

Marion Revisited...

"Good morning, the weather for today..."

Each year three meteorologists are deployed to sub-Antarctic Marion Island as part of the South African Weather Service's (SAWS) team. Not only do they collect extremely important meteorological data, but they play an integral part of each year's overwintering expedition team. Here are recollections from Sechaba Nyaku, Zinhle Shongwe and James Burns, the M75 (2018-2019) team's "metkassies" (as they were affectionately known)...

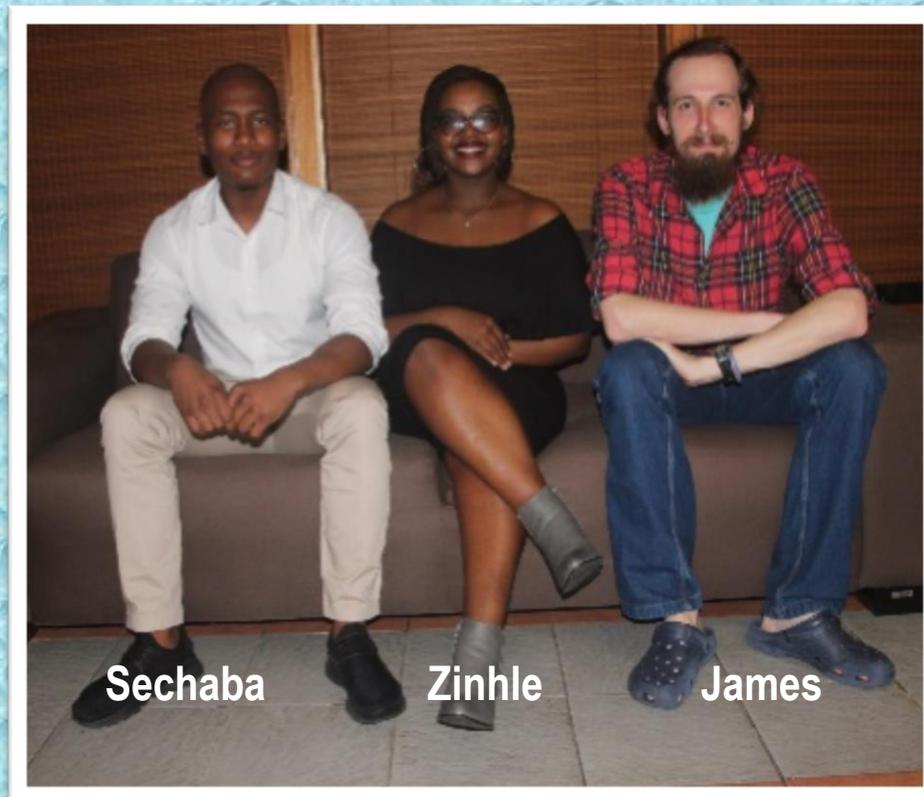




Photo: Elsa van Ginkel

“Personally I would describe my experience on Marion Island as life-changing. It gave me the opportunity to spend time to develop myself personally and professionally in becoming more competent in practicing restraint and compromise.”

Sechaba Nyaku

- M75 Senior Meteorological Technician -

The South African Weather Service (SAWS) is a Section 3(a) public entity under the Ministry of Water and Environmental Affairs and is governed by a Board of Directors. The company became a public entity on 15 July 2001 in terms of the South African Weather Service Act (No. 8 of 2001). It is an authoritative voice for weather and climate forecasting in South Africa and as a member of the World Meteorological Organization (WMO) it complies with international meteorological standards. As an Aviation Meteorological Authority, SAWS is designated by the state to provide weather services to the aviation industry, marine and a range of other identified clients and to fulfil a range of international obligations of the government.



As Senior Met. Technician/Observer on Marion Island, my role was (in short) the following:

- Supervise observation activities including supervision of personnel at lower ranks
- Provide observation reports in the timelines requested by the department or Client
- Responsible for accuracy of reports and quality control of the data
- Provide information that goes to scientists and Forecasters
- Provide special reports for changes in weather. Thorough understanding of Automatic Weather Stations
- Provide mentorship, coaching and leadership to Observers
- Develop new techniques and establishment of new methodologies and processes in the field
- Represent the organisation in national and international bodies when requested
- Basic management duties as delegated when necessary
- Responsible for observations quality Management processes and procedures
- Assist with the implementation and compliance to the requirements of the SAWS Quality Management System.

The Marion island weather office serves as one of three stations (SANAE and GOUGH) that were strategically placed to collect meteorological data. Unlike stations on the mainland, the environment around the Antarctic region has little carbon emissions, making it easier to spot the changes in the parameters measured including changes in the climate are more significant both visually and on climate records. Our duties are

- *performing 24hr surface observations,
- *upper air observations,
- *quality control of meteorological data and
- *routine maintenance on the automatic weather station.



