

REcovery of Logbooks And International Marine data: the RECLAIM Project



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REcovery of Logbooks And International Marine data (RECLAIM) Project

Historical ships' logbooks, some from as early as the 17th century, are now being explored as an important source of additional climatic data. US and European scientists are working together to make the images, data, and metadata available on-line.

Project aim: A cooperative international project to locate and image historical ship logbooks and related marine data and metadata from archives across the globe, and to digitize the meteorological and oceanographic observations for merger into the International Comprehensive Ocean-Atmosphere Data Set ([ICOADS](#)) and for utilization for climate research. The project seeks to provide expert guidance and assistance to data rescue projects, concerning national archive holdings, and the content and characteristics of their marine records, historical observational practices, and metadata.



Projects with Front-End Support from RECLAIM

To date, a strong UK archive focus

2007 – Digitization of WWII UK Royal Navy Logbooks 1938-47

Funded jointly by DEFRA and NOAA/CDMP - **268,000 images & 1.5 million observations**

2008-9 Digitization UK Ships of Exploration and Hydrographic Survey CORRAL

Project - Funded by JISC

2008-11 – Digitization of 900 English East India Company Logbooks 1790-1834 –

Funded jointly by DEFRA and NOAA/CDMP - **893 logs keyed, with 273k observations, high resolution images of 1200+ logs held by NCDC**

2008-11 Imaging of UK Royal Navy Logbooks 1914-1923 - Funded by DEFRA - **350,000 images, observations digitized by Oldweather.org**

2011-2013 – ARCD0C Project – Arctic Region Whaling and other logbooks

Funded by Leverhulme

2011- EraClim (Chilean Chapter) – Digitization of Chilean Marine and Terrestrial

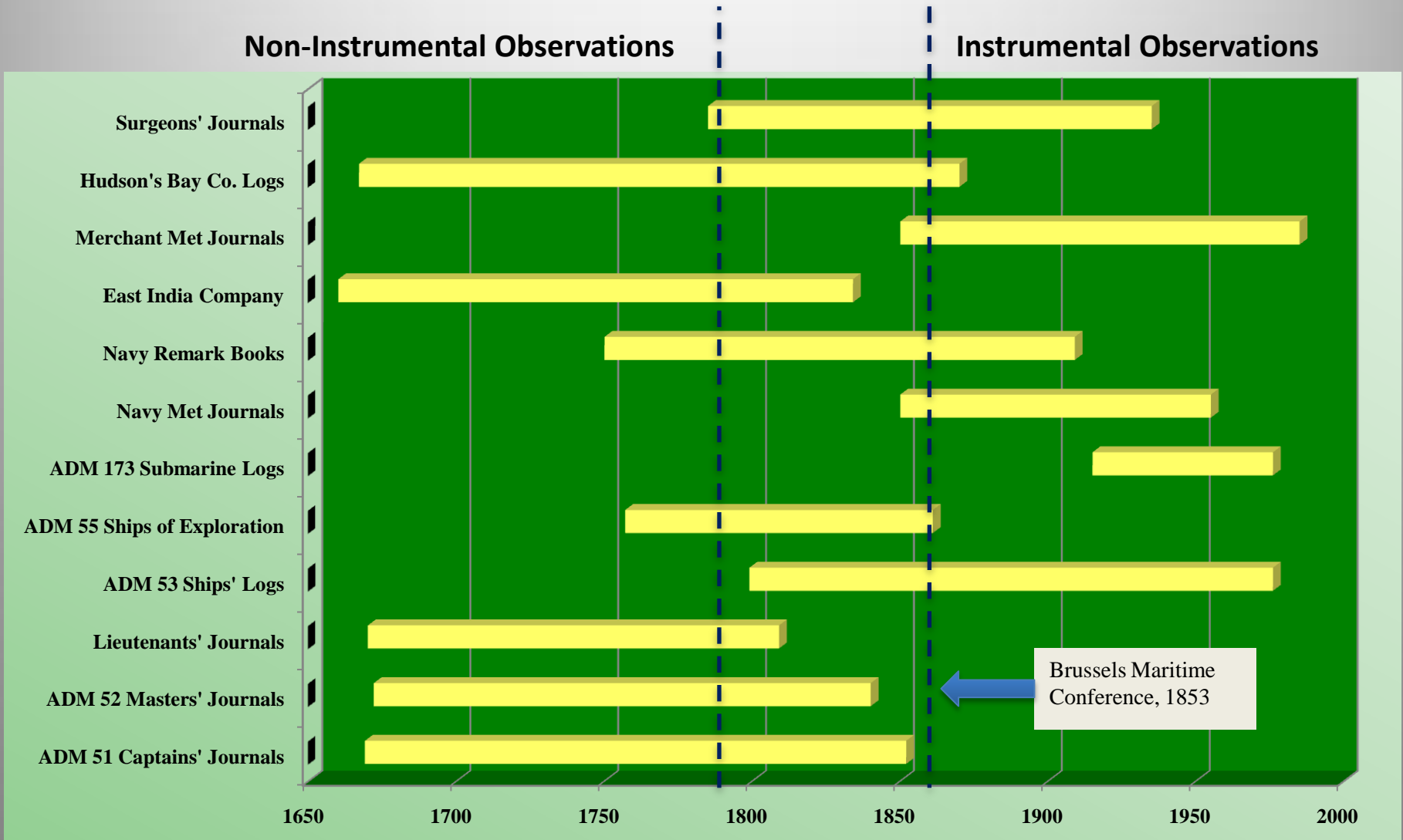
Climate Records 1860-to present. Funded by European Union-(with **ACRE Project**)

