

Christchurch Mayor Lianne Dalziel recently spent five days in Antarctica, as a guest of Antarctica New Zealand. She writes about her experience [here](#).



### **Foreword**

My apologies for the delay in getting this blog posted. I have been adding bits and pieces to it since I returned on November 15 as I wanted to make the blog interesting, but also connect you to some of the websites where you can see what is happening down on the ice, along with the opportunities that are afforded Christchurch as one of only five Gateway Cities to Antarctica in the world.

[You can read more about my Antarctic preparation here.](#)



### Day 1 (written on Day 2)

I woke up this morning with cold feet. Not about travelling to Antarctica - I was already there and my feet were cold. I decided to wear socks to bed from then on.

I didn't write anything on Day 1. I was in a state of suspended animation all day – a sense of disbelief that I was here in Antarctica - a childhood dream come true.

But it was more than that. A childhood dream cannot possibly imagine the experience of the reality that is Antarctica – the last to be discovered continent.

Stepping off the C17 into an environment was all that I had imagined and more, although it wasn't as cold as I thought it would be. I had heard others describe that moment as breath-taking in the figurative and literal sense. But I was able to take off my gloves off and find my camera – I wanted to capture that moment digitally even though I knew it would be indelibly printed on my memory forever.

The views of Mt Erebus and Mt Terror named for the ships of James Clark Ross who led the Antarctic Expedition 1839-1843 were spectacular and I took photos all the way into Scott Base. We were blessed with a perfect day – an introduction to this spectacular place that belied the extremes I knew we could experience.

When we arrived at Scott Base (see <http://antarcticanz.govt.nz/scott-base>) we received a briefing about the values that guide the Antarctica NZ experience. These are Antarctica NZ's values:

- We are passionate about what we do
- We care for each other and the environment
- We work together
- We act with integrity
- We aspire to the highest standards

If there was one thing that stood out for me was the lived experience of an organisation committed to the safety of everyone who visits or works in Antarctica.

Antarctica New Zealand strives for Zero Harm both for workplace injuries and the environment. We learned the seven lifesaving rules (and yes we had to answer questions to prove we had taken it in):

- Flags highlight danger, no go areas and safe paths. Know the colours and obey them. (Surprisingly red and green were good to go, but not surprisingly black was the no go zone.)
- Only ever operate equipment for which you have been trained.
- Condition-one weather can kill you. Know and understand limitations with each weather condition. (Condition three was the best with good visibility and low wind chill factor and that's what we pretty

much had throughout our stay.)

- Always wear the correct personal protective clothing and equipment during work and recreation.
- Never enter a restricted area unless permitted to do so.
- Always sign out when travelling away from Scott Base and back in again on return.
- Always speak up if you think a situation creates risk, an unsafe condition or the potential for unsafe actions.

We were taught to always Take 5. Take 5 seconds or 5 minutes just to reflect on what we were doing. Every single guide we went out with always did that. Everyone waited until we all had our tasks assigned and no-one had any questions. And I learned that getting in and out of vehicles required three points of contact – great advice when your ECW boots are as heavy as mine were (I had to lift my leg up to even start getting into a Haaglund).

### **The Pressure Ridges**

That night after dinner we were given the opportunity to go for a walk around the pressure ridges that abut the Base. I went looking on-line for a technical definition of pressure ridges and found this: "The pressure-ridge building causes ice blocks to be loaded onto one of the two overriding ice sheets. As the sheet is loaded, it cracks at some radial distance from the loading and the edge of the sheet between the blocks, and the crack is deflected below sea level."

Way too complicated for me. I thought they were absolutely beautiful. To me they looked like waves that had been literally frozen in time.



With the sun never going down, we set off at 8pm. We were back before 10pm and had a quick nightcap in the bar. I have to say that I was very tired after such an incredible day, which is why I couldn't write up Day 1 before I went to sleep.

It is very dry here, which is why it's important to stay hydrated – we were advised to drink at least 2 litres a day. I'm not going to describe the challenges of dealing with the consequences of drinking lots of water when you're in the field (other than to say that it's much more challenging for a woman although we were provided with a Female Urination Device - FUD). I'm glad I won't be taking home a Pee Bottle, which we returned to the Pee Lab each night.

### **Day 2**

Sitting in the Square Frame Hut, knowing that Sir Ed Hillary spent the night the last time he was on the ice gives me a sense of connection with someone I had met - a legend in my lifetime.

