Sismordia - Seismology at Concordia

Alessia Maggi - 2007/2008 summer campaign

Sismordia
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This book is a transcription of the blog posts I wrote during the 2007/2008 summer campaign which took me to Antarctica for the first time.

The blog posts have been changed as little as possible in the transcription.

Photographs are higher resolution than those posted on the blog, but otherwise identical. Unless noted otherwise, all photographs in this book were taken by AM, JYT or AD.

Dates of posts are given according to UTC at the time of posting, which may lead to some confusion given that I was posting from time-zones of UTC+9 and UTC+11.

Alessia Maggi


香港
Hong Kong

Visiting Hong Kong

Saturday, December 29, 2007

It is sunny here, and quite warm (20C at 9am). Some of our group are trying to figure out how to manage to leave the airport and do some sight-seeing in town. [...]

As you can see from the top left photo - taken at the airport shuttle station in central Hong Kong - we did make it out of the airport and into the city after all. A hint for those who would want to do the same on future trips: go to the Cathay Pacific transfer desk, and ask for a special form. This form will allow you to backtrack your way through the security controls, and get to Hong Kong immigration. From there on it is easy and relatively fast to get to the airport shuttle and then the street.

Hong Kong is full of contradictions, most vividly exemplified by the juxtaposition of ultramodern skyscrapers (right hand photo) with archaic colonial era buildings, and bamboo scaffolding (bottom left photo). The transport system is a similar hodgepodge of state of the art automated trains, red and white Toyota taxis, and ancient busses, trams and lorries. The city is at once very rich and very poor.

Astrolabe day 1

Monday, December 31, 2007

We left harbour at 2pm local time. After 10 hours of navigation, the state of affairs is the following: heading 190 degrees, speed 12 knots calm(ish) sea, rapidly clouding over. I was told to expect the Astrolabe to roll a lot, and I can confirm that it does. The sea is pretty calm, yet we are rolling constantly between 10 and 20 degrees. I have not yet felt seasick, luckily.

We have been playing games on the aft deck to train our inner ear: running round the helipad, balancing on one leg, standing still in a tai-chi position etc. All this ponctuated by running to the side to gawp at dolfins that come every now and again to play.

We are an hour away from midnight, the sun has set, and champagne is waiting for us in the mess.

New Year's celebrations on the Astrolabe

Tuesday, January 1, 2008 - New Year's greetings to you all.

I am writing this on what is for me the morning of January 1st 2008. The sea is rougher than yesterday (white crested waves are everywhere) and the ship is as unstable as ever. We are currently enjoying regular 10-15 degree roll with occasional waves sending us over 20 degrees in either direction. The sky has cleared, and we have cold sunshine to greet on deck.

Last night we celebrated the coming of the new year in stlye. After an early dinner (we dine in two shifts, one at 18:00 and one at 19:00) we mostly hung around either outside or in the bar, waiting for midnight to arrive. The music began in earnest at half eleven, as did the dancing. The first bottle of chmpagne was uncorked at exactly midnight (as it should be), and from then on the party really took off. All I can say is that dancing to disco music in a restricted space on a rolling ship is an experience to be had at least once in one's life. After a slow beginning, we all got used to dancing on the moving floor, and had a great time. The music, dancing and champagne lasted until 2am. This morning, only about one third of the passengers made it to breakfast. Many are still sleeping off the combined effects of alcohol, dancing and anti-seasickness medication.

Into the howling fifties

Wednesday, January 2, 2008

We have just passed from the roaring forties to the howling fifties, and the change is noticeable. We are now regularly rolling 30 degrees from vertical in both directions.

I am writing this mail by touch-typing while doing my best to keep my eyes on the horizon. The chair and the computer are both bolted to the deck, and I have to keep myself in the chair by jamming my feet against the sides of the desk.

Sea-sickness is being kept at bay, but only just. I'm ok so long as I can go outside every now and again, or am where I can see the horizon. The only other solution is lying horizontal in my bunk.

Otherwise the crossing is going well. There is not much to do except eat if possible, sleep when possible, watch the sea or - if your stomach is solidly attached - a movie.

We have been sailing for two days now, though it feels much longer than that. Another three and we should be there.

Antarctic convergence

Thursday, January 3, 2008

Today we have passed the Antarctic convergence, where the waters of the southern Indian Ocean meet the circum-Antarctic current. The net effect is a cooling of the water temperature (it is now below 4 degrees, down from 9 at the same time yesterday) with a corresponding drop in air temperature. The sea is also a bit calmer than before, which makes writing this post less of a sporting activity than it was yesterday.

Unfortunately the weather has also changed. Instead of blue skies with the odd cumulus cloud (which we - as good children at heart - had good fun seeing animals in) we now have monotonous grey all around, with a stiff but constant tail wind, and drizzle. I still fully intend to brave the outdoors while I can. I'm sure the polar equipment we have been issued with will keep me warm enough.

We have been making good speed, and are now at 55 degrees south. If all goes well, we should start to see ice tomorrow, maybe even tonight if we are lucky. As soon as we do, I'll let you know.

From the fifties to the sixties

Friday, January 4, 2008

So much for the Antarctic convergence zone leading to calmer waters (see previous post). We are now nearing the end of the Howling Fifties in great southern ocean style: white-topped waves as far as the eye can see. There are two sets of waves coming from different directions, leading to a very disorganized sea. The Astrolabe rolls and pitches in an unpredictable manner. This motion is called cork-screwing. It feels like we are ping pong balls in a washing machine.

The sea is beautiful to watch, dark blue fringed with white crests, and dotted with ice-blue patches where waves have broken. There are albatros and other birds circling our ship, but there have been no whale sightings (the sea is too rough for us to distinguish much).

The rumors of us hitting sea ice before long have been confirmed. Apparently the ice pack is still well formed around Dumont d'Urville. Our instructions are to stay out of the navigator's way once we reach the pack, as they will have a lot of manouvering to do.

First ice

Saturday, January 5, 2008

This morning after breakfast we got the treat we have all been waiting for: a fantastic tabular iceberg passing at barely a few hundred meters from the ship.

Tabular icebergs carry their name well. They are flat like table-tops (at least the visible part is). We were close enough to this one to make out vertical fractures at regular intervals, and brilliant ice-blue reflections at its base. The color was so vivid it seemed painted on. Fantastic! As this was our first berg, it got its fair share of photographs. I'll share some of them as soon as I can, though I fear they will not convey the same impression as we got first hand.

Otherwise all is going well, we are at 64 degrees south, proceding at a leisurely 10-12 knots. The sea is calm (a welcome change) and pretty cold (0.4C). The Astrolabe has gone back to a gentle rolling regime, enabling us all to get a good night's sleep and to finally enjoy a hearty breakfast. The mood is good all round, though we're all fairly impatient to get to Dumont d'Urville at last.

Midnight arrival at Dumont d'Urville

Saturday, January 5, 2008

It is a quarter to midnight local time (GMT+9), the sky is light, the penguins are active, and we are finally moored opposite Dumont d'Urville station.

