The Wanderer

MARION ISLAND 67TH OVERWINTERING TEAM

September 2010

South African Weather Service

Ave Max Pressure	1012.7 hPa
Ave Min Pressure	999.6 hPa
Ave Pressure	1005.7 hPa
Max Pressure	1031.5 hPa
Min Pressure	969.6 hPa
Ave Max Temp	6.9 °C
Ave Min Temp	1.1 °C
Ave Temp	4.0 °C
Max Temp	12.7 °C
Min Temp	-3.7 °C
Ave Humidity	80 %
Max Humidity	99 %
Min Humidity	48 %
Max Wind Gust	29.2 m/s 105.1 km/h 56.8 kt
Total Rainfall	147.6 mm
Highest in 24 Hours	38.6 mm
Total days with rain	19
Total days > 1mm	18
Total Sunshine	141.5 hrs

From the editor

Nesting site marker flags being carried to Trypot (Kari Schoonbee)

Another month has passed in the wink of an eye, and we have crossed the six-month mark of our stay on Marion. This date went by mostly unnoticed, however, as construction logistics and heaps of fieldwork have kept every mind firmly on work and little else.

Our regular features 'Marion Landscapes' and 'Route of the month' can be found in this issue, although 'Dear Jean' has been shelved until next month. Jean and the other two sealers are very busy at the moment with Elephant Seal breeding season, and we hope to give updated stories and pictures about this exciting time of the year in next month's issue.

Enjoy our stories and images of Marion.

Cobus Cronjé

Inside this issue:

Marion Base telephone number

021—405 9460

GIRL POWER

Marion Island was a male-dominated territory in the past as no women were allowed on the overwintering teams. There are still relics of this time, such as old team photos of scary, hairy rough-looking guys, as well as a bar named *The Tit 'n Fanny*. How intimidating this island must have been for the first female team members to arrive, and I suspect they probably felt pressured to fit in with the hardcore character established by previous male teams. Fortunately, this time has passed.

It was a great relief when I found out my overwintering team will have six females in total. Even though two thirds of the team is still male, I think we have a good balance of the sexes. I know in any gender related debate I can count on my lady teammates to back me up fiercely. Also, the girl talks we have about relationships, dressing rooms and shoes make home feel a little bit closer. After a gruelling round-island with my fellow birder, Yolo, I looked back on us and the rest of the women in our team with some perspective.

By day we fight off aggressive mommy seals, tackle oversized penguins, walk in 60 knot winds and blinding fog, as well as rescue each other out of raging rivers. By night we might bake some biscuits, have long chats about handbags or get dressed up for a party in the bar. I am so glad that the once male dominated Marion Island has not pressured us girls to start opening beer bottles with our teeth or belch loudly in company. We are tough but still feminine, and proof that these two things are not mutually exclusive.

Some people might think we are different or strange (such as my girlfriends back home). I disagree. We are just normal ladies who would not let any preconceived ideas about womanhood stand in the way of our dreams.