I was alone when I penned these words.

We have been to the Castle Rock ridge today. The vista that awaited us was utterly spectacular. There are insufficient superlatives in the English language to describe the wondrous beauty of this place.

And yet it remains a place of extremes with the chill nibbling at any exposed flesh reminding us of our ultimate powerlessness against the brute force of nature.

I feel so clumsy in what feel like over-sized boots and many layers of clothing. I suddenly feel my age and am acutely aware that I am the oldest in this group of five.

I wish I had prepared myself more for this visit. Rock climbing skills would have been good. I felt sorry for the guys (yes, I am the only woman), because we had to stop at the Castle Rock ridge, whereas we would have been able to climb to the top of the rock if it weren't for my lack of experience. I have to say in my defence that the view of Mt Erebus from here was pretty spectacular. Our guide told us he had never seen the smoke going straight up out of Mt Erebus with a straight dispersion layer across. Every other time he said the cloud would yield to the direction of the wind. There simply was not a breath of air to disrupt our view.

I actually managed to skid in the loose scree towards the bottom of Castle Rock coming down to where we had parked the Hagglund. This produced a spectacular bruise on my elbow, but even that did not compensate for my wounded pride. We filled out a report when we returned (the safety commitment extends to learning from small incidents that could have been serious) but that did mean that everyone knew I had had a fall – embarrassment is a small price to pay for improved safety. While I sat in the Square Frame soaking up the sun pouring through the ranch slider window, the guys decided to make furniture in the snow. They are enthused by the new skills we have learned. As part of our survival skills training earlier in the day, we made a campfire shelter out of ice so we could eat our lunch and have a hot cup of tea.

I think this is what has enhanced the guys' interest in ice-building. I have to say there is something very satisfying about building something even if it is out of ice and you have to put it back the way it was before you leave (there's that commitment to environmental values). They are competing against each other and I am to be the judge. I am not reporting the winner – what's on tour stays on tour. Secretly I am delighted by their humour and camaraderie. The furniture was great! We have been treated to two extraordinary days – hardly a cloud to be seen and no wind to add the chill factor that makes the temperature much more extreme. We are going to have dinner out here tonight. Fortunately this had not been left to our new-found skills and a delicious curry was brought out from Scott Base. By the time we got back I was exhausted and asleep almost the minute my head hit the pillow.

### **Day 3**

Today we started with the three wind turbines which sit on Crater Hill - the ridge between Scott Base and McMurdo Station and the one area on Ross Island that doesn't ice over. These produce all the electricity (except heating) for Scott Base and the rest goes to McMurdo.

Meridian Energy describes it as the world's coolest wind farm. As Meridian highlights the wind farm continues to cut consumption by approximately 463,000 litres of fuel every year between the two bases. That's got to be good for the environment. Then we went down the hill to McMurdo Station, which seemed to me to look like an old-fashioned logging or mining town from history. But despite the appearance there is more world-class science happening here.



We met with representatives of the National Science Foundation (NSF) who are responsible for the scientific work that is being undertaken. A lot of the research is collaborative and there are many New Zealand scientists throughout our universities engaged in some of this work back home.

We visited the AP Crary Science & Engineering Centre, which we were introduced to as the Crary Lab. <http://www.nsf.gov/geo/plr/support/crarylab.jsp>. This provided us with a glimpse of the scale of research being conducted by the United States Antarctic Program (USAP). I was introduced to the concept of gigantism – large scallops, sea lice, starfish and sponges – but there were vulnerabilities that weren't so obvious - eg fragile shells.

If ocean warming means predators come further south, then these species will become much more vulnerable than they are now.

I found this video which is a tour of the lab <https://www.youtube.com/watch?v=20y4CibmSdc>. After lunch, we went through to Arrival Heights, which is another Antarctic Specially Protected Area (ASPA). The primary reason for designation of the Area is its value as an electromagnetically 'quiet' site for the study of the upper atmosphere and its close proximity to logistical support. The Area is used for a number of other scientific studies, including trace gas monitoring, auroral and geomagnetic studies and air quality surveys – see this report: [http://www.ats.aq/documents/recatt/att473\\_e.pdf](http://www.ats.aq/documents/recatt/att473_e.pdf). New Zealand has done research here since 1959. In fact we have been taking the temperature manually at Scott Base every day since 1957. The reason why we do it manually is to avoid reliance on things that can break down, which could affect the perfect record we hold. This simple daily record is truly invaluable for scientific research purposes. <http://www.scottbase50years.co.nz/history/arrival/info.htm>.