The RECLAIM Project was partly supported (through 2010) by the NOAA Climate Database Modernization Program (CDMP)

Currently we are seeking new funding sources

Temporal Range of UK Marine Journals and Logbooks

1660-1982 c. 350-400,000 separate documents



Temporal Range of UK Marine Journals and Logbooks 1660-1982

Selective Imaging and Digitization



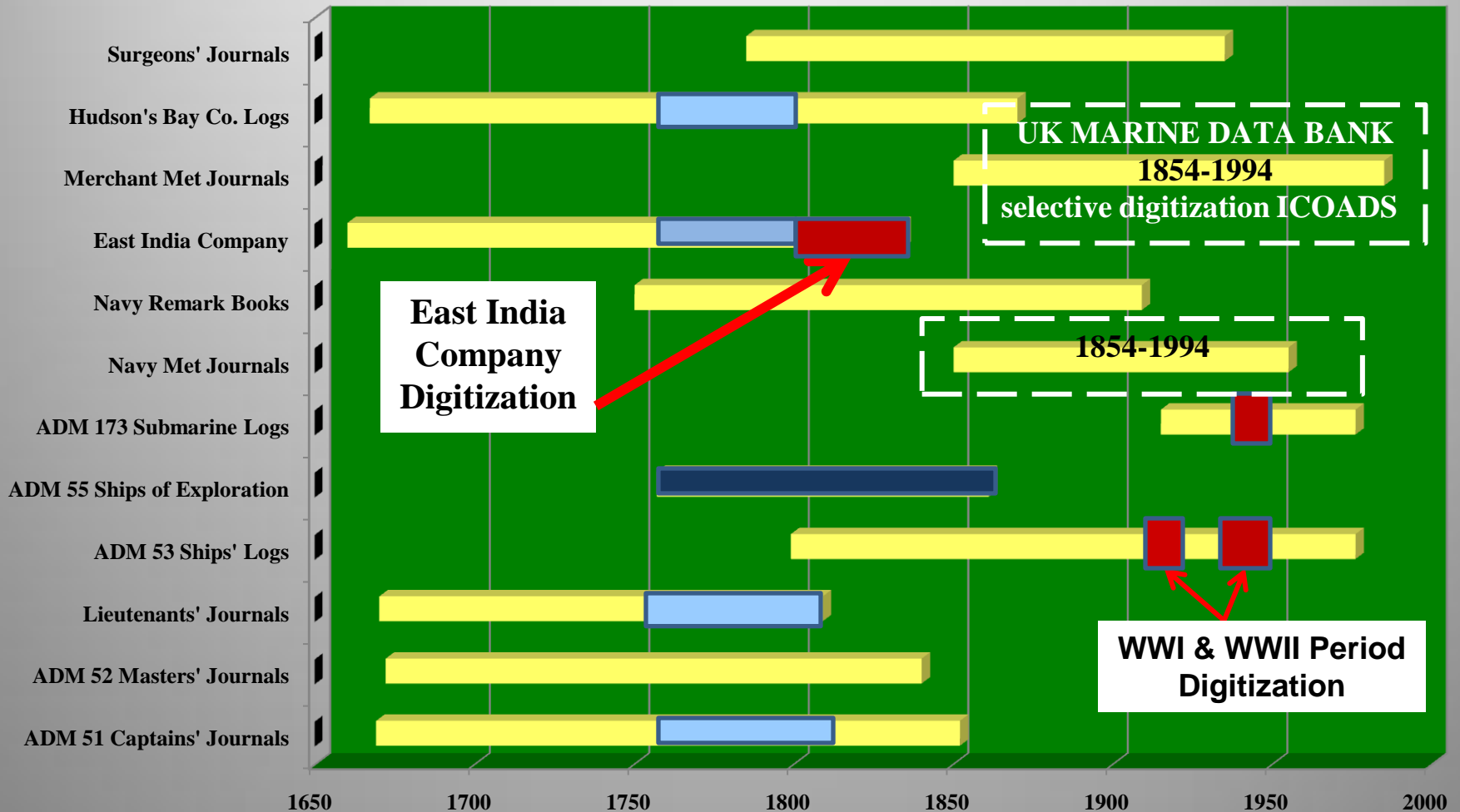
Selective Imaging



Modest Digitization of Meteorological Elements



- CLIWOC project



What the RECLAIM Project Does

- Assemble and prepare detailed documentation for a given Archive
- Samples of documents (e.g. logbooks or met. forms) by type and date
- Make advanced selection of subsets of documents as required, e.g.:
 - to address global geographic and temporal data gaps
 - to minimize moored observations made in port
 - ✓ Caveat: any observation might be useful for a different application (e.g. near-land observations for calibration of land surface data) – however, assessing all the cost/benefit issues is a difficult (unresolved) problem
- Provide subsets of documents for specific imaging and digitization projects
- Provide estimates of data quantity and probable costs
- Gather information on corresponding platform and instrument metadata
- Provide reports and inventories of archived logbooks and related marine data
- Organize this information into regionally specific reports and inventories

These are essential front-end data rescue tasks

National Meteorological Archive, Exeter
United Kingdom
9-10K marine meteorological Logbooks