It has been a day of ice. Big tabular bergs floating by, the Astrolabe bumping through unconsolidated pack, forcing its way though thicker but still not solid pack, us taking photographs from all angles and in all light conditions. More often than not it felt like being in a dream world. A cold one at that.

For the time being we are consigned to the ship. Those whose final stop is Dumont itself will disembark tomorrow. The others (myself included) will continue to bunk on the Astrolabe, and hope to get permission to go ashore and visit the base during the day. This state of affairs should only last a couply of days, as JY and I are scheduled to fly up to Concordia on Tuesday 8th.

Thats all for now... Goodnight from Dumont d'Urville station!

Change of plans - Concordia is for today

Sunday, January 6, 2008

Some things remain the same in all Antarctic expeditions: plans are made to be changed. Our flight to Concordia has been brought forward to today. We leave in 30 minutes time.

This morning we went through the pre-flight ritual of packing and weighing both ourselves and our luggage. We can take only the bare essentials with us this afternoon, the rest will follow in a couple of days time. We made good use of the four hours we had left by crossing to Dumont d'Urville over what little is left of the ice-pack, visiting the station, and purchasing a stock of postcards and stamps that will keep us occupied in the evenings at Concordia (there is no Post Office up there).

The weather is amazing: sunny, warm (0.4C in the shade), not a cloud in the sky. Good weather for spotting and photographing Adelie penguins, Emperor penguins and snow petrels... the last non-human creatures we shall see for a while (there is neither flora nor fauna up at Dome C). The adventure continues at full steam. Next post from Concordia!

Still at Dumont...

Monday, January 7, 2008

Did I write something yesterday about plans only being made so they could be changed? No truer word was ever written...

With all nine passengers of the first twin otter flight suited up in polar gear and raring to go, and indeed the first four already being heliported to the airstrip, the flight was cancelled: the pilot could no longer fly that day.

We all dragged ourselves back indoors on the Astrolabe, peeled off our multiple thermal layers, and slumped down in a heap of thwarted adrenaline. We soon got over it, though: these things are pretty typical out here.

The upside of it is, we get to spend more time gawping at penguins. The downside is the weather seems to be changing, and not for the better. I hope we have not missed our best chance at getting to Concordia early.

If our luck does hold, my next post will be from there.

Concordia at last

In the end, all worked out for the best, and we have made it to Concordia. It took a couple of false starts (notably the skids of the Twin Otter were iced to the runway and took some time to free), but 5 hours later here we are.

The weather here is splendid. Sunshine galore, and a balmy 32 C below. We have already had a complete tour of the base, a medical and security briefing, and have also started to discuss logistics for the experiments that we plan to start tomorrow.

The altitude is pretty tough to get used to (it is the equivalent of 4000m), but for the moment aspirin and paracetamol are doing their job.

The photo was taken on board the Astrolabe two days ago, as we were arriving at Dumont d'Urville. Thank you JY.

Day one at Concordia

Tuesday, January 8, 2008

It is eleven pm, the sun is shining, and my first day at Concordia is over. It has been a fun day. It started with a leisurely breakfast at the Concordia Summer Camp (where I live for the next three weeks), where the ambiance is much more relaxed than at the base itself.

My altitude sickness problems seem to be over, which makes life much more comfortable. I still get puffed faster than usual, but no longer have headaches. JY and I started work this morning. It was good to get down to something useful after 10 days of traveling. We put in a full day's work, and are quite satisfied with the results: all the equipment has been unpacked and we have started assembling the first CASE-IPY station.

Just after lunch we got a lesson in FlexMobile driving. The FlexMobile is essentially a land-rover on caterpillar tracks. We shall use it to install and visit the three CASE-IPY temporary seismic stations. Apart from having very sensitive steering, it is relatively simple to drive. A 10 minute lesson and we had our FlexMobile license.


Husqvarna

Playing in snow

Wednesday, January 9, 2008

Today we got our first real taste of the cold. So far we have been enjoying moderate summer temperatures of -30C, with little or no wind. I was surprised at how comfortable such temperatures can be so long as one is sensibly covered up and there is no wind. This morning wind picked up, and though the temperature itself was still only in the low -30s, the wind chill made it seem more like -45C. We found that so long as one keeps moving and doing some form of physical activity, even this is not too bad.

One of the bits of work we had planned for today was learning how to install the 7m masts we will use for our radio transmission, GPS reception and to hang our solar panels on. Step one was making a hole in the snow, which involved considerable physical activity. Shovels? Yes, but for the most part we used a chainsaw and a pickax (see photograph - I am not in it, I was the one taking the picture). The idea is simple: use the chainsaw to cut the snow into blocks, use the pickax to loosen them, and the shovels (and one's hands) to get the blocks out of the hole. The method seems rather barbaric, but it works well, is very fast and is a lot of fun.

All about a stove

Thursday, January 10, 2008

For better or for worse, a certain stove - the one that heats the tent we are working in - became the center of attention today. It is an old-fashioned gasoline driven stove which does a remarkable job of heating our 12x6 m steel reinforced tent. For the past two days we have had non-stop wind, which means our poor stove has had a harder time keeping us warm, and we have been migrating closer and closer to it.

Today we had quite an adventure. The chimney of our stove has a wind-stopper that is supposed to pivot when the wind turns. Ours got stuck today, right in the direction of the prevailing wind. Sure enough the wind made it down the chimney and into the stove, creating an enormous cloud of smoke that drove us straight out of the tent (after closing off the fuel first).

One of the maintenance guys at Concordia (his name is Angelo and you can see him in the photograph re-lighting the stove) then climbed onto the roof of our tent to unblock the stopper. Since then, the stove has been working fine, and despite my reservations I have been slowly migrating closer to it again.