Arrival Heights is the place where several atmospheric experiments are being conducted by NIWA. As I said the Antarctic atmosphere is an important part of the global climate system. The goal of NIWA's research is to improve understanding of how Antarctic atmosphere chemistry drives and responds to

global climate change. There is a webcam here and at Scott Base, where you can see what the conditions are like – the images are refreshed every 15 minutes: <http://antarcticnz.govt.nz/scott-base/current-conditions>. We returned to Scott Base and hosted a dinner for the distinguished visitors from the US, including Dr. Kelly Falkner, who is the Division Director, Division of Polar Programs of the National Science Foundation (NSF). I found this presentation she gave recently to a House Committee: <http://transportation.house.gov/uploadedfiles/2014-07-23-falkner.pdf>. After dinner we all went to view one of the original huts at Scott Base, which dates back to the Commonwealth Trans-Antarctic Expedition from the Weddell Sea through the South Pole to McMurdo Sound led by British explorer, Sir Vivian Fuchs. There was a Ross Sea support party, by Sir Ed Hillary, which was tasked with laying the tracks and dropping off supplies from McMurdo Sound through to the South Pole: [http://www.scottbase50years.co.nz/history/tae\\_iggy/expedition/info.htm](http://www.scottbase50years.co.nz/history/tae_iggy/expedition/info.htm).

#### Day 4

We headed out on Day 4 by helicopter – or helo as the Americans called them. The views from up in the air were truly spectacular. I love this view of Scott Base – it looks like an ink drawing to me.



First stop was Cape Evans. This is home to Scott Hut. The story of Robert Falcon Scott's last and fatal expedition began here. This Scott Polar Research Institute of Cambridge University webpage tells the story - <http://www.spri.cam.ac.uk/library/pictures/catalogue/bae1910-13/>. I have been looking for a webpage about Scott's life and found this <http://www.south-pole.com/p0000089.htm>, along with a more traditional encyclopaedia entry <http://www.britannica.com/EBchecked/topic/529613/Robert-Falcon-Scott>

His public message was found with his body:

"Had we lived, I should have had a tale to tell of the hardihood, endurance, and courage of my companions which would have stirred the heart of every Englishman. These rough notes and our dead bodies must tell the tale."



Scott's Hut was very special. Apparently there has been some debate about bringing it out of Antarctica so more people can experience it. My view is that you couldn't experience it anywhere else. You could view it, but not experience it.

The NZ Antarctic Heritage Trust <https://www.nzaht.org/> has done an extraordinary job. It feels as if the original occupants could walk in and carry on their activities.



As we set out to leave, our helicopter was no longer considered fit for flying. We were exceptionally grateful that this occurred as we were attempting to take off as opposed to landing! It does remind you of your vulnerability.

A smaller squirrel helicopter was sent to shuttle us across to Cape Royds. It took two trips to ferry us across.



Shackleton's Hut didn't have the same aura as Scott's Hut, but it was also an interesting place to visit. Throwing back the shutters let in light, which gave it a much more present day feeling.

There is a quote attributed to a Sir Raymond Priestley, which says:

"For scientific leadership, give me Scott; for swift and efficient travel, Amundsen; but when you are in a hopeless situation, when there seems to be no way out, get on your knees and pray for Shackleton."

This will be a reference no doubt to the time in January 1915, when his ship the Endurance became trapped in ice. Shackleton and his men set up camp on the floating ice for over a year, when they made their way in boats to Elephant Island, off the southern tip of Cape Horn. Shackleton led a team of five others out on the water again, reached another island and trekked to a whaling station to organise a rescue effort. On August 25, 1916, Shackleton returned to Elephant Island to rescue the remaining crew members. Not a single member of his 28-men team died during the nearly two years they were stranded.

Here's the link to the Shackleton webpage on the same site I referenced before: <http://www.south-pole.com/p0000097.htm>.

Then we went to watch the nesting Adelie penguins which have set up a number of colonies all around the bay. They were an absolute delight. They have so much personality in the way that they waddle along gathering stones for their nests and the way they interact with each other. If you look at the picture you will see the egg, which takes about 5 months to hatch. <http://www.penguins-world.com/adelie-penguin/>



We then flew to Granite Harbour where we saw amazing science being conducted by NIWA. Have a read: <https://www.niwa.co.nz/news/niwa-scientists-working-under-the-ice-in-antarctica>. They are measuring the impacts of temperature and pH levels on the lower end of the food chain. This warns of what may occur if the ocean warms or acidifies. The repercussions will flow all the way up the food chain. The science of Antarctica is important now and in the future because what happens here affects the rest of the world. Its past can tell us about our future and its biology can pick up change early. It is thought members of the Antarctic eco-system are the sentinels of change.