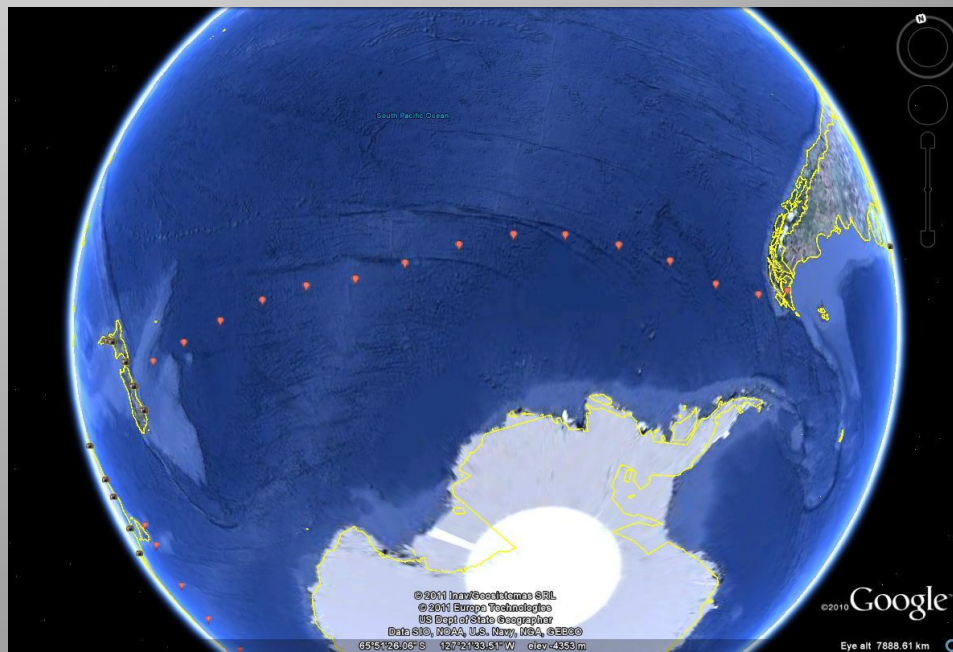
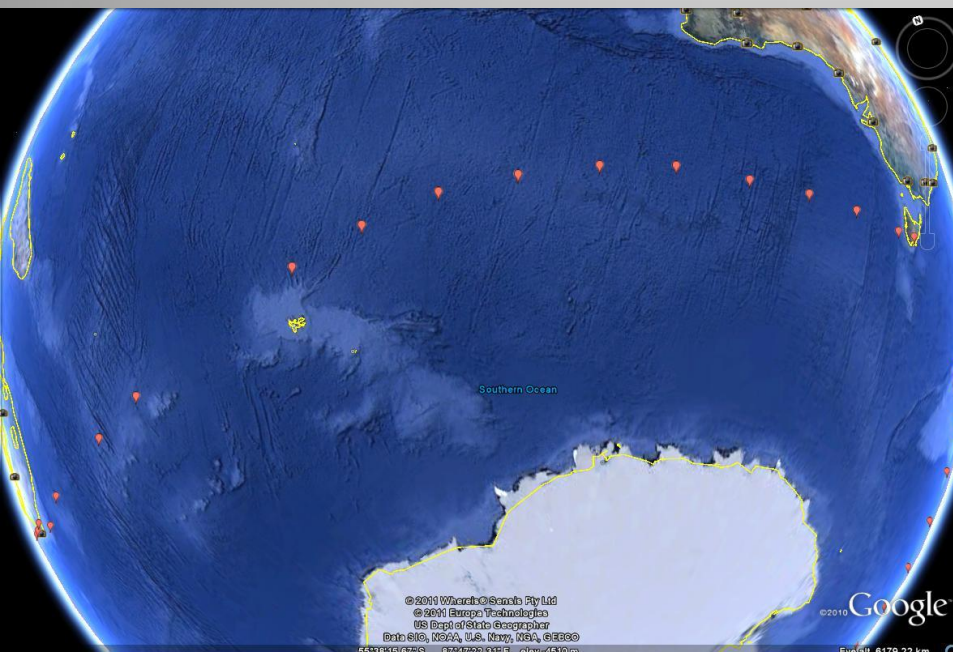