- **Mia Cerfonteyn**

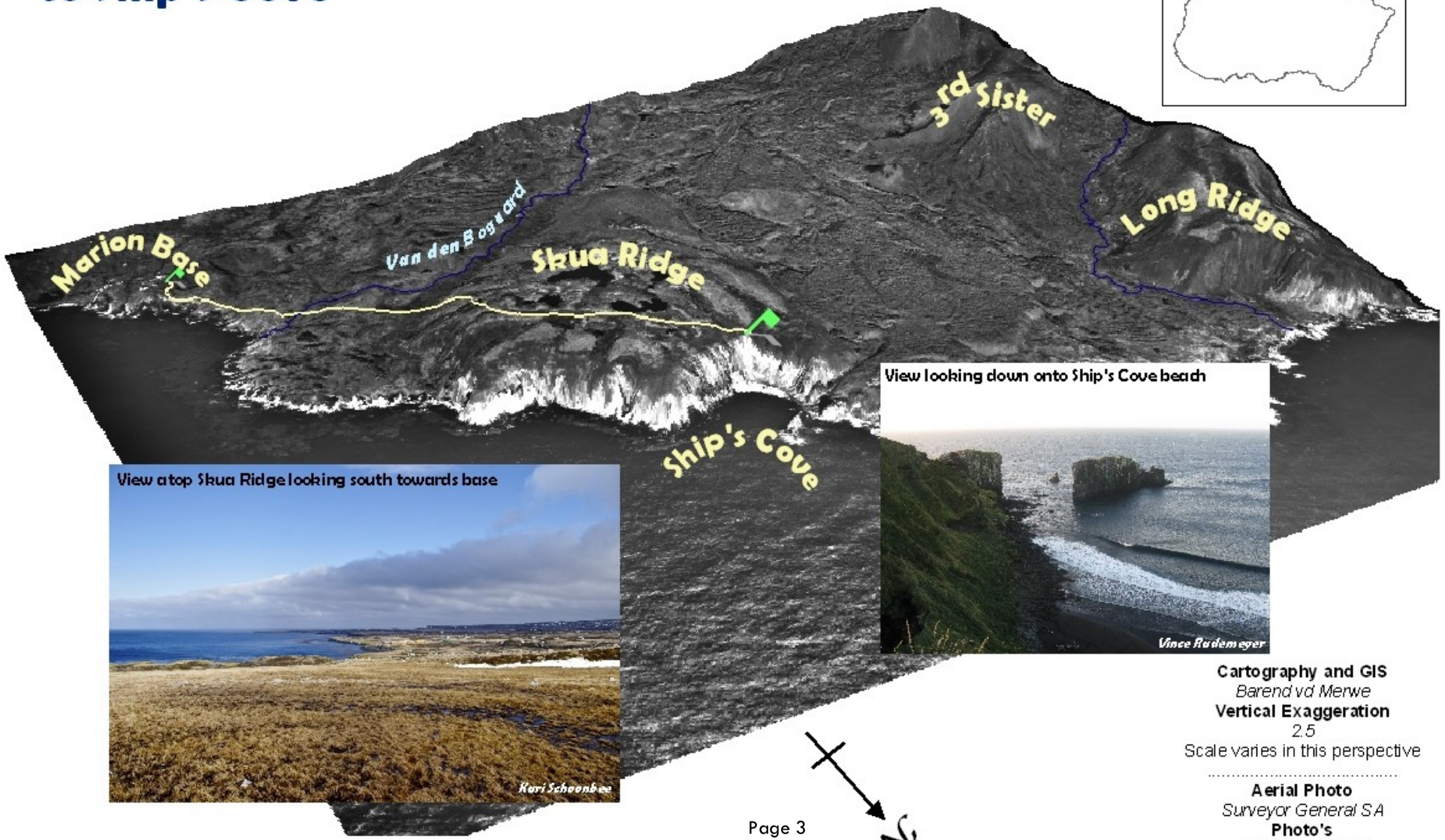
PROFILE OF THE MONTH

Name
Jean Purdon
Place of birth
Johannesburg!!
Hometown
Harare, Zimbabwe
Where did you go to school?
Chisipite Senior School
Occupation in SA
Ahhh. Always a student.
Designation on Marion
SEALER!!!
Area of study and qualifications
I did my undergrad at Rhodes University where I majored in Entomology and Zoology. Then I went to Pretoria where I did my Honours and Masters in wildlife management. My M.Sc was on ants which are the cutest little creatures, so dainty and very pretty.
Hobbies
Anything that involves being outside, like climbing, fishing (especially on Lake Kariba), game viewing and bird watching. You know all those kinds of good healthy things. I suppose eating chocolate is another hobby of mine which has become even more pronounced since my arrival on the island.
Favourite alone-time activity
I'd have to say reading... Ooo or watching series. But on the island definitely reading.
Least favourite thing to eat
Hmmm... That's not difficult, of course it's the Canadian-invented food smash.
Favourite Marion dish
Fruit salad cocktail, the one that comes in a tin!
Most memorable Marion moment so far
Hugh and Tristan running away from crazy bulls (who think they are going to lead their ladies astray) and very irate elephant seal ladies!
Name one or two of your favourite films
Gone with the wind, Casablanca, Pan's Labyrinth, Atonement, Star Trek, Eulogy, The Departed. Ahh... yes, well, the list could go on, but it also depends on my mood, I guess.

ROUTE OF THE MONTH

The Wanderer

A Pleasant Stroll to Ship's Cove



Cartography and GIS
Barend vd Merwe
Vertical Exaggeration
2.5
Scale varies in this perspective

Aerial Photo
Surveyor General SA
Photo's
Kari Schoonbee
Vince Rademeyer

For me, the best part about being able to come back to Marion Island is the opportunity to find, and sorry to say "chat to" some of the old friends you have made over the years. It kinda gives one a warm yummy feeling.