By the time we got back it was after 10pm so the bar was closed and I went straight to bed.

### **Day 5**

We went out to Turtle Rock to see the Weddell seals. This science project is about understanding what's happening at the other end of the food chain. An international team, led by University of Canterbury researcher Dr Regina Eisert have been tracking the seals using satellite-linked transmitters. The information collected by the transmitters reveals what the seals are doing as they swim beneath the ice. This is a very quick summary:

<http://www.anta.canterbury.ac.nz/documents/events%20and%20news/R%20Eisert%20An%20Epic%20Adventure.pdf>.

We were back in the afternoon for the last of the family Erebus memorial services. Air New Zealand has been flying down family representatives of all those who lost their life in the 1979 Erebus disaster.

Here is a link to the page dedicated to those people <http://www.erebus.co.nz/>. I felt very privileged to be there. The weather had not been very good in the morning with no view of Mt Erebus at all, but by the time the service was held, the sky had cleared. The service was conducted by Peter Beck and was extremely moving. One of the family members said to me that it had helped them to come to the place that had held such an attraction for their loved one. I didn't take any pictures out of respect, but here's the poem by Bill Manhire that was read:

### **The Mountain**

I am here beside my brother, Terror.  
I am the place of human error.  
I am beauty and cloud, and I am sorrow;  
I am tears which you will weep tomorrow.  
I am the sky and the exhausting gale.  
I am the place of ice. I am the debris trail.  
And I am still a hand, a fingertip, a ring.  
I am what there is no forgetting.  
I am the one with truly broken heart.  
I watch them fall, and freeze, and break apart.  
The Dead  
We fell.  
Yet we were loved and we are lifted.  
We froze.  
Yet we were loved and we are warm.  
We broke apart.  
Yet we are here and we are whole.

In the evening we returned to McMurdo Station. The NSF were hosting a special reception for their distinguished guests:

Dr Bonnie Bassler, Dr Peter Lepage & Dr Geraldine Richmond, all three members of the National Science Board, along with Candy Green, Charges d'Affaires, US Embassy, Wellington, had experienced Antarctica for the first time, and they had been able to travel down to the South Pole as well. Each one of them spoke of the emotional connection they had made with Antarctica and they all spoke about their pride in the scientists and the support crew that make up the United States' commitment to the Antarctic Treaty.

### **Day 6**

I hadn't noticed the sudden change in the weather when I joined colleagues for breakfast. I was looking forward to one last set of activities before we would pack up to leave later in the afternoon. But the news had come that our plane (a C17) that was due to fly us home, wouldn't be leaving Christchurch until noon as opposed to 9am, the scheduled departure time. This meant that nothing was certain about when or if we would be leaving.

We asked if the US delegation had got away and were told that inquiries were being made about whether we could join the flight. The C130 – the Hercules – was still on the ground and it would have no trouble with the conditions. If we were going to get on board it would be a quick pack up and go. Five minutes later that's what we were told to do.

Climbing into the ECW gear for the last time, hugging any passing member of the extraordinary Antarctica NZ team and being driven to the airfield – so many memories in such a short time – there was no real time to say goodbye.

I wrote these words on the Hercules having exhausted my computer sorting photos. And as I write of having no time to say goodbye I feel a welling up of emotion. It's hard not to feel emotional, when so much of our planet's future lies in the hands of the dedicated scientists and the support crew who enable them to undertake the vital work they do.

And for five days I have had the privilege of sharing their passion and commitment to what is truly the most wondrous place on earth.

Not many people get the opportunity to travel to Antarctica, and as I said before I left, it is a childhood dream come true. But as I have discovered, childhood dreams don't always do justice to what might be

found.

I am so proud of our NZ Antarctic Programme, Antarctica NZ; from the orange and black gear, emblazoned with the fern and Emperor Penguin to the commitment to safety, teamwork and collaboration.

I simply cannot say enough about what they do.

Every single step of the way they live and breathe their values. Before I left I believed I would be having the experience of a lifetime and I have. I have literally lived the dream.

Lianne Dalziel