**Work
doesn't stop
when you
get back
from
Marion...**

James Burns

- M75 Assistant Meteorological Technician -

Shortly after Marion Island was annexed by South Africa in 1947, the meteorological station was established to record the weather conditions, including atmospheric measurements with the weather balloons. Since that time, daily weather observations have been made continuously and without interruption over the past 70 or so years. There has thus always been at least one meteorologist, or meteorological technician, on the island with each expedition. During the most recent expeditions, the overwintering Marion teams include three meteorological technicians (colloquially referred to as 'metkassies') who maintain the weather station and conduct the regular observations.



Employed by the South African Weather Service through what is now the Department of Environment, Forestry and Fisheries, we were privileged to be chosen as part of the 75th expedition to Marion. Realising the importance of the work we were doing is humbling to say the least. The meteorological data collected on Marion is important for both national and global ventures. Probably the most commonly known use of this information is in feeding the models which describe and predict the movements of various weather systems, allowing for better forecasting which is crucial for any number of activities / industries ranging from transport and construction to agriculture, etc. In addition this, Marion is an ideal site to study the effects of the changing climate on the global environment due to its remoteness from the emissions of the mainland industries.

As technicians, however, our responsibility was just to obtain and provide accurate meteorological data to be used by the forecasters and climate scientists or researchers back in South Africa and elsewhere. Metkassies have quite a big responsibility to ensure the quality of our work because, as with most scientific endeavours, what you get out (e.g. forecasts) is only as good as what you put in (reliable data). But what do we actually do on a day to day basis?



Because of the 24/7 nature of our work, we have divided our duties into a day and night shift, which allows the third team member to rest. By far the most intensive of these duties are what we call obs, or observations. On an hourly basis during the day, and every three hours during night shift, the metkassie on duty needs to go outside and observe the state of the sky, check visibility and determine the present weather conditions. The state of the sky is primarily concerned with clouds; the amount of cloud-cover, cloud height and cloud type (often multiple cloud types at different heights). Visibility is often obscured by fog, mist or low clouds or alternatively, when it is a relatively clear day, the only point of reference we have is Prince Edward Island which is approximately 20km away. Lastly, present weather described, for the most part the type of precipitation and its intensity (i.e. light drizzle, heavy rain, hail, snow, etc.) All these observations, which are often tricky enough in daylight, can be near impossible during night shift.

Apart from obs, we also measure sea-surface temperature every morning while noting the state of the sea-swells. Temperature is measured by lowering a thermometer into the water near base and reading off the measurement after about 10 minutes. The amount of rainfall is measured manually but also by the automatic weather station, which also records air temperature, humidity, pressure and wind speed/direction. The regular maintenance and verification of this station also forms part of our duties. The data captured by the automatic weather station undergoes a daily and monthly quality control check before being sent to the head offices in South Africa.

The final duty we perform is the upper air ascent of hydrogen filled weather balloons. Two balloons are sent up each day (every 12 hours) carrying a radiosonde, a small box carry a temperature- and pressure sensor along with a small GPS device to track the rising balloon to heights of over 20km.



Zinhle Shongwe

- M75 Assistant Meteorological Technician -

Island life has a way of changing a person but one decides whether they change for the better or worse, I chose better. I was most inspired by the Wandering albatross; those birds withstand harsh weather conditions and just by observing them I learnt to never give up even when life keeps presenting innumerable challenges and problems. I have become a stronger person, learnt to control my emotions as I used to have a quick reaction and because of my past experience, I became accustomed to living life alone, well I've left that cocoon.

It has been a few months and I already miss the love from my Marion family, the smiles and the hugs, our get together and key moments. I dearly wish I could reverse time or go to another Island with them. Team extraa!!!!!!

My Name is Zinhle Shongwe 2018/2019 over-winterer at Marion Island. I worked as an Assistant Meteorological Technician, basically my typical day involved shift work, performing daily surface meteorological observations, conducting upper air balloon launch, sunshine charts reduction, measuring sea surface temperature, quality control of meteorological data, performing re-active and routine maintenance and verification and calibration of meteorological instruments. Weather observations in a remote area are essential for predicting severe weather conditions and issuing of warnings in cases of approaching storms that could result on land and have the potential to harm lives and property.

Living in a remote area is a challenge especially when there's limited communication with the outside world. There were situations that require you to become mentally tougher. Fortunately, we had the most amazing team that would carry the burden with you. Nonetheless coming from different backgrounds there were times we wouldn't see eye to eye nor give similar reaction towards certain things, acceptance and tolerance were key.

