tubes which gives off a small electrical pulse. These pulses are amplified, counted and logged on a computer. The amount of pulses counted every minute is equivalent to the amount of high-energy particles reaching the earth.

Why Antarctica?

Because the field lines of the earth's magnetic field are near perpendicular in the polar regions of the earth, density of incoming particles is very high in these regions.

Also – no people means no pollution and also no radio wave pollution. Therefore, no interference with sensitive instruments.

Antarctica is therefore a nice clean "Window into the sky"

Benefits from research:

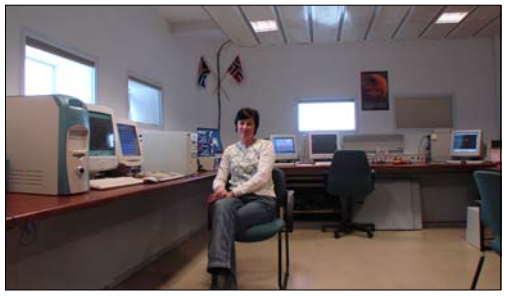
Modern communication and navigation systems are mostly dependent on satellites. Launching of, communication with and control of satellites are dependent on conditions in near earth space.

The international scientific community is only starting to understand the processes involved. The phrase "space weather" was created recently. In short, we are contributing to the international knowledge pool concerning space weather and our data is used by space agencies to do space weather predictions before satellite launches for instance.

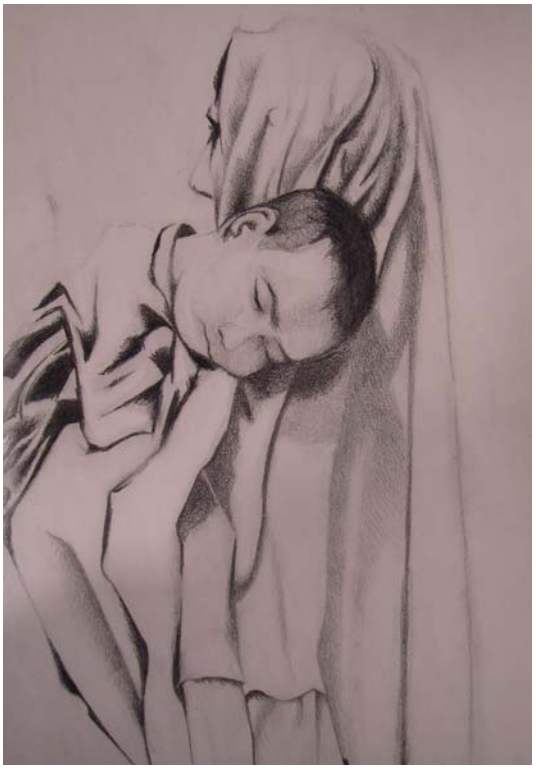
The benefits of this must be clear to anyone who has ever watched the South-African Cricket team, on live TV, while they are winning a one-day international overseas. (When they win!).

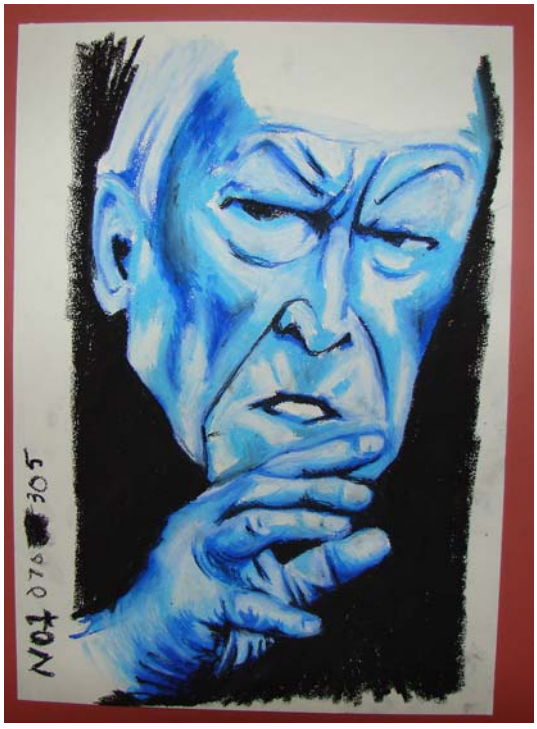
This news letter was sent via satellite!!

Chantal Steyn



Some of the arwork that has been done during the past month:





UNBOUND PRODUCTIONS is inviting candidates to audition for the position of

CREATIVE DIRECTOR

who will be responsible for developing the creative concepts pertaining to the filming of

"Those Boots Where Made For Walking"

commencing in Spring 2007 at or near a location close to SANAE.
Interviews will be held in the Aurora Offices in early May.
Please call Anton at 227 for appointments. Portfolio Essential.