Having worked so closely with animals in oceanariums for 25 years, and being able to get to know each animal individually was something of a lifetime experience. On Marion, you do not get the opportunity to form close bonds, as we are here to observe and document what happens in the "real life" of the animals on the island. By the way, "Real life" for us human's on the island, is something that we are lucky enough to be able to forget about for our 13 month stay. Yeah!

So here are a few stories:-
Being a "birder", one of the job descriptions is to band a number of birds, so that they can be identified each time they arrive back here to breed. In September 2005, my fellow birder Ingrid and I banded an albatross chick at Goney Plain. This is always done prior to the birds fledging and leaving the island. (They do not return to the island until they are mature and this could be anything from 5 - 10 years). This particular albatross chick eventually flew off on the 30th of December, 2005. 28 Days later, the chick was found floundering in the kelp at Warnbro Sound off the coast of Australia. It appears that the chick had been caught in a cyclone off Darwin and had become disorientated. Fortunately for the chick, it was taken to a rehabilitation centre. A special jacket was made for the chick so as not to damage its feathers whilst being handled. It was given fluids, warmth and eventually food, before being released back into the wild not far from where it had been found. The people at the rehabilitation centre saw the chick had been banded, and eventually managed to get in touch with us to tell us the news. It was great to hear that the chick had recovered and was free once again. What we learnt was that during those 28 days i.e. from the time the chick left the island to being found in Australia, it had covered a distance of 6590 km with a bearing of 160 degrees. Amazing when you think that nobody has teached them how to fly! Can't wait to see this alby back here one day!

EV and EW in 2009

Closer to home (that being Marion island), a number of similar stories emerge on a regular basis. Some of the animals that I have known and banded over the years are starting to arrive back - it is like seeing old friends again.

More stories though.
EV, the base skua, arrived back the other day to terrorize AAM, the resident paddy (sheathbill) who owns or rather controls the base area. AAM has not been seen around lately as he has to move out for a while, whilst the skuas take control. EV and partner EW have been together for a number of years. EW was the old base skua who has been around with the construction team for many years. It is thought that EV's code name before he got his band was "Spikkels".

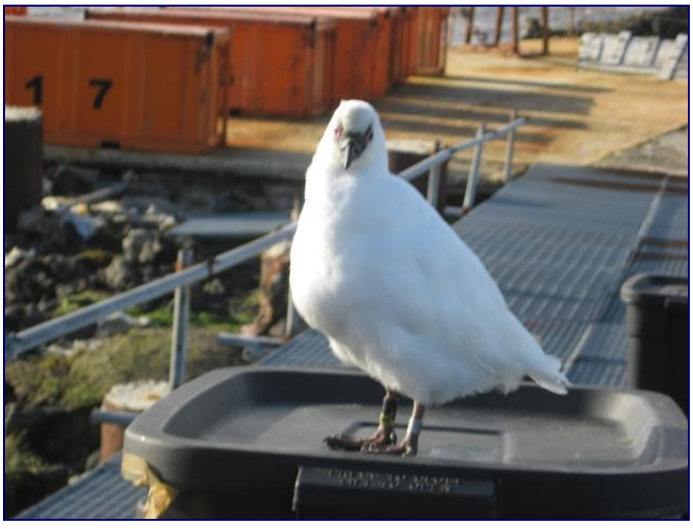
In 2007, EV and EW raised their last chick successfully. In 2008, they had 2 chicks but sadly neither of them made it. Last year EW did not arrive to breed on the island, and it is possible that EW could have died. However, we wait and hope for EW's arrival, but to date no sightings have been reported.

I was a little intrigued about how, and if, EV was going to get a new partner. If so, how would the other bird take to being around humans, with lots of activity and noise? Was EV going to find someone to fill the post?

A few days ago, we noticed that EV has found a friend. Yes there is a "new kid on the block" - an unbanded skua, who is as confident as ever, and is already sitting around base, as if he/she belongs here. I suppose that is not surprising when you are a hardy confident skua, one of the top predators on the island that causes endless devastation to the eggs and chicks from the moment they arrive. I also know for a fact that when not on Marion, many skuas are known to hang out at Hamburger joints on Port Elizabeth's beach front across the road from the oceanarium.

I'm still not sure how this soapie is going to end, but will keep you posted!