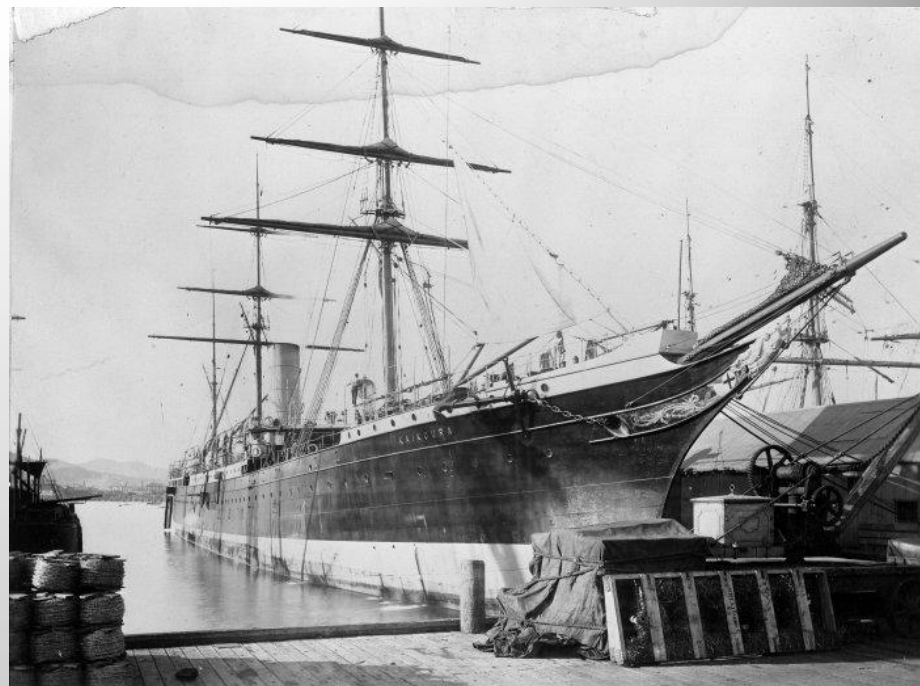
SS Kaikoura

