

COMNAP Fellowship Report 2012/2013

Ursula Rack

Project title:

Reconstructing historic Antarctic climate data from logbooks and diaries of the Heroic era.

Home institute:

Gateway Antarctica, University of Canterbury, Christchurch, NZ

Host institute:

SPRI (Scott Polar Research Institute, University of Cambridge, UK)

International and national project collaboration:

Prof. Rob Allan (ACRE – Atmospheric Circulation Reconstructions over the Earth)
Exeter, UK

Dr. Clive Wilkinson (RECLAIM – Recovery of Logbooks and international Marine data project) University of East Anglia, Norwich, UK

Dr. Dennis Wheeler (CLIWOC – Climatological database for the World's oceans)
University of Sunderland, UK

Dr. Adrian McDonald (Department of Physics and Astronomy) University of Canterbury, NZ

Research objectives of the project:

Weather and ice conditions greatly influence the social situation in polar expedition teams, and diaries and ship logbooks are a unique source for studying weather phenomena in Polar Regions in the early 20th century (Solomon, 2001). The scarcity of weather data in these regions during this time also means that they are of great scientific value (RECLAIM; ACRE).

The main objectives are:

- Gathering diaries of members of the expeditions of Robert F. Scott (National Antarctic Expedition) and Erich von Drygalski (German National Antarctic Expedition), both in 1901-1903, from the archives of the Scott Polar Research Institute, Cambridge, UK, and from the archives of the Institut für Länderkunde, Leipzig, Germany;
- Analysis of unpublished and published diaries of the expedition members in view of weather and climate conditions and their reaction to the weather phenomena;
- Comparison of the data of the meteorological collections of this time and the accounts in the diaries;
- Compiling the results in digital format as spreadsheets for easy access in climate studies;
- Summary of the findings in peer reviewed publications (Polar Record and Polarforschung).

In this project, historic diaries and logbooks have been studied and transcribed to gain a wider knowledge on the weather and climate and its impact on expeditions and their

participants (Rack, 2008; 2010; 2012). The individual personal experiences and observations from these diaries have been put in objective context using the systematic meteorological observations.

The goal of the project is to collect, compile and make this vital information available in an easily accessible format in collaboration with ACRE. Historic climate data represent a unique resource and are likely to prove essential in the construction of accurate models to assess and predict climate change in the Antarctic regions (IPCC, 2007).

Activities, Methodology, Achievements:

To achieve the goals of this project, I traveled to Cambridge and Germany to gather the unpublished material, especially the diaries and notebooks of observations. I had only limited time to study this material, restricted in part by the Institute's procedures for accessing the diaries. Consequently, a longer stay in Cambridge, with its additional costs, is necessary to complete the project. However, when not able to work at the Institute I met with Rob Allan in Exeter (ACRE), Dennis Wheeler in Durham (CLIWOK) and Clive Wilkinson in Cambridge (RECLAIM) to discuss my project.

Another source of material is Adrian McDonald's current work processing the Drygalski data to produce a weather chart on temperature and pressure. I will use this to examine the entries of special time periods from the available diaries.

I examined the diaries from Scott's expedition for the year 1902 (see figure 1)

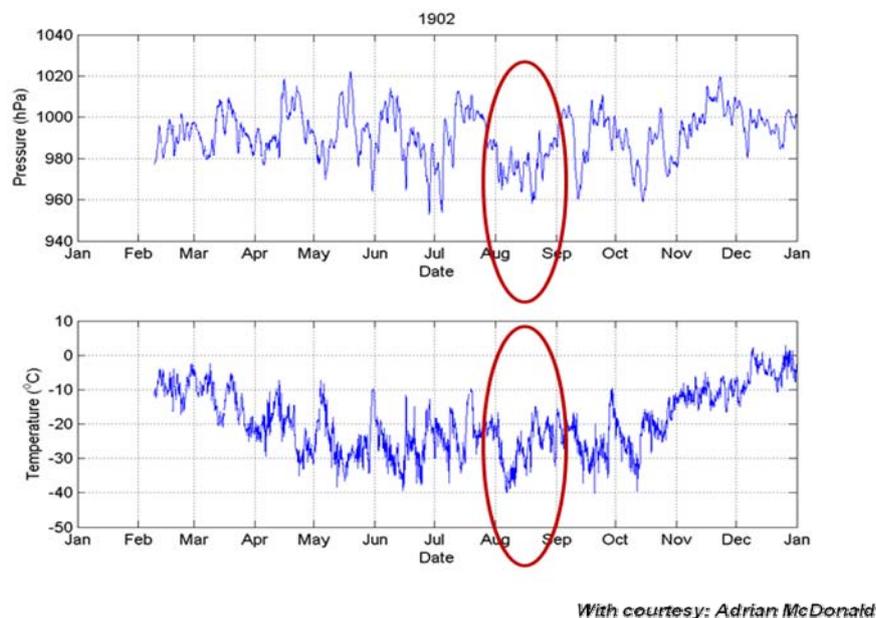


Figure 1: Weather chart on temperature and pressure: Scott's expedition, 1902

I focused on the month August 1902 and examined diaries from William Lashly (stoker), Edward Wilson (scientist and surgeon), Reginald Skelton (chief engineer), and Hartley Ferrar (geologist). The first three diaries are published but I compared them with the originals because published diaries may differ in content, e.g. published work may not

always repeat entries which say the same thing, e.g. 'wind as usual', etc. The reason is mostly to make the dairies more readable for a wider audience. I also partly transcribed Ferrar's diary during my stay at SPRI.