-Linda Clokie



AAM helping us clean the food store earlier this year

MARION LANDSCAPES

Mass Movement- Rockfalls

- Barend van der Merwe

Changes to the landscape on large scales usually take such a long time that we cannot fully appreciate the earth-shaping forces of nature. Fortunately exceptions to this rule do occur. A rockfall, quite simply, is the downward motion of rock through the air (Summerfield, 1991). It is one of the rare cases where the term actually requires very little explanation (remember needle ice?). Anybody who has ever seen a precious glass bowl fall can appreciate that this is a very rapid type of mass movement and definitely not something you want happening while you're climbing up a cliff face.

But let us look at the mechanism more closely. Mass movements are the downslope movement of slope material under the influence of gravity without the assistance of moving water, ice or air (Summerfield, 1991). But what factors lead to this sudden and rapid movement? It all boils down to the stability of the slope. Conceptually it can be seen as an arm wrestling contest between two main sets of forces, those that disturb the material and that want to initiate movement, and those forces that resist this action (Summerfield, 1991). Obviously slope failure occurs when the forces that want stuff to move are stronger than the resistance that prevents the stuff from moving.

This relationship is described as the safety factor and represents the ratio between shear strength and shear stress (Summerfield, 1991), i.e. shear strength divided by shear stress. To the non-scientist shear stress in this situation refers to the force that wants to make the piece of rock fall off the side of the cliff and shear strength is the force that is quite happy with the rock remaining exactly where it is.

Slopes can exist in one of three states, namely stable (safety factor >1.3, meaning the shear strength is higher than the shear stress), conditionally stable (safety factor 1-1.3), and actively unstable (safety factor<1) (Summerfield, 1991). As to be expected in a stable slope movement is unlikely to occur since the forces resisting movement are greater than those facilitating it. The conditionally stable classification takes into consideration the variation in shear strength over time particularly when the water content of the slope materials fluctuate (Summerfield, 1991). But hang on, didn't the definition mention something about the

Small rockfall found behind Theo in 2007.

movement occurring without the assistance of water? True enough it does and in this case the movement is still carried out by the forces of gravity and the water merely reduced the resistance of the rock to falling off. But it is cases like these that make the strict definition more difficult to apply in the field (Summerfield, 1991). In the last category the shear stress is higher than the shear strength and there will be continuous or intermittent movement on the slope (Summerfield, 1991).

There are a range of factors that can contribute to the occurrence of mass movement events and they can be classified either as preparatory factors or triggering factors (Summerfield, 1991). Preparatory factors, as you could have guessed, make the slope susceptible to movement, without actually initiating the movement itself, by changing the slope to a conditionally stable state (Summerfield, 1991). Triggering factors, on the other hand, transform the slope to an actively unstable state (Summerfield, 1991). In the case mentioned earlier the water within the rock would be a preparatory factor.

OK, so now that we have an idea as to what causes mass movement events to occur let us take a closer look at rockfalls themselves. Rocks can become detached through various physical weathering processes and the fragments can then be moved under gravity (Summerfield, 1991). It needs to remembered that these falling rocks can contain significant amounts of kinetic energy (the energy associated with an object that is moving) and can therefore act as erosive agents by dislodging other slope material (Summerfield, 1991). Now we need a brief trip back to high school days in order to discuss this last part in a little bit more detail. The law of conservation of energy states that energy is always conserved (Dennis & Moring, 2007). Now for the sake of simplicity we will discuss two types of energy that is particularly relevant to the erosional effects of a rockfall.

Potential energy is the energy an object possesses due to its position (Dennis & Moring, 2007). There are different types of potential energy and the potential energy associated with moving objects is termed gravitational potential energy (Dennis & Moring, 2007). Clarification is required here; when we refer to the potential energy associated with moving objects what we actually refer to is a system where the object is going to move under the influence of gravity. It therefore has not moved yet but when the movement does occur it will be under the influence of gravity.

Kinetic energy in turn is related to the motion of an object (Dennis & Moring, 2007). Now how are these two types of energy related? At the starting position the rock has a high potential energy and no kinetic energy, remembering that it is a certain height off the ground (i.e energy associated with position) and since it has not yet started moving it has no kinetic energy. When the rocks break away from the cliff face movement under the influence of gravity begins. On the way down the potential energy decreases since its height above the surface decreases, and there is an increase in the kinetic energy because the speed of the falling rocks increases (Dennis & Moring, 2007). Just before the rocks hit the surface the opposite situation exists as to when they were still on the cliff face with the potential energy being nearly zero and the kinetic energy attaining its maximum value (Dennis & Moring, 2007).