20 Circumnavigations 1885-1893

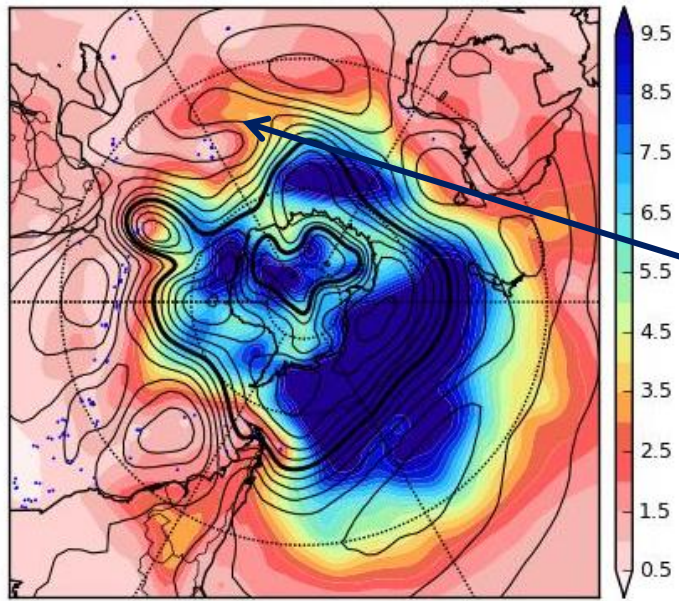
Oct 1887-Feb 1888

Plymouth – Hobart – Lyttleton
- Rio de Janeiro - Plymouth

Track of SS Kaikoura through
Southern Ocean – Nov-Dec 1887



Ensemble Mean SLP and SLP spread (hPa) 1887111912

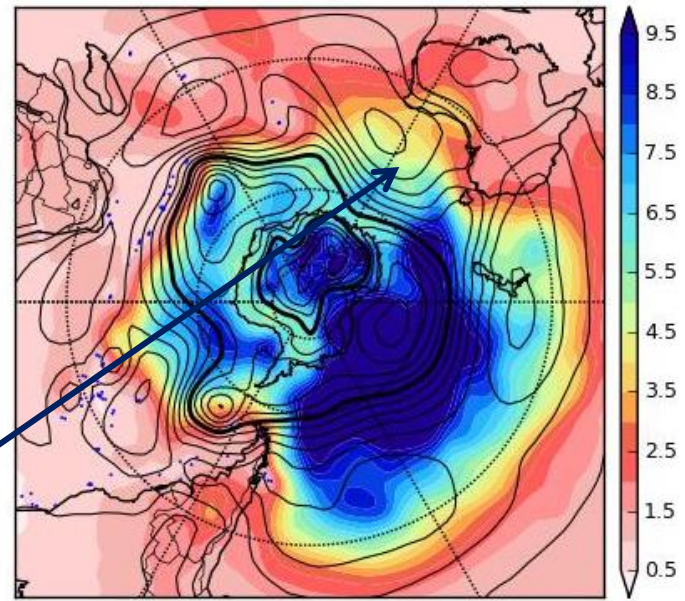


SS Kaikoura
Nov-Dec 1887

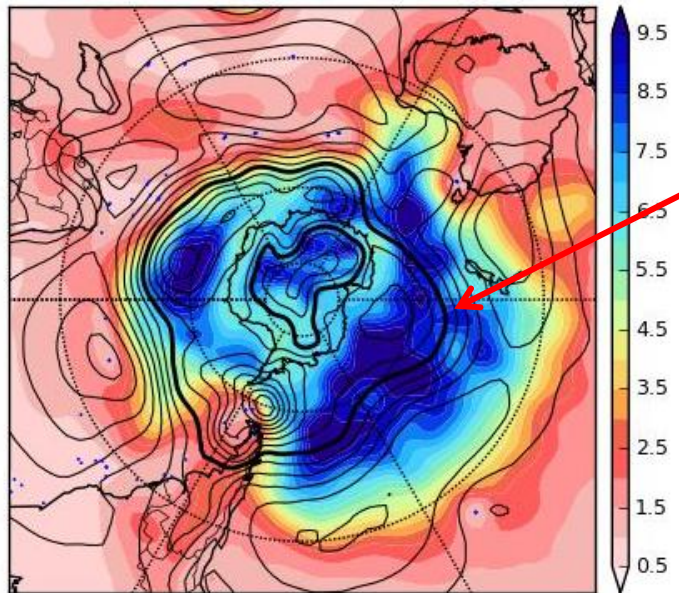
19 November
46 South, 71 East

25 November
47 South, 121 East

Ensemble Mean SLP and SLP spread (hPa) 1887112512



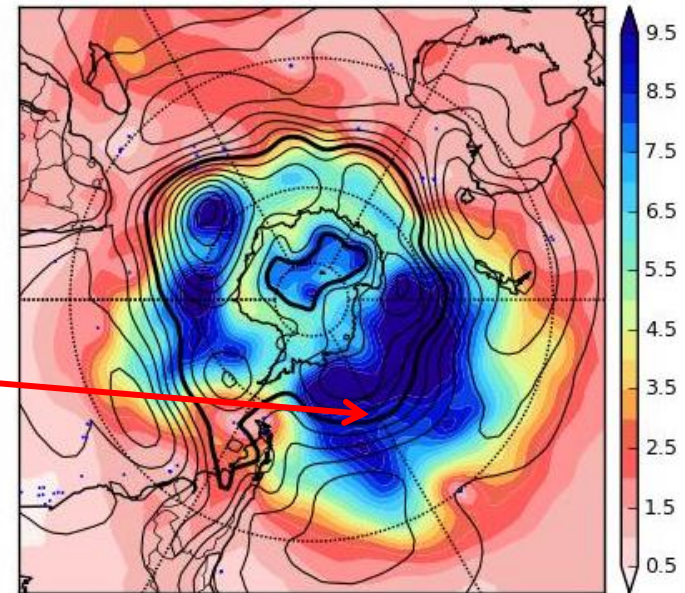
Ensemble Mean SLP and SLP spread (hPa) 1887121312