From these dairies I have created a system to categorise the description in the diary entries on wind and temperature. The category goes from '1' for 'no wind' to '14' for 'wirlwind'. With this category I created a chart to demonstrate how different the observations are from the individual writers. (see figure 2)

An intense research on the individual diary writers (place in the expediton, education, background, character, etc.) was undertaken to understand their entries in the right context. Textanalysis has been used to examine not only the content but also the use of language, use of terms, etc. to verify how they expressed themselves in relation to weather phenomena and their interactions to it. I intend to use the same procedure on more dairies from Scott's expedition to get a broader picture and repeat this using the few dairies which are available from Drygalski's expedition.

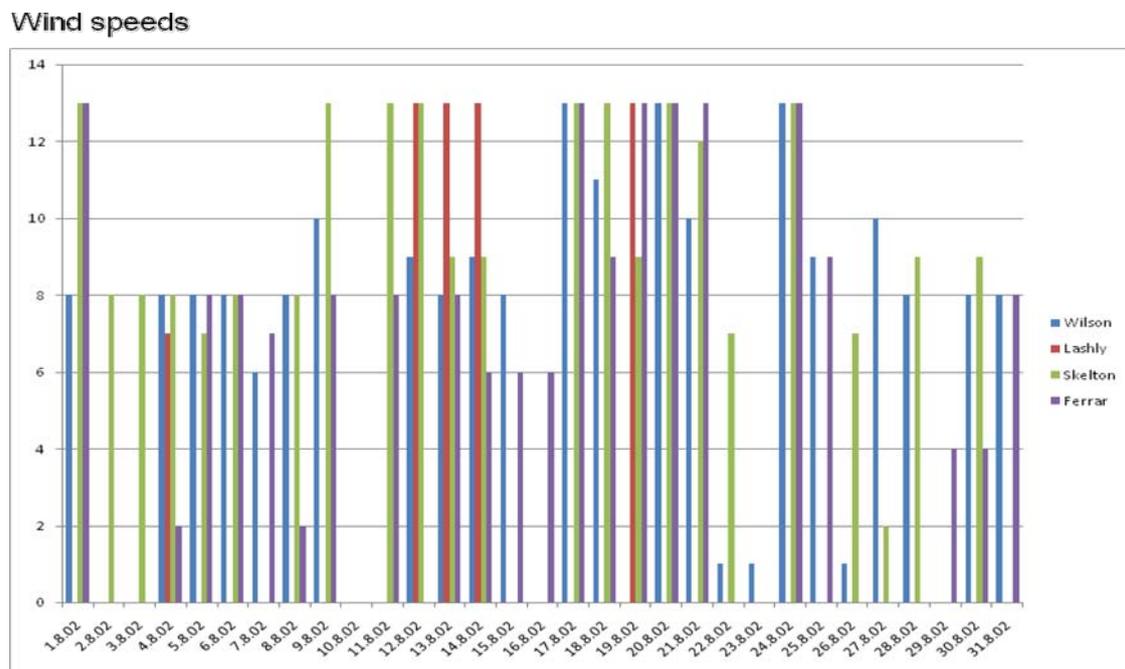


Figure 2: Diary entries on wind conditions from Wilson, Lashly, Skelton, and Ferrar

In addition to restricted access to the dairies and other materials, a further issue I had at the SPRI archives was the ability to reproduce material and the costs I had when I was able to do so. (see: <http://www.spri.cam.ac.uk/library/archives/>). After discussions with the director and the chief librarian it was possible to reduce the expenses for the copies. Despite these problems, with a new policy what went into effect since February 2013, I am now able to take digital pictures of certain material, which I can study elsewhere, thus eliminating the need to struggle to gain desk space at the Institute. (see: The Thomas H. Manning Polar Archives Self-Service Photography Policy; revised February 2013)

In Leipzig the procedure for accessing material was easier. The material retrieved from the archives here focused on the meteorological records and reports of the Drygalski-Expedition and certificates of the measurement instruments this expedition used. Fortunately for comparisons, both expeditions used similar instruments.

This year the logbook data from the Drygalski Expedition will be sent to ACRE for processing to make it available for the wider scientific community.

First results of my project have been presented in a poster session at the 'Annual Antarctic Conference' in Christchurch, NZ, in October 2012. At the 'SCAR History Expert Group and Social Science workshop' in Cambridge, UK, in July 2013 I intend giving an oral presentation on the outcome of this project so far. I have also written two papers that will be submitted to peer reviewed journals in October 2013.

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My thank goes also to the Trans-Antarctic-Association and the New Zealand Federation of Graduate Women, Canterbury branch, for their generous travel grants, enabling me to cover the costs fully for my second stay in Cambridge where I shall present results of my project at the SCAR History Expert Group and Social Science workshop in Cambridge in July 2013.

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