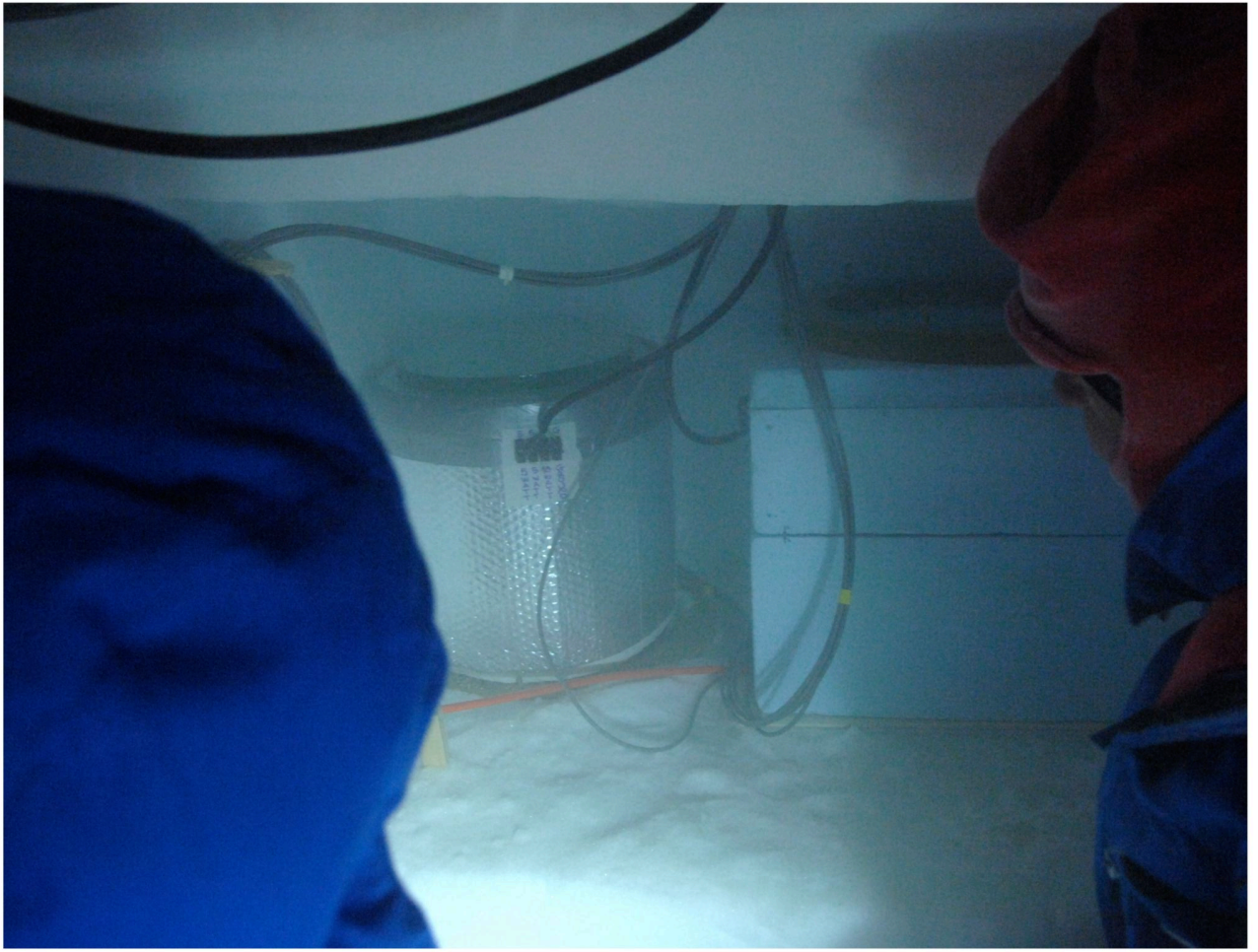


Photo credits: © CNRS Photothèque - Claude Delhaye.

Seismology in the freezer

Friday, January 11, 2008

The Concordia seismic station (CCD) has been having a few difficulties lately, which is not surprising given the temperature in the seismic vault is a stable and hideously low -59C. No electro-mechanical system likes working at that kind of temperature, and neither do I.

We have two identical seismometers in the vault. One is heated to a balmy -35C, the other is left cold. A few days ago the heating system stopped working. This sent the "warm" seismometer into a severe drift that drove one of its internal masses to the end of its range. What had been a highly sensitive seismometer was now only a heap of junk metal.

Today, JY and I went down into the seismic vault to localize and fix the problem. The vault is accessed from a shelter (a cabin) a short 1km stroll from Concordia base. At least it is a short stroll in good conditions... in the kind of conditions we had today (28 knot winds blowing snowdrifts everywhere, and a temperature of -30 before wind chill) it was a grueling slog.

Once at the shelter, one opens a trapdoor that leads down to a 45m horizontal snow tunnel. At the end of the tunnel is a short metal ladder, that leads to a longer metal ladder that takes one down to the vault itself. It is bitterly cold beyond the trapdoor, and it only gets worse the deeper into the vault one goes. The air is soon filled with mist from our breath, so visibility quickly becomes poor.

The work we had to do down there included wiring a new power cable for the seismometer heating system, and leveling the seismometer. JY took the cable, I took the seismometer. We were down there around 40 minutes, working often only with thin gloves or bare fingers. At -59C. Excruciating doesn't quite cover it...

But it's over now. The seismometer is working correctly again, and our trip to the vault the stuff of memories. I shall be glad not to have to repeat the operation any time soon!

The photo on the previous page shows JY and me just after we opened the cabinet containing the seismometers. It was taken by a CNRS photographer who accompanied us into the vault on an earlier trip this morning to find the cause of the problems. The two instruments are covered by insulation. The "warm" seismometer is on the right.


COM
CP
PWR

CASE-IPY : first week at Concordia

Saturday, January 12, 2008

Apologies for the lateness of this post. Last night I was too tired to do much more than curl up and go to sleep. Looking over what we have done this past week, it is hardly surprising. Apart from fixing the permanent station, we have completed the setup of the first temporary CASE-IPY station and are now ready for a full-scale test deployment tomorrow. Each station is physically composed of three large wooden boxes, containing respectively a seismometer, the acquisition electronics and a battery pack, a 7m mast, a radio antenna and three solar panels. All the boxes are conditioned with multiple layers of insulation to keep their contents as warm as possible. The radio antenna and the three solar panels are attached to the mast. This past week we have prepared each of these elements so as to have as little fiddling with electrical connections as screws in the field as possible. The few connections that remain to be wired will not be a problem, especially after the experience of working at -59C in the vault earlier this week.

What you see in the photo is the seismometer we will be using tomorrow. We have kept it under snow for the past few days, to get it used to the cold.


MONOPOLI

The seismology tent

Sunday, January 13, 2008

I apologize in advance for the shortness of this post. We have been getting all our equipment ready for tomorrow's full scale test installation, and I only have 5 more minutes before the last email connection of the day.

The photo was taken inside the seismology tent yesterday morning. The stove had gone out overnight (probably due to the wind) and the temperature inside was -16C! Fun for working!


ALASKA

Skidoo time

Monday, January 14, 2008

Today has been great! We started off by deploying our first complete CASE-IPY station in a test location some 800m from Concordia. The idea was to identify problems with our setup and have time to correct them before our first real deployment next Thursday. We got everything done in record time (3 hours from start to finish) with no major glitches.

This is a test deployment, so we must go back to the installation site regularly over the next couple of days to check the power given by the solar panels and the temperature of our electronics. What a great excuse for skidoo rides!

Skidoos are the best form of short-distance transport out here. Unfortunately the base only has 4 of them for 60 people, and these are always breaking down. Most of the time we go around on foot. I had never ridden a skidoo before today, nor a jetski or a motorbike, and was rather hesitant at first. However, one trip to our test station was enough to get me in the groove, as you can see by the photo. I feel I shall be planning a number of such trips in the next few days...

Presenting JY...

Tuesday, January 15, 2008

It is about time I presented my colleague and co-expeditioner JY, a completely crazy guy (see photo) with whom it is a pleasure to work.

JY can turn his hand to almost anything, woodwork, metalwork, mechanics, electronics... a great asset out here. I am learning a great deal of practical things working alongside him.