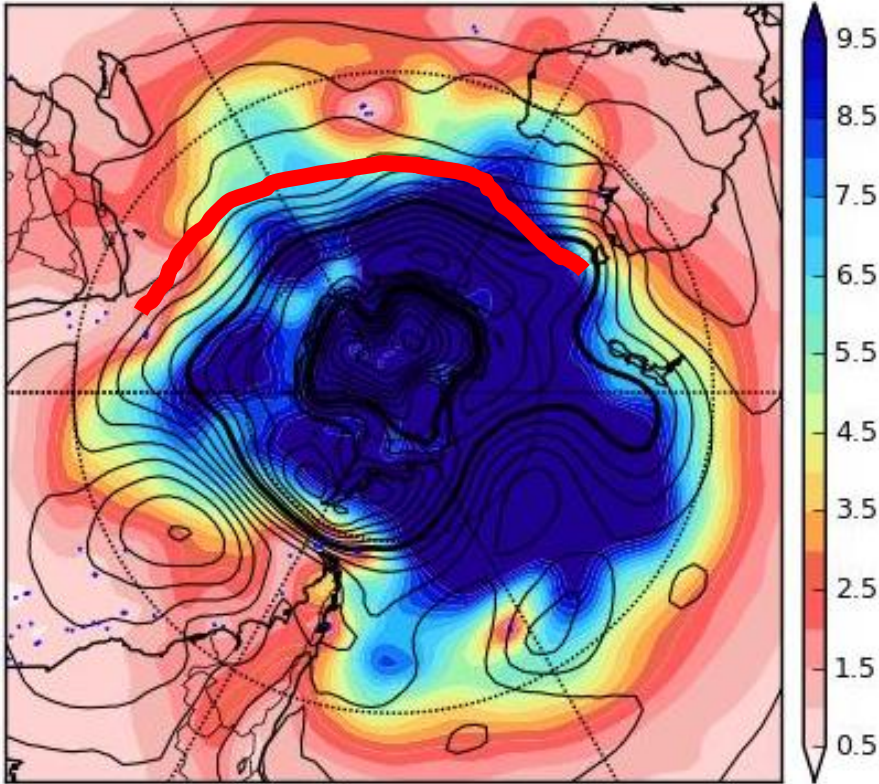
13 December
49 South, 176 West

20 December
59 South, 119 West

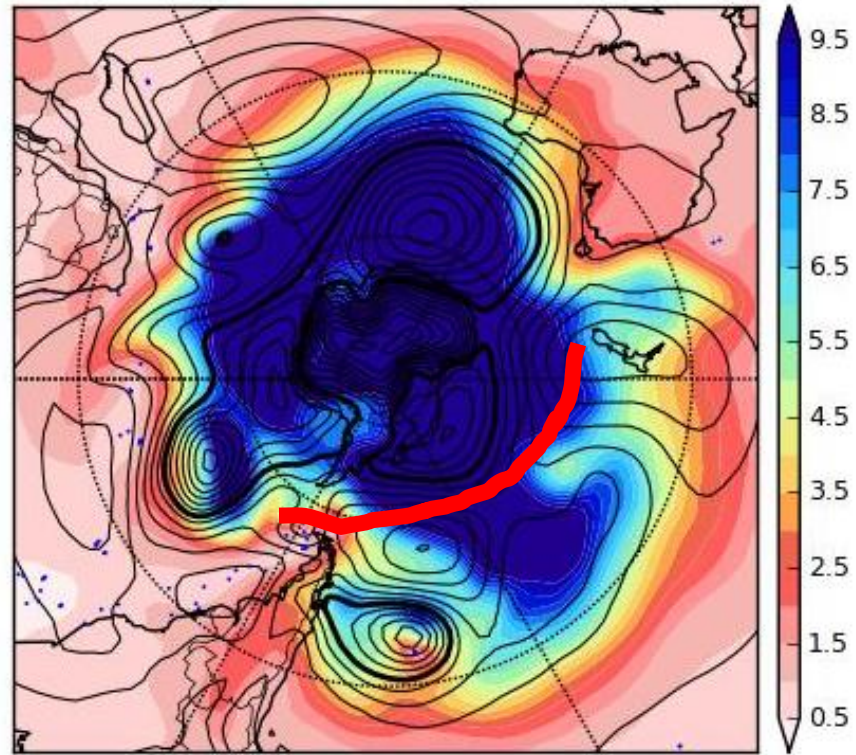
Ensemble Mean SLP and SLP spread (hPa) 1887122012



Ensemble Mean SLP and SLP spread (hPa) 1887072612



Ensemble Mean SLP and SLP spread (hPa) 1887081512



SS Kaikoura

Probable Southern Winter Track across the Southern Ocean Jul-Aug 1887

Images provided by the NOAA-ESRL Physical Sciences Division, Boulder Colorado
from their Web site at <http://www.esrl.noaa.gov/psd/>

Best Practice for Marine and Terrestrial Data Rescue

1. Image logbooks or other documents as well as digitize
 - Images available for other disciplines
 - Return to images to obtain additional information
 - Data can be verified against image
2. Image & digitize the entire logbook or document
 - Removes need to return to an original fragile document
3. Digitize through 'crowdsourcing' where appropriate
 - Cost efficient (example Oldweather.org)
4. Produce searchable PDFs with a navigation structure
5. Document the entire process
 - Assists in evaluating undigitized or partially digitized data finds

Best Practice Proposals for Marine and Terrestrial Data Rescue

Provide the means for an end-to-end audit trail linking **every** meteorological and oceanographic observation with the corresponding manuscript and digital image, including: **Seeking centralized or seamlessly linked image archives as appropriate (a very complex problem, also compounded by copyright issues, etc.)**

S-321—(Revised, October, 1938.)
(Late S-321b.)

6315

See Articles 863, 1088, 1132, 1267, 1173, 1208, and 1209 of King's Regulations, 1926.

This Log is to be transmitted to the Deputy Cashier in Charge, Royal Victoria Dockyard, Deptford, through the Commander-in-Chief, on completion.

ADM 53/115299.

CLOSED UNTIL 1972

H.M.S. "ALCANTARA"

Navy List Description A.M.C.
Tonnage 22208
Horse Power 24000

SHIP'S LOG

FOR

Month of DECEMBER 1942.

Forwarded

J.S. Make
Navigating Officer.

Forwarded

J. D. [Signature]
Captain.

N.L. 3467/29,
Sta. 3/35

PRINTED FOR H.M. STATIONERY OFFICE BY
JOHN CORAH & SON LTD., LOUGHBOROUGH AND LONDON.

1935.