- LOST & FOUND -

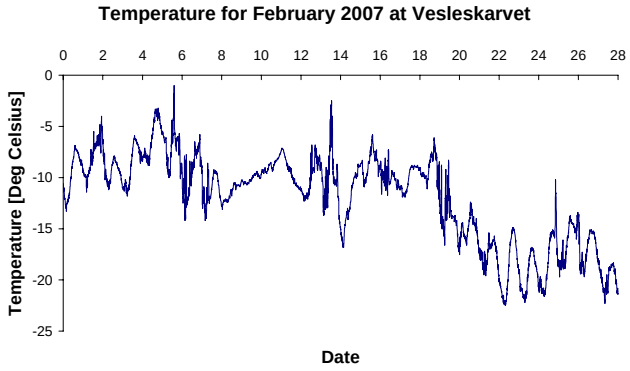
Lost: On a recent trip to the smelly, I lost a glove…if anybody have seen this glove, please report it's whereabouts!

ABSOLUTE CONFIDENTIALITY IS GUARANTEED

PHONE: EXT 229

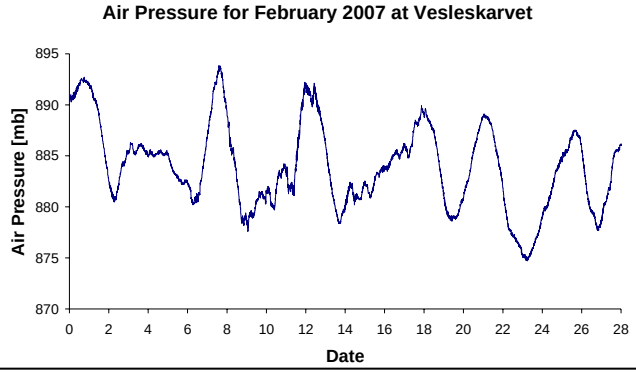
(it's a pink glove with blue dots!)

WEATHER DATA FOR FEBRUARY



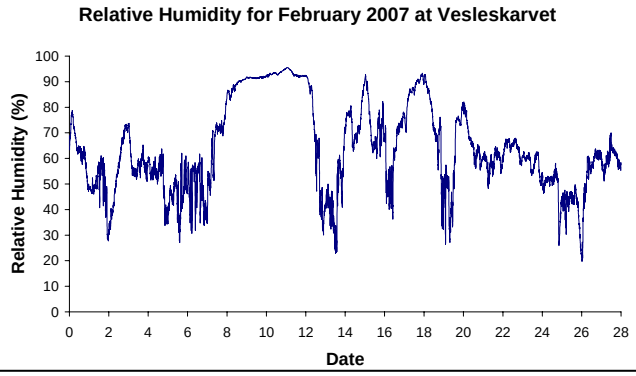
Temperature

Min	-22.50	oC
Average	-11.95	oC
Max	-1.00	oC



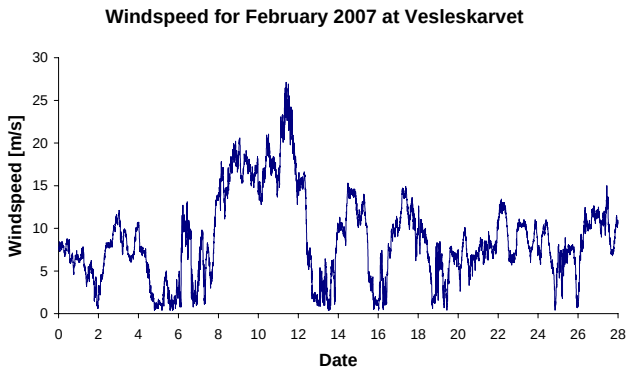
Air Pressure

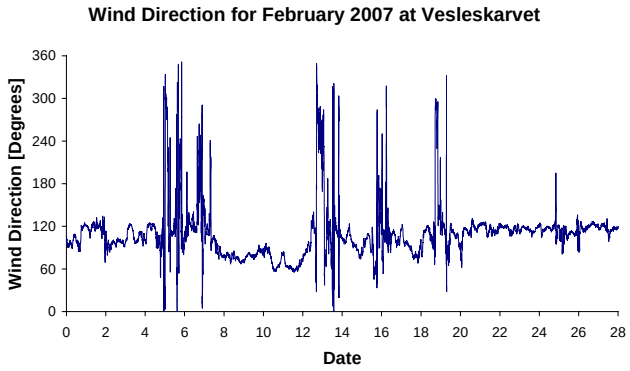
Min	874.70	mb
Average	883.95	mb
Max	893.80	mb



Relative Humidity

Min	19.80	%
Average	64.19	%
Max	95.50	%





Wind Speed

Min	0.40	m/s
Average	8.79	m/s
Max	27.10	m/s
Max Gust	32.00	m/s