Out here it is important to look out for each other, because minor things can quickly degenerate in these cold conditions. JY is very vigilant on this point, from making sure I don't freeze solid in the seismic vault, to digging my skidoo out of soft snow.

In short, JY is the kind of guy you would want on any field expedition, and I am very happy to have him on mine.

Calcetto or Baby-Foot?

Wednesday, January 16, 2008

What is your favorite after-dinner activity? Calcetto or Baby-Foot? Either way, you are bound to be satisfied at Concordia. The living room becomes the scene of two mini-tournaments every day, one after lunch and the other after dinner.

The quality of play is excellent! Italian and French players have very different playing styles and rules. Italians tend to shoot hard and from the far end of the court, while the French tend to dribble the ball and shoot from close to the goal. Here at Concordia the rules are dropped and the styles are mixed, giving rise to quite spectacular play.

I had never thought such a game would make a good spectator sport, but it sure does. The running commentary from both players and spectators is also great fun, especially if you can understand the more colorful varieties of both French and Italian... It sure beats television (which we don't have) as a way of relaxing after a meal.

In case you were wondering, my own exploits at this game are abysmal. The only thing I can say in my defense - having lost both games I have played - is that I have never lost 10-0..

Sock jumping at Concordia

Thursday, January 17, 2008

Yesterday we tested the fire escape system of Concordia station, which we all hope will never have to be used in a real fire. It's a cotton and kevlar sock that is deployed from the second floor of the "quiet tower", where the bedrooms are. We all had a turn at jumping through it.

From the top you cannot see the ground, so there is no problem with vertigo. Once inside you press your elbows and knees against the sides of the sock to slow your descent. How slowly you descend depends on how voluminous you can make yourself relative to your weight. Two people at the base of the sock (see photo) twist it to stop those inside hitting the ground too fast.

I jumped in wearing boots and full polar jacket, and had the impression I was not dropping at all, so much so that it got a little claustrophobic. The fastest descender by far was Giorgio the cook, who caught the sock twisters by surprise. Luckily they twisted the end of the sock just in time to stop him hitting the ground like a sack of potatoes. Good thing too, as he is an excellent cook!


POLAR 5

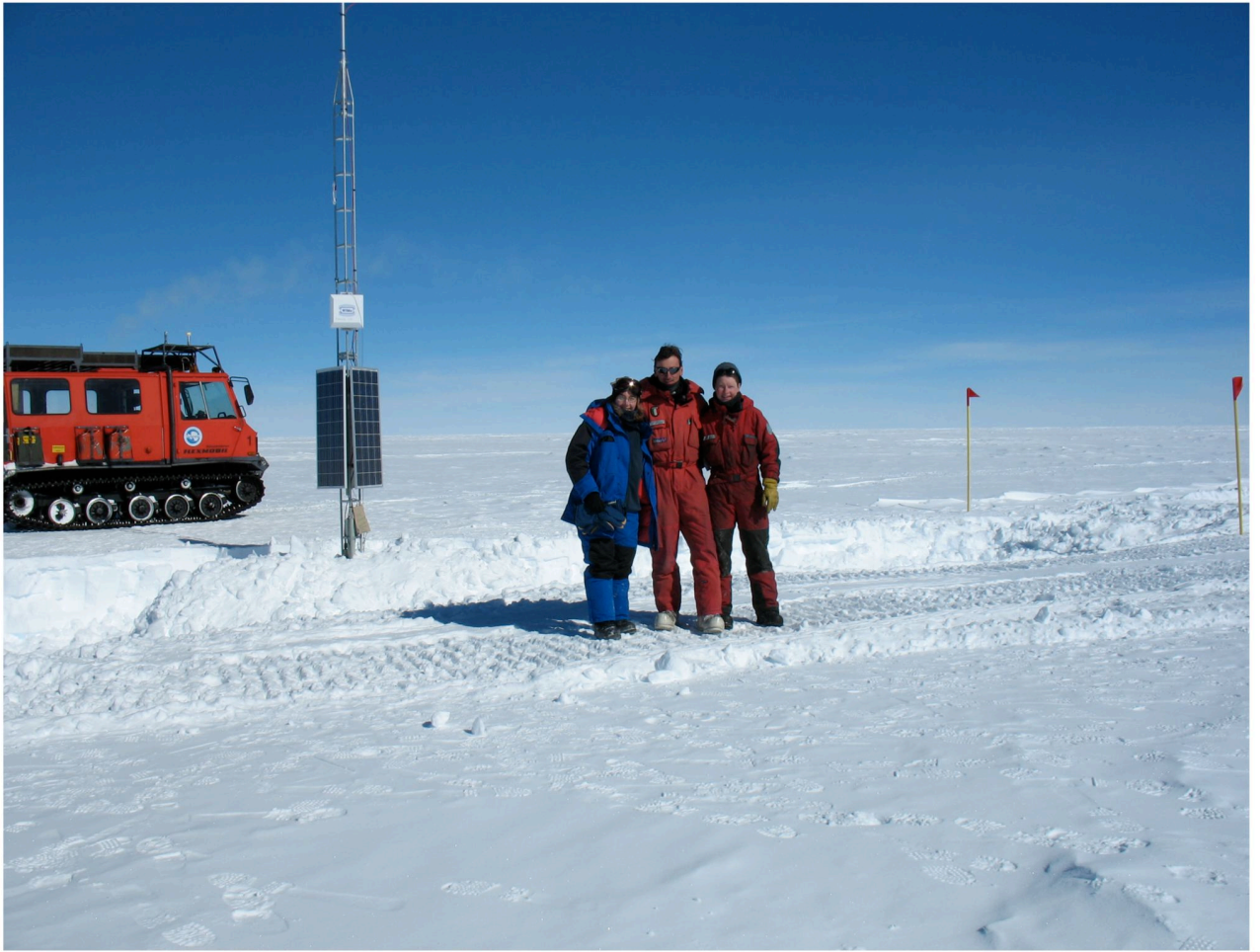
Germans at Concordia

Friday, January 18, 2008

Last night we all stayed up to wait for a cool plane to arrive at Concordia, a Dakota (DC3) flown by a German crew. The plane is equipped with radar equipment to survey subglacial lakes.

They flew in late last night and flew out again this morning. They are due back again tonight, and will be on base tomorrow. Their headquarters will be the tent attached to our own, so I hope to be able to learn something more about the where and how of Antarctic sub-glacial lakes from them.

Their plane is huge by the standards of the base, lifts up a lot of loose snow and makes a lot of noise. It's a great sight.