Presently under discussion with land surface data community

Time	Log (Sailing type)	Miles	Tenets	True Course	Mean Revolution (per minute)	Wind (Direction true)	Force (gale)	Sea and Swell (Direction and Velocity)	Corrected Barometric Pressure (in Millibars)	Temperature (°F) (Dry Bulb, Wet Bulb, Sea)	REMARKS
0100											0136. Weighed & proceeded. Movement various. 0150. Co 090° 104 revs.
0200	3 9	090	32								0211. 4/6 120°
0300	5 3	120									0324. 4/6 220° Mount Hill 275° 9m.
0400	8 4	220	104								0322. 4/6 008° Mount Hill 354° 10m.
0500	4 6	220									0400. 128 revs.
0600	8 4	008	104			3 3	6625	1017.5	70	69 70	0410. Movement various for Exercise D3.
0700	6 9	var	55								0443. Gine to sled & with 4 shovels in 10 ft from off Five Fathom Hole Forward. 0520. Berwick left anchor. 0500. Hands cleaning ship. 0520. Sleds: 835 lbs.
0800	3 8	045	30								0643. Weighed & proceeded. Co 095° 104 revs.
0900	8 8	045									0742. 4/6 225° Mount Hill 230° 14m.
1000	4 2	225	104	SxW 3	27.23			1018.0	67	66 70	0914. 32 revs. 0830. 4/6 247° 194 revs.
1100	5 2	223									0945. Movement various for Exercise D3.
1200	5 3	247	84								0910. Exercise General Quarter.
	3 7	var									0950. Co 128° 104 revs. Mount Hill 240° 14m.
	0 6	128	35								1000. 4/6 180° 64 revs. 1031. 52 revs.
	1 2	180									1022. 4/6 090°
	6 2	090	59								1120. Movement various for Range and Indicator exercise and Five Fathom Exercise. Practice completed. Co 255° 119 revs.
	16 0	var	128	SSW 3	166.31			1018.2	58	66 70	Mount Hill 217° 9m.

Best Practice Proposals for Marine and Terrestrial Data Rescue

- We need to know what data is available in archives around the World
- We need to know if it has been imaged or digitized in part or in whole
 - ✓ And whether the data have already been included e.g. in ICOADS
- We need some way of knowing if new data finds are really new
- Avoid duplication of effort

This means that

1. We must ensure that all archive and data rescue activity is properly documented
2. We need to establish a central databank of data sources and archives through **ACRE & RECLAIM**
3. Foster communication between all projects using historical climate data

BAROMETER.

Mercurial or Aneroid *Mercurial*
Name of Maker and number *Adie . 423*
Height of cistern above sea *15 ft.*

Thermometers for Air Temperature.

Position in Ship *After side of Chart house*
Whether in screen *Yes*

Date.

Maker and No. *Keppelti & Lambra* From _____ To _____
" { *Wet. 8092* *1st Sept. '09*
" { *Dry 8090*
"

N.B.—The thermometer attached to barometer should never be used for air temperatures.

Thermometers for Sea Temperature.

Date.

Maker and No. *Keppelti & Lambra* From _____ To _____
" { *6885* *1st Sept. '09* *4th Feb. '10*
" { *6157* *5th Feb. '10*
"

N.B.—When new instruments are brought into use, the date of change is to be given.

Best Practice Proposals for Marine and Terrestrial Data Rescue

Ensure that the output from data rescue activities, and the front-end investigations carried on in archives, are preserved in formats that will be accessible to future generations.



**We have already fallen victim
to proprietary technologies
and file formats**

Best Practice Proposals for Marine and Terrestrial Data Rescue

Consider, where appropriate, to move from a focus on individual archives and collections to a regional focus.

This will better assist projects that already have a regional focus

This will help foster co-operation between national met services



National Oceanic and Atmospheric Administration (NOAA)
Climate Database Modernization Program (CDMP)
2010

Historical Meteorological and Oceanographic Data for the Maritime and Coastal Areas of Chile and the Southern Pacific

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FURTHER INFORMATION

Reclaim Project Website:

<http://icoads.noaa.gov/reclaim/>

Includes

ICOADS '**Marine Data Rescue**' document

PDFs of US & UK historical documents, reports and inventories

Project Paper

Wilkinson, C., Woodruff, S., Brohan, P., Claesson, S., Freeman, E., Koek, F., Lubker, S., Marzin, C., Wheeler, D., 2011: '**Recovery of Logbooks and International Marine Data: the RECLAIM Project**', *International Journal of Climatology* (in press)

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CONTACT AND QUESTIONS

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