When the rocks finally hit the ground they have neither potential energy nor kinetic energy (Dennis & Moring, 2007) but since energy needs to be conserved all the energy contained by those rocks are used to perform work on the ground. This work can either be in the form of removing other rock fragments or moving the soil in which case the rockfall would act as a potential erosive agent. It can obviously also perform work on the rock itself by, for example, causing the rock to break into smaller fragments. Rockfalls originating from considerable heights can spread their debris over large areas (Summerfield, 1991) and one can imagine that as the height of the starting position increases the total energy involved also increases. The physics discussed here are a gross oversimplification of the process and a variety of other factors such as density of the rock, distribution of joints within the rock etc. need to be taken onto consideration in order to more accurately predict the consequences and mechanisms involved in a rockfall.

Nevertheless rockfalls are common in terrains characterized by high, steep rock slopes (Summerfield, 1991). In valleys that experienced fluvial incision or glacial carving the release of lateral (meaning from the sides) confining pressure along the valley walls leads to tension joints (usually occurring parallel to the surface) along the valley walls (Summerfield, 1991) and these can later facilitate rockfalls.

Rockfalls are further testament to the ongoing changes that the Marion landscape experiences. They have been occurring long before South Africa annexed the island and they will continue to occur long into the future.

References

Dennis, J.T. & Moring, G., 2007: *The Complete Idiot's Guide to Physics, 2nd Edition*, Alpha Books, New York, USA.

Summerfield, M.A., 1991: *Global Geomorphology: An Introduction to the Study of Landforms*, Pearson Prentice Hall, Harlow.

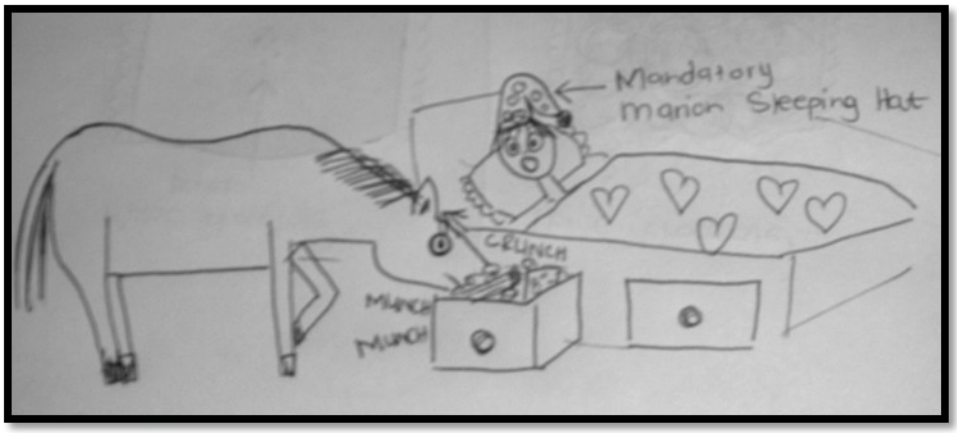
A SHORT SNIPPET OF OUR DAILY CONVERSATION

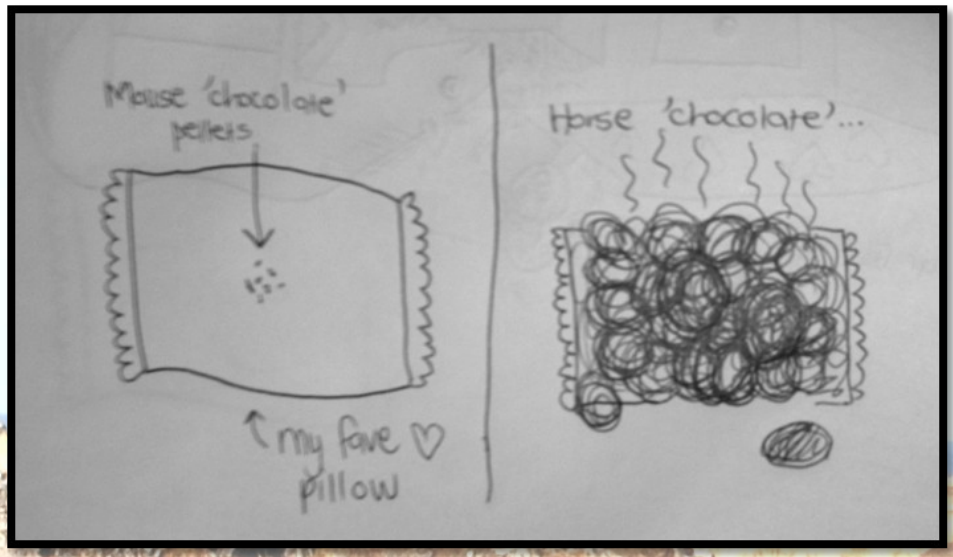
Greg, Kari, Cobus and I were sitting at the dining room table for one of our long tea breaks / procrastination sessions. I asked Greg why he decided to come all the way from Canada (a place of superior candy) do his PhD in South Africa (land of inferior sweets). Yes, our topic at that time was the magnificent world of candy outside of SA (I have been a bit candy-obsessed of late due to a sharp reduction in stocks). He answered that he specifically wanted to study invasive animals on islands, and there was actually an offer to work on invasive feral horses on Sable Island. Things didn't work out, and the next best thing was to study the invasive mice on Marion Island.
All we heard was: "Invasive HORSES?!"