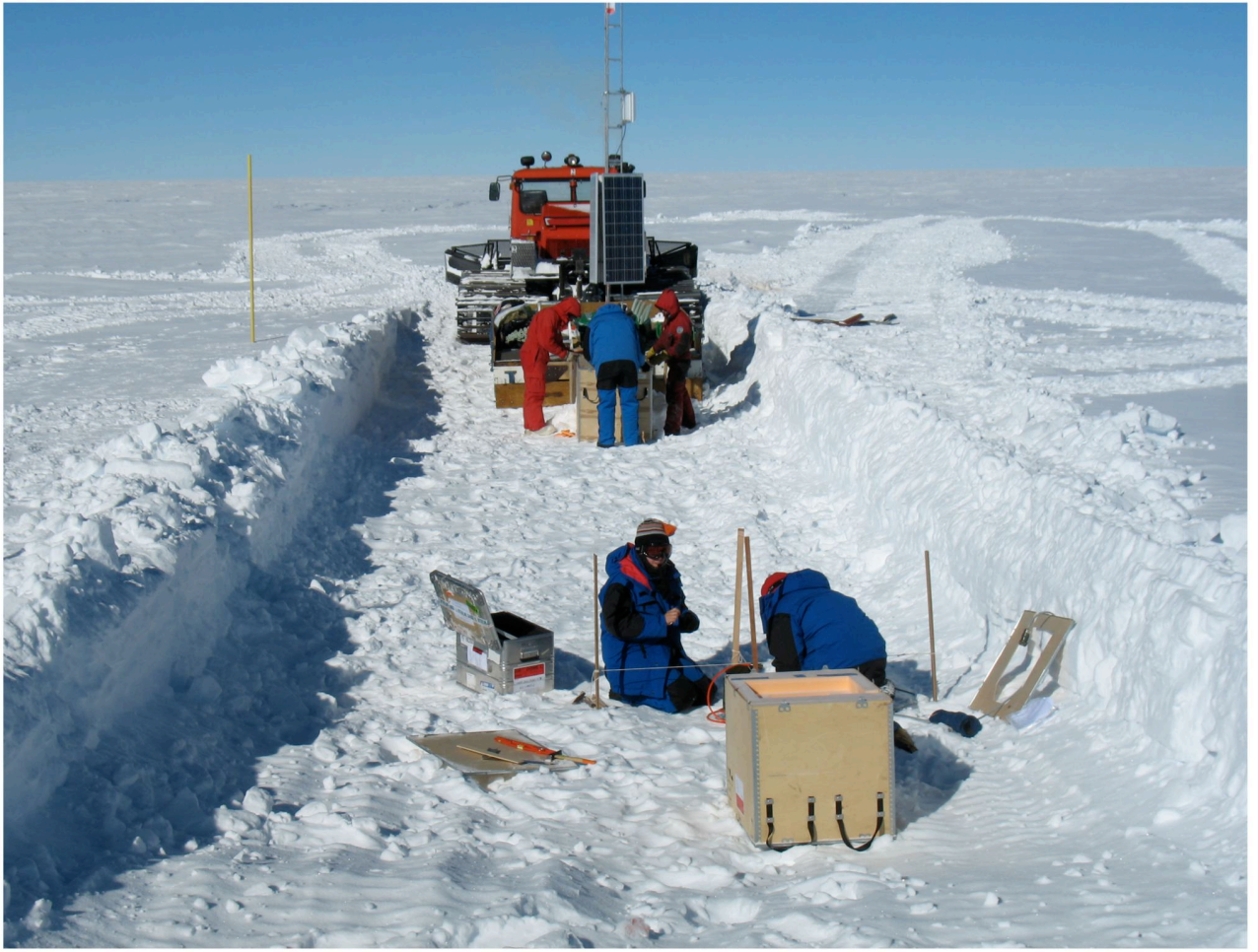
CASE-IPY : first station installed

Sunday, January 20, 2008

It has taken us a lot of time and effort, but the first CASE-IPY station is finally installed. The photo above shows a snapshot of the station as we left it yesterday, and a subset of the installation team (from left to right: myself, Angelo and Claire - JY took the photo).

The seismometer is half a meter down, in between the two flagpoles at the right of the photo. You can see the the mast with the white radio antenna and black solar panels. You can no longer see the two large boxes either side of the mast, holding respectively the acquisition system and the batteries, because they are covered by snow. (If there is one thing that can be said about doing seismology in Antarctica, is that it involves a lot of shoveling snow!)

The funny looking vehicle on the left of the photo is the Flexmobile, with which the 5km journey to the station takes a little over half an hour. I was surprised how un-flat a snow plateau can be. The snow is hard in places and soft in others, making for a very bumpy ride, even in on caterpillar tracks.



CASE-IPY : second station installed

Monday, January 21, 2008

They have been a long time coming, but now the stations are dropping into place like clockwork. We installed the second one this afternoon, and it only took us three hours from start to finish. Yay!

Our six-person installation team seems to be working well. Not only are we getting the job done, we are also having fun doing it.

We're all a little tired (hence the shortness of this post), but very happy. Two down, one to go. If all goes as planned, the last station will be installed tomorrow afternoon.

Only 36 hours to go...

Tuesday, January 22, 2008

The third CASE station is now installed, albeit with a few minor adjustments to the mast caused by an incident involving our trench digging machine (see photo)... what can I say? These things happen in Antarctica! At least the GPS receiver on the top of the mast is still pointing up!

This morning we received news that our flight out of Concordia has been advanced. We leave the day after tomorrow, or in only 36 hours time! It is not unusual that scientific missions like ours get cut short for logistical reasons, but it is always a nuisance. All in all, this has been a pretty successful mission. Three out of three CASE stations built and installed, and the permanent station put back on its feet. We would have liked to have achieved more, but so goes it.

Tomorrow's will be the last post from Concordia, this outpost in the middle of absolutely nowhere. I have grown quite fond of the place, despite the lack of oxygen, the bitter cold, and the necessary complications of living on an Antarctic base. I shall be sorry to leave.

Goodbye Concordia

Thursday, January 24, 2008

The Concordia chapter of this Antarctic adventure is now over, and we are back in the more moderate climate of coastal Antarctica. The photo was taken at around 4am local time, as we came in to land at D10, the landing strip on the plateau that serves as the Dumont d'Urville airport.

Leaving Concordia was hard for me to do. There was a strong community spirit which I shall miss. Life was by no means easy up there, between the cold, the altitude and the spartan living/working conditions, but these difficulties created strong ties between us all. At Concordia it is natural to help each other out whenever possible, as you never know when you'll need help yourself. Of course, some people are more generous with their time and energy than others, but for the most part you barely need ask to receive the help you need.

Our continuously advancing departure date, and the ensuing rush to get everthing finished on time, made it hard for me to savour the last couple of days up there.

We were being pushed out of the door, forcibly ejected not by the people at the base themselves, but by logistical necessities that were beyond our control. Intangibles such as community sprit and friendships grown out of shared hardships could be given but little consideration.

All too soon we were climbing into the Twin Otter for our flight back, having barely had time for rushed goodbyes to the thirteen winterers and the few remaining summer campaigners. A chapter was closing, too fast and suddenly for my liking. I do not believe I was the only one who got a little emotional as the plane taxied off...

The flight to the coast lasted five hours, during which it was hard to sleep (Twin Otters are not the most comfortable or quiet of aircraft). We saw the moon again for the first time in weeks. Indeed we saw it for most of the journey, as our route from Concordia to Dumont d'Urville lay almost due North. The coastline itself was beautiful in the soft early morning light, albeit with much less ice and many fewer bergs than when we had set out two weeks ago.

