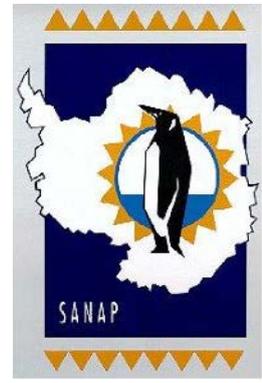




71° Below

SANAE 57 Newsletter
April 2018



It's really hard to believe that there is another month gone! Time here is flying! Its definitely because we are busy. And because the last newsletter was so late! But that aside we are now in May and heading fast towards the polar night and true winter! But leading up to this we have been working hard getting everything ready for winter. Essentially battening down the hatches! In this newsletter I will go into some details of this whole process as well as giving an overview of the outside areas we operate in.

Lay of the Land

The base itself is the hub of a fairly large area of operations, which include scientific zones, storage and technical structures, and a couple of pipelines. I'll start with the closest areas and move outwards.

Just outside the base, leading from the base to the cliff edge, is the summer parking area. The vehicles are kept there, close to the edge so that snow blows past them, during the summer months. They are also readily accessible when we need to use them. The snowmobiles are also kept here for using around the base.

The parking lot leads to the ice road which goes out past the northern part of the base, just past the helipad and C-block. The ice road runs underneath the Lolly line. The Lolly line is a very important pipeline that runs from the water treatment system, along the helipad and then out over the ice road and finally to the cliff edge. The

Lolly line carries water from the water treatment system and discards it out over the cliff edge, where it then forms a huge ice structure, hence the name! The Lolly line is at risk of being hit by the vehicles, and indeed it has taken some punishment over the years and was in need of some TLC, which the team has duly administered.

Our main communications is through satellite and our satellite dome is just next to the base on the opposite side of the ice road. The actual satellite dish is covered with a large white box to protect it from weather.



The vehicles in the parking lot at sunset, with the northern buttress poking into the frame.

Further down the ice road is the summer depot. This is really just an area designated for summer logistics. We keep sledges, cargo, and fuel here during the summer period where it is easily accessible. In summer depot is also our diesel bunkers. The bunkers, similar to the base, are stored on stilts raised off the ground. Here we have around 600 000L capacity, although we won't use anywhere near all that fuel. We have to keep reserve in case the ship can't make it to the shelf and we need to survive longer than usual before replenishing our supplies.

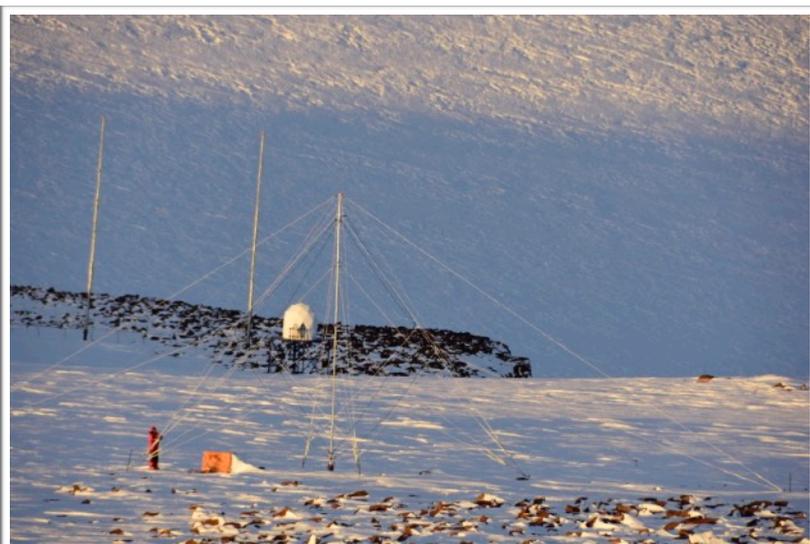


Picture looking north east from the roof of the base. Diesel bunkers are on the left, with summer depot (now mostly empty) runs down the hill to the right. The pipe-line running across the middle of the picture is from the snow smelter, and runs parallel to the ice road. The line of dots close to the horizon are the sledges and cargo containers in winter depot.

The ice road continues down the hill east, and then turns north where it ends up at the winter depot, about three kilometres from the base itself. This is just an area designated for storage during winter. We keep the extra cargo and waste containers in winter depot because if we kept too many things in summer depot we would have huge piles of snow forming around them, which would be difficult to clear. So we build large heaps of snow in the winter depot and then store the extra cargo there, on top of these heaps. Storing the cargo on the heaps stops them getting buried. We will collect it all next season in time for the next take over.

If you head directly east from the base (south of summer depot and the diesel bunkers) you get into the scientific area. Here are the antenna and sensitive scientific equipment that our scientific team members are responsible for maintaining. The antenna in particular take a beating in the storms and need regular maintenance. I will be including more information about the science soon.





Picture looking south of the base, with Stephanus maintaining one of his radar arrays.

One very important piece of equipment that is outside, which I mentioned above, is the snow smelter. This is how we get our water in the base. It is located about 200m east of the base. It consists of 2 big tanks with a control room located in-between the tanks. The whole thing is buried completely under the snow so we have to climb down a ladder to get to the control room, and the hatches to the tanks are on the roof of the structure, actually on 'ground level'. We usually use a dozer to push snow into the smelter, since both tanks total around 15000L! Filling that with shovels would take hours! With just the ten of us we usually need to fill

the tanks once a week or so, just to make sure we have enough in reserve in the base incase the weather is terrible and we can't go down to the smelter for a while.

And that sums up the the outside surrounds of the base.

Preparing for Winter

As I mentioned, preparing for winter is really a case of battening down the base, keeping the systems running, and surviving the dark winter months until the weather improves and we can emerge, blinking, once again into the sun! After that we will start opening everything and retrieving the cargo and getting ready for the summer season, which will be when the ship arrives and all the cat trains and cargo work and construction and science etc begins all over again.

A large part of what we do is protecting the base and our equipment from the weather, which can be very severe. It is particularly harsh on the vehicles and their batteries. We use special additives to ensure the fluids don't freeze, but even so starting the vehicles is very challenging. The batteries have to be taken inside and charged over the winter because the cold simply drains them. We carry them out to the vehicle we need to start then take them in again, and a dozer battery weighs close to 50kg, because of the lead. The snow mobiles are taken into the hangar or are strapped to the helipad so they don't get blown away. When the winds really get severe they will easily pick up a snowmobile and carry it away!

The other reason we clear summer depot and take as much inside as possible is because of sastrugis. Sastrugis are snow formations created by the wind. I had no idea this was a thing before I came here but actually a significant part of what we do in the winter is prevent and clear away snow. Sastrugis form around an object that is sitting on the ground. Because of the way the snow is carried by the wind, then there is turbulence at the downwind side of an object and snow gets dumped there, and very quickly! From that initial mound then a larger sastrugi forms, continuing downwind in the 'shadow' of the object. These sastrugis can become huge, especially when you can have a storm that blows constantly for weeks at a time. We have experienced one such storm and the snow mounds that were created were enormous! Thus we have to empty summer depot so that sastrugis don't form there or start to build up around the diesel bunker.

Once all the outside work is completed then all we have to do is simply maintain the base systems, do our inventories, go outside to fill the smelly when there is a weather gap, and try not to go insane!

Weather news

The temperatures are rapidly dropping, especially with the wind factor taken into account. We are seeing an increase in severe weather and storms that last weeks at a time.

Maximum temperature: -7.6°C

Minimum temperature: -28.1°C

Strongest wind gust: 29.9m/s (107.7km/hr or 59.8 knots)

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