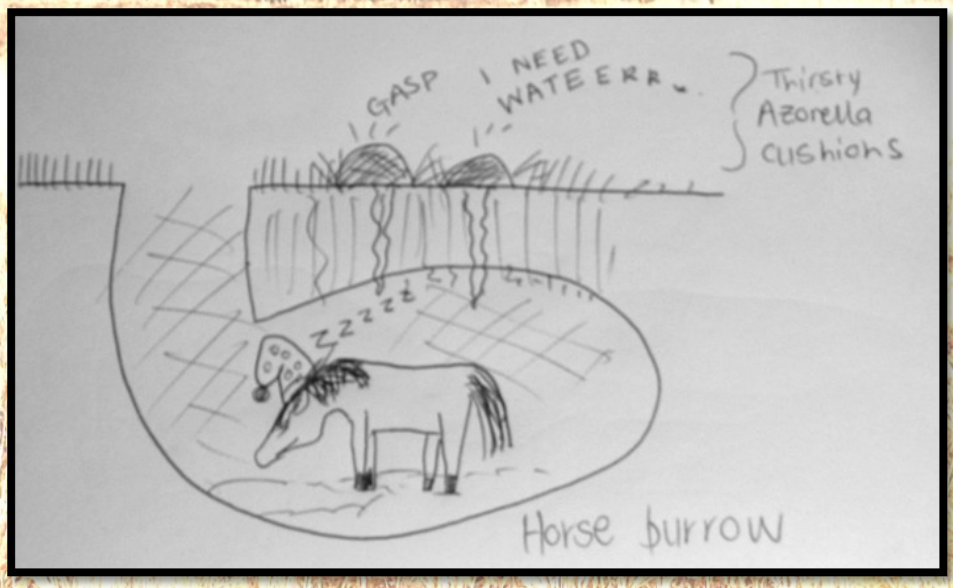
Now, all Marion overwintering team members turn into passionate mouse hunters over the months. These misleadingly cute rodents burrow into the island's vegetation, leave "chocolate" pellets on our pillows, nibble our snacks, gnaw on harmless Albatross chicks... and they are just generally gross. We immediately tried to imagine what the island would be like with feral horses prancing about instead of scurrying mice.
The overall ecology of the island would be still be compromised, we decided, due to the massive burrows dug by these feral horses for shelter (or caves? I'm no horse expert). Also, the Alby chicks would still suffer due to the unfortunate but lethal trampling by rogue horses. We would still wake up in the middle of the night to suspicious nibbling sounds, only to finding a horse next to the bed munching away in the snack drawer. Nights in the lounge wouldn't change much, as when an opportunistic horse runs through we'd just throw him with slippers, pool balls or whatever object is at hand until he is immobilised. Dinners in the kitchen would still be the same, only interrupted by the sound of a horse trap going off every now and then. SNAP! "Oh, there goes another horse", we would murmur to each other... Aaaah, but what about the "chocolate" surprises left behind by these nifty creatures? I hardly think my pillow would ever recover after a horse has marked it.

So maybe having invasive mice on the island isn't that bad, it could have been worse. We could have been the poor sods stuck with the horses.

- Mia Cerfonteyn







View from Black Haglet. (Vincent Rademeyer)

The river at Watertunnel Hut after continuous rain. (Vincent Rademeyer)

A vagrant Leopard Seal that was believed to have been attacked by Killer Whales off the coast of Marion. Taken near Trypot Beach. (Kari Schoonbee)

A Dark-mantled Albatross ("Sooty") in flight, taken from the cliffs at Ship's Cove. (Kari Schoonbee)

Stary night, taken while camping at the albatross colony at Goney Plain. (Kari Schoonbee)