The ice will return as winter sets in, though I shall no longer be here to see it. JY and I are due to leave on the next rotation of the Astrolabe, in approximatelly two weeks' time. Until then our new base will be Dumont d'Urville, with its coastline, its icebergs, and its colony of (noisy and smelly) resident Adélie penguins.

Dumont d'Urville, tourist destination?

Friday, January 25, 2008

Dumont d'Urville - referred to as "Dumont", "Durville" or "DDU" for short - is a relatively old scientific base. It is perched atop rocky Petrel Island, just off the Antarctic continent, and is home to resident colonies of Snow Petrels and Adélie penguins as well as to a few dozen scientists and logistics personnel.

It is made up of a few weather-worn, reddish, prefabricated buildings connected by metal walkways. We have dormitories, various science labs, a central living/dining building, a post-office, a meteorological station, a power station, and a couple of sculptures, one of which is of Mr Dumont d'Urville himself.

The sky is grey overhead today, the wind has picked up, and there is a little snow. The cold is nowhere near as intense as it was at Dome C, but it feels colder due the higher humidity level at sea-level. Since coming down here from Concordia I have been frustrated... there was so much to be done up there, and so little to be usefully done here. It feels like I'm on a forced vacation... Ugh!

Personally, Dumont d'Urville is not a place I would choose to go on holiday. When I need to relax, chill out, indulge my desire to do nothing at all, I tend to choose warmer, sunnier spots than this. I was surprised to discover upon arriving here that Dumont is in fact a tourist destination. This week alone, two tourist ships have dropped in for a visit, sending their passengers ashore for a quick tour of the base.

Today's ship carries 100 tourists from New-Zealand. They come ashore in small groups, and are shown around by the resident scientists (see photo). They are shown some of the labs, the living area (where they are offered a hot drink and biscuits), the Post Office (for post-cards and special Antarctic stamps that are much sought after by collectors), and the office of the "Chef de District" where they can purchase other souvenirs.

Antarctic tourism is a booming business, as many of the more accessible bases in the Antarctic peninsula can attest too. Tourists pay a great deal of money to set foot on the continent, take photographs of penguins, talk to us campaigners. Although it rankles to see a scientific base invaded in this manner, I cannot be annoyed at the tourists themselves. The fascination of living an "Antarctic experience" can be extremely powerful. This fascination was part of the reason I jumped at the opportunity of working here in the fiirst place, and undoubtedly motivated the fiirst steps of many campaigners and winterers before me.

There is, however, something deeply displeasing about the concept of tour operators making money out of the vision, tenacity and hard work of many generations of scientists and dedicated Antarctic support personnel.

Seals on sea ice

Saturday, January 26, 2008

It is the end of the summer, and the sea-ice surrounding Dumont d'Urville is nearly all gone. Just enough remains, however, for a quick trip to visit the local seal population. JY and I went this morning, stepping very gingerly to keep our footing on the slippery surface and taking care not to wander too close to the water or onto thin ice.

There was a large group of seals some way away, but the ice looked too watery there to be safe for us. Instead we approached an isolated seal lying in the sun on thicker ice, warming itself and digesting its most recent meal. Although it had a very sweet face, and seemed to have a quiet disposition, I was vary wary of getting too close. The photo shows how close I did get...

Sunday tour

Sunday, January 27, 2008

Today is Sunday, a day for lie-ins and laundary, "brioche" at breakfast and fruit tart at lunch. After lunch I went on a tour of the base with T, who will be in charge of the power station over the winter. Of course, the tour started with the power station itself...

There are four electricity generators here at Dumont, three in the main power station and an emergency one in another building. Of the three generators, only one is sufficient for the needs of the base, the other two are for backup. These are rather modern machines, which according to T give no problem at all.

Water production, however, is a different matter. The system is ingenious, but highly non-standard, and is 18 years old. Essentially, seawater pumped from the base of the island is boiled under vacuum using the heat from the electricity generators, then condensed around pipes cooled by more seawater, and collected. It is then cleaned and re-mineralised to become drinking water.

The warm seawater left over from this process is used to heat all the fresh-water pipes so they don't freeze in the winter. There is no electronics in the system, so all the pressure regulation is done by hand, through opening and closing valves. There is someone from the technical team in the power station at all times, day and night. These guys are the unsung heroes of the base...

Today's tour also took me to the first building constructed on the island, Marret Base which was repaired and renovated 22 years ago. From the outside it looks nothing special, but inside it is easily the warmest and most comfortable looking structure on the whole base, as it is the only one built almost entirely out of wood (see photo).

Windy weather

Monday, January 28, 2008

It has been windy ever since I set foot in Dumont d'Urville, normal, every-day wind of the "hold on to your cap" variety. Last night the wind got bored of being so reasonable and started blowing more convincingly. It has been increasing in strength throughout the night, and is now blowing a pretty decent gale, with peak speeds of 140 km/h.

Its roar is present everywhere, changing in tonality and volume depending on the building one happens to be standing in at the time. The buildings themselves rattle, creak and moan as the gusts blow over them. Sometimes a particularly violent gust whistles through a badly insulated opening, causing a temporary increase in air pressure that is felt by the eardrums, and makes everyone wince.

The sea is whipped to a frenzy of white-tops whose froth is launched upwards by the gusts. This is not a sea I would like to experience in the Astrolabe! The spray is thrown easily up and over the smaller icebergs in the bay. The larger bergs act as windshields, but are themselves slowly displaced by the moving air.

When we move about the base, we walk with bent knees, trying to keep as low a profile as possible. We are told to avoid running along the metal walkways that join the buildings, as a gust of wind can easily pick a person up in mid-stride. The Italia Antartide cap I have been wearing for the past few days has given way to the IPEV standard issue woolly hat, which fiits snuggly around the ears and is less susceptible to being blown off my head.

The meteorologists on the base tell us this weather should last another few days, until late Wednesday or early Thursday at least. Winds like these are apparently pretty common here in Terre Adélie... so I guess I'll end up getting used to being buffeted around whenever I venture outdoors..

Electricity

Tuesday, January 29, 2008

Shocks from static electricity are something we all experience everywhere.

Just shuffle your rubber-soled shoes against the carpet on a dry day and you can be sure to get a spark from the next metal object you touch. Over here in Dumont d'Urville it takes very little indeed to provoke a spark of static electricity.

Every time I take my fleece jacket off, or pull on my woolly hat, I knowI'm charging myself up. Every time I put out my hand to a door handle a spark goes off. Some parts of the base are worse than others. I have not yet managed to enter the far side of the meteorological building without getting a jolt off its door. In Concordia it was even worse than it is here: I would get a spark of the door handle at the bottom of the stairs, only to get another one off the other door handle at the top.

Sparks of this kind can be quite dangerous for computers and other electronic equipment. Everyone has stories of having killed one machine or another via a particularly nasty jolt of static.

