

# Heard Island 2016

Robert W. Schmieder  
Cordell Expeditions



Explorers Club

18 Nov. 2016



📌 Heard Island

The 1997 Expedition that broke all the records and defined a new spirit of collective pride in Amateur Radio.



VKØIR

VKØIR

Heard Island

ISBN: 0-9626013-7-3

Cordell Expeditions  
4295 Walnut Blvd.  
Walnut Creek, California USA 94596

by KK6EK



# heardisland.org

Heard Island Expedition

www.heardisland.org

Photo: Eric Woehler

# HEARD ISLAND

The 2016 Cordell Expedition

[This website is active again...](#)

[For the blog maintained during the expedition, go to the DXpedition website](#)

[NEW: Special message from the Expedition Leader](#)

*Discovering Life in the Extremes...*

## VKØEK

*Linking the Remote in Realtime...*

[HOME](#) [ABOUT](#) [TEAM](#) [NEWS](#) [NEWSLETTER](#) [AUDIOLOG](#) [DXA](#) [QSLs](#) [SOUVENIRS](#) [PROJECTS](#) [FAQ](#) [DOCUMENTS](#) [SPONSORS](#) [DONATE!](#)



# PROJECT DESCRIPTION

This image displays a grid of 120 project description pages, organized into 10 rows and 12 columns. Each page is a white document with black text, featuring various visual elements such as maps, photographs, diagrams, and tables. The pages are arranged in a grid, with each page containing a unique set of information, likely related to a specific project or research area. The content on the pages is dense and detailed, covering a wide range of topics. The grid is set against a dark background, making the white pages stand out prominently.