So we take precautions, and usually try to discharge ourselves against a metal door or wall before touching anything sensitive. I used to find it odd to watch people knock against metal surfaces before reaching out their hand. Now I fiind myself doing the same... a shock off a knuckle is not nearly as annoying as one off the fiingers!

As the saying goes, when in Rome...

Snow !

Wednesday, January 30, 2008

The wind is dying down, it no longer buffets us as strongly. Walking has become easier, and it is even possible to find the odd place where the air is almost still. Such spots are great favorites with the amateur photographers of the base, as the views onto the Antarctic continent can be spectacular.

Can be. The continent, although it is distant no more than a couple of kilometers, is not always visible. Today it is hiding... It has been snowing since this morning, small unstructured flakes whirling around in the diminishing wind, gently coating the whole base in a mantle of whiteness, and hiding the continent from view. It is the first time I have seen it snow since arriving in Antarctica.

In Concordia it hardly ever snows. We experienced winds that lifted the surface snow into a blizzard, reducing visibility to a few meters, and creating artistic snow drifts, but no real precipitation. The annual accumulation up there is around two centimeters a year... dryer than many deserts!

Fishing expedition

Thursday, January 31, 2008

Sunshine makes a world of difference! Today we finally had blue skies again, after nearly a week of cloud, wind and snow, so we celebrated by going on what was supposed to be a photo-tour. The first stop on our tour was the quay, from which we had planned to start circum-walking the island, keeping as close to the water and sea-ice as possible, so as to get good pictures of penguins, seals and aesthetically pleasing ice formations.

Instead we found a group of "ornithologists" preparing for a fishing expedition (actually marine biologists, not bird experts, but any life-scientist seems to be called an ornithologist here). They promptly invited us to join them. After dropping a cage for catching crustaceans in the open waters of the bay, we navigated to a quiet spot sheltered by icebergs, and started dredging the bottom of the bay for whatever happened to live there.

We managed three runs before the hydraulics powering the winch broke down, and we were forced to raise the last dredge-pan by hand.

While the marine scientists and JY had fun poking around in buckets filled with odd, spindly, spiky, gooey marine creatures (not really my kind of thing), I spent time taking in the spectacle of icebergs at close quarters.

They are a magnificent sight, glistening in the sunlight, changing color and shape depending on which angle you view them from. Some have had caves excavated in them by waves, others have been sculpted into soft shapes by wind and water. Yet others are tabular, and in the right light you can see they are stratified like sedimentary rocks (the "sedimentation" is actually snow accumulation) and traversed by fault-lines and crevasses.

It was cold on the water despite the sunshine. We had not expected to be taken fishing and had not dressed accordingly... However, the opportunity to spend time close to those fascinating ice-monsters was well worth it!

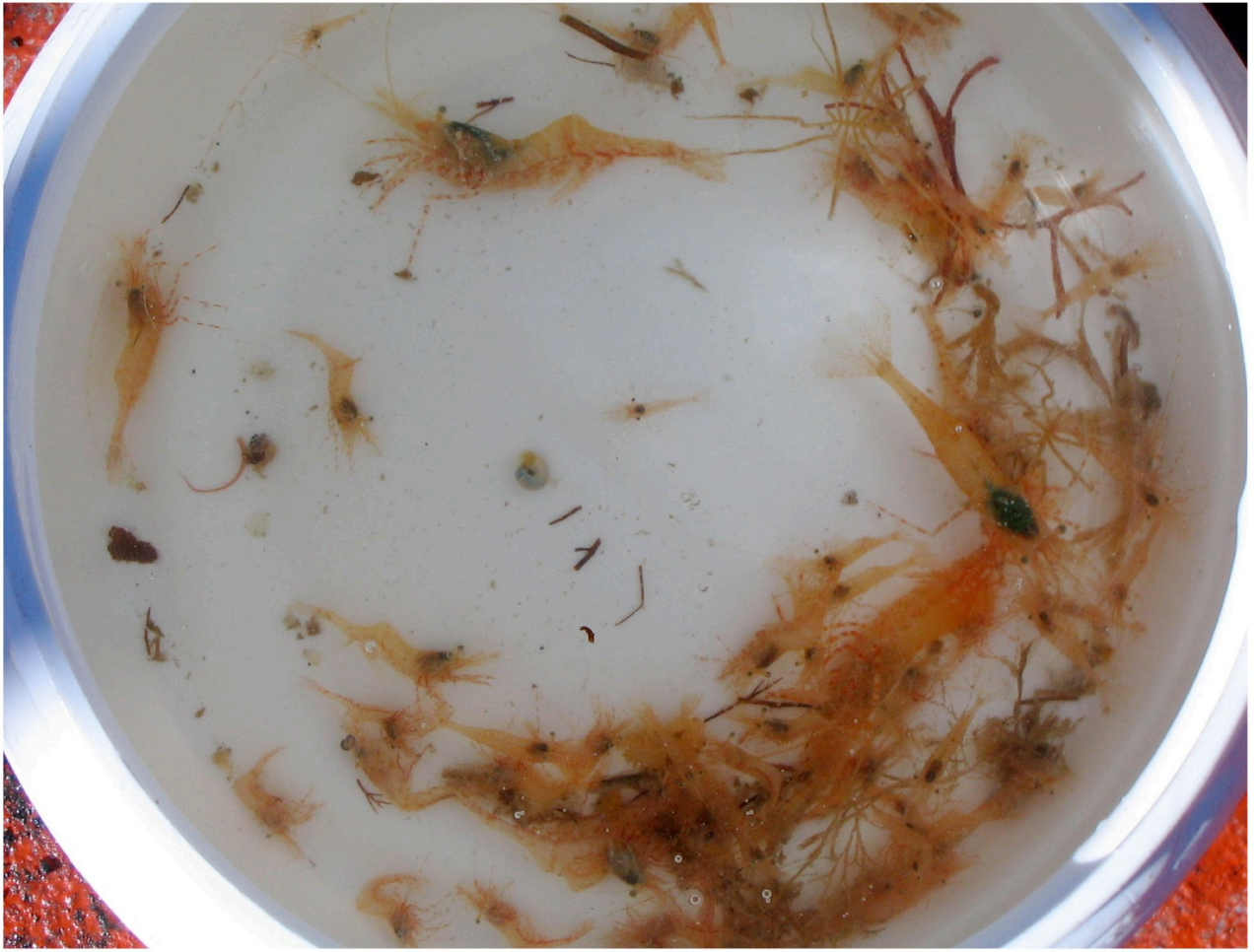
Community life...

Friday, February 1, 2008

One of the pleasures of living the Dumont d'Urville life is being on cleanup detail every now and again. This detail includes laying the tables, serving, clearing and washing up after three meals, as well as cleaning all communal living areas. Three people are assigned to this detail every day, with one of the three on lighter "backup" duty.

I was "backup" in today's cleanup detail. In order to avoid what I consider to be the worst aspects of the job (floor and toilet duty) I volunteered from the start to do all the washing up. I had already had some experience at washing up efficiently for this number of people atConcordia, where I was on "dishes detail" twice in two weeks (the second time was the day I left - the last thing I did at Concordia was wash dishes...).

For my family and others who know me well and may have trouble believing I could wash up three times a day for sixty people, the photo should serve as proof...



Prawn cocktail anyone?

Saturday, February 2, 2008

Another beautiful day on Petrel Island, and another fishing trip, far more successful than the last one I described. Part of this morning's catch is shown in the photo.

The spot we went to was the same as the one we visited two days ago, but the ice scenery was entirely different. In two days most of the bergs had drifted to new positions. Some of the larger tabular ones had lost parts of themselves through calving, and one of them had flipped on its side. We just missed seeing a large chunk calve off a tabular berg. We heard it though, and saw the resulting wave and ice-debris: impressive!

Adélie chicks

Sunday, February 3, 2008

Petrel Island and Dumont d'Urville itself are home to a vast colony of Adélie penguins. They are everywhere, on every scrap of rock. They are cute little critters, once you get used to their smell and raucous calls. Many an hour can be whiled away by watching their comic antics, as they come and go from the sea, steal stones from each other's nests and feed their young.

Today, JY and I volunteered to help weigh some of the Adélie chicks born to the one hundred couples under study this year. Together with the resident ornithologist, we tracked down the correct chicks among the rocks, weighed them, measured the length of their right aileron, and removed their identification tags.

The chicks were all between 42 and 45 days old, weighed between 3 and 4 kilograms each, and had started to shed their downy fur for more sea-worthy feathers. They will soon complete their transformation and take to the sea for the winter. The chick I am carrying in the photo was, at 2.75 kg, the smallest one we weighed today, and still had all of its down. It was very placid and soft to the touch: a pleasure to hold

The Astrolabe is back

Tuesday, February 5, 2008

The sun that bathed us most generously over the weekend (the photo was taken last Sunday) has given way to two days of wind and snow. There has been so much cloud that at times we could hardly see over to the next building, let alone make out the continent or the icebergs in the bay.

The Astrolabe arrived offshore early this morning, but did not dare come into dock in such windy conditions with near zero visibility. It waited until early afternoon for the snow storm to clear, then gingerly inched onto the bay and to its mooring. It should stay here five days or so, time enough to unload its cargo (mostly fuel for the winter) and pick up its forty odd passengers (I shall be one of them) for the crossing over to Hobart.

If all goes as planned, I should be leaving here this coming Sunday or Monday. Although the prospect of a 5-7 day crossing through rough seas the flat-bottomed Astrolabe doesn't really fill me with anticipatory joy, I shall be glad to be on my way home at last.

Spot the birdie...

Thursday, February 7, 2008

The sun is back, and with it the possibility to escape Dumont d'Urville base for a few hours. Today JY and I tagged along with two friendly ornithologists who had work to do on Lamarck island. We helped them count Adélie chicks, and put id tags on Snow Petrel and Cape Petrel chicks. The Snow Petrel nests are particularly difficult to find, as these birds hide in crevices in the rocks. We spent a very pleasant morning clambering over the island looking for them.

One thing I learned about Petrel chicks of both species is they projectile vomit in self-defense. Our friendly ornithologists got covered in the stuff, with one receiving a direct hit in the face... yum. My job was to help locate nests and write down the tag numbers. Even though I did not have to reach into the rocks to extract the chicks (I would not have known how to do so without hurting them) I still managed to get vomited upon.

Other notable events today: first sighting of Emperor Penguins in the archipelago and a partial solar eclipse.

Departure from DDU

Monday, February 11, 2008

Last half-day at DDU...

We are expected to be on board the Astrolabe this afternoon, as our departure is set for early evening. Six days at sea await us... what a glorious prospect...

The day is bright and windy, which makes for great visibility, but choppy waters. The numerous icebergs that in the bay at the moment will escort us out to the open sea. I shall be sad to say goodbye to these ice-monsters.

Goodbye Dumont d'Urville, goodbye Antarctica! I hope to be back soon...

First day at sea

Tuesday, February 12, 2008

Current location: S61° 50'.
Sea state: slight swell.

My state: seasick... ugh!

After having managed to keep down none out of the three meals taken on board, I have now opted for a seasickness patch. Hopefully things will be better tomorrow.

Second day at sea

Wednesday, February 13, 2008

Sea state : moderate swell

My state : patched, but still queasy and drowsy.

We are making good speed. At this rate we should arrive in Hobart Saturday afternoon. Fingers crossed!

Day three

Thursday, February 14, 2008

This third day at sea has passed much like the two previous days. There is a moderate to strong sea-swell, which is making us roll severely (30 degrees either way). I'm doing OK at the moment, thanks to the sea-sickness patch.

There is not much to do on the Astrolabe to pass the time. One can read, watch films, work on a computer. I can do none of the above without feeling queasy. Other options are watching the sea from the bridge, or from the helipad at the rear of the ship. I spend most of my time either watching the sea from one of these two locations, or lying on my berth being rocked by the waves.

Eating on the Astrolabe requires willpower, and the certain knowledge that it is better to be queasy with something in the stomach than with nothing at all. Taking a shower is more challenging still!

We should have only another 48 hours at sea before we reach Hobart. Yay!

Land ahoy

Friday, February 15, 2008

The fourth and fifth days of navigation have been much more pleasant than the first three. Calm waters have made a big difference to my comfort level... I am no longer seasick, even without the patch. Yesterday evening we celebrated our last night at sea with the traditional party. Lots of music, lots of dancing, lots of drinking. The ship is very quiet this morning. I suspect a number of people will not be feeling too perky when they wake up.

It is a grey day, and there is a mist on the horizon. The southern tip of Tasmania is barely visible, rising above the mist. We should reach it in six hours time. It will be great to set foot on dry land again! We shall stay in Hobart for the weekend, sleeping on the Astrolabe, and shall start our 24h plane journey back to France on Monday morning.

The adventure is nearly over. I am very much looking forward to being back home, but at the same time I am sorry to leave Antarctica behind. There is a magic about the place I cannot quite explain...

Hobart - last day before departure

Saturday, February 16, 2008

A cloudy morning in Hobart bay. We had been expecting summer conditions, but have found Tasmania in February to be pleasantly cool.

Yesterday upon arrival we were raring to set foot ashore and walk somewhere more than a few hundred meters away. Being stuck on a 65m vessel for five days tends to do that to you. We were also longing to get away from the ever present smell of exhaust fumes that have accompanied us day and night on the Astrolabe.

Our main stop was the botanical gardens of Hobart, which are well worth a visit. The colors, the smells, the feeling of grass underfoot... all things we had forgotten about after nearly 7 weeks in Antarctica, at sea or in airports. We spent a leisurely hour or so strolling in the gardens.

Today is Sunday, a day for a lazy stroll about the town, maybe visiting a few museums, or drinking coffee (or tea in my case) in a waterfront cafe. Our departure is set for early tomorrow morning.

Sismordia - Seismology at Concordia

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