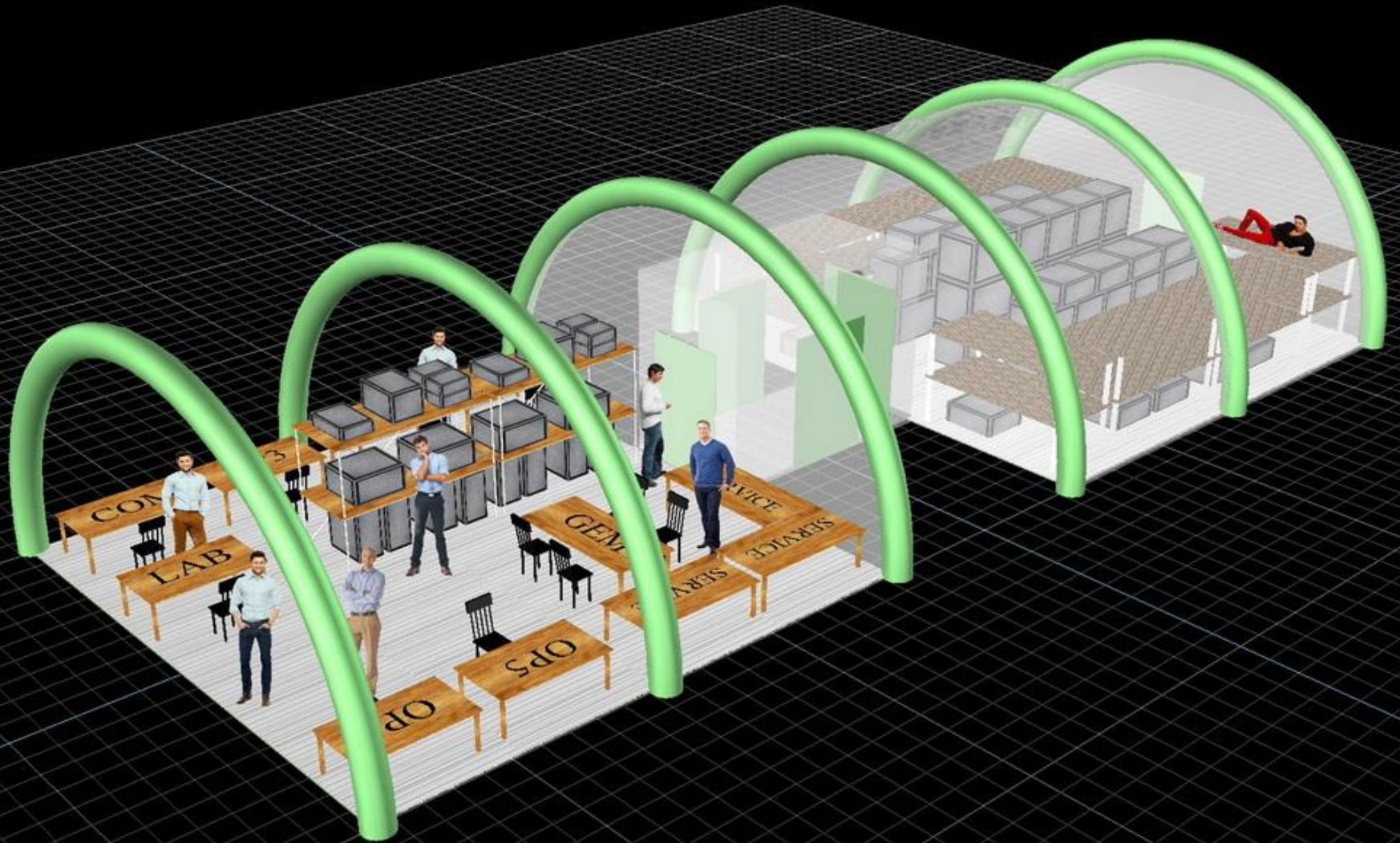








# THE AIRBEAM SHELTER







make  
teen



ATLAS

3

ATLAS

4

ATLAS

5

2

8

9

12 COAX

10 COAX

11 COAX

chow

Bar



Coleman  
FELLOW™  
Coleman

40m  
BASES



**U.S. Team**



**Europe Team**



**Australia Team**



**Braveheart**

**Cape Town**  
10 March 2016

**Fremantle**  
22 April 2016

**HEARD ISLAND**  
**VKØEK**













**Australian Government**  
**Department of the Environment**  
**Australian Antarctic Division**

**TERRITORY OF HEARD ISLAND AND MCDONALD ISLANDS**

**ENVIRONMENT PROTECTION AND MANAGEMENT ORDINANCE 1987**

**CORDELL EXPEDITIONS 2016**

I, Gillian Louise Slocum, Delegate of the Minister for the Environment, acting under section 15 of the *Environment Protection and Management Ordinance 1987*, considering: (i) the need to protect the environment, and (ii) the safety of persons, aircraft, vehicles and vessels, grant to:

Cordell Expeditions  
4295 Walnut Boulevard  
Walnut Creek  
California  
United States of America<sup>1</sup>

a permit authorising entry to the Territory of Heard Island and McDonald Islands (the Territory) to undertake the following two specific activities subject to conditions<sup>2</sup> which unless authorised are offences as per:

- s.12(1) enter the Territory;
- s14(1)(c) take any organism from the Territory;
- s14(1)(d) engage in conduct that results in death or injury to, or interference with, any organism in the Territory;
- s14(1)(e) remove from the Territory any organism indigenous to the Territory;
- s14(1)(f) land an aircraft, drive a vehicle or sail a vessel in the Territory;
- s14(1)(h) remove any soil or other geological matter from the Territory;

<sup>1</sup> For the purpose of this permit, Cordell Expeditions is defined as all those persons listed on the crew and passenger manifests of the vessel *MV Braveheart*.

<sup>2</sup> Failure to adhere to these conditions is an offence and may result in compliance action, including the suspension or cancellation of this permit.

- s14(1)(j) engage in conduct that results in interference to any soil or other geological matter in the Territory;
- s.14(1)(k) collect material in the Territory.

**1. Specific Activity No. 1 (COMMUNICATIONS PROJECT)**

Cordell Expeditions may undertake a COMMUNICATIONS PROJECT in the Territory as described at page 2 of its cover letter submitted to the Australian Antarctic Division on 09 October 2015. The objective of this COMMUNICATIONS PROJECT is the amateur operation of radio communications equipment, satellite communications equipment and computer equipment only.

**2. Specific Activity No. 2 (FIELD RESEARCH PROJECT)**

Cordell Expeditions may undertake a FIELD RESEARCH PROJECT<sup>3</sup> within the Territory in accordance with the supplementary science application that Cordell Expeditions submitted to the Australian Antarctic Division on 12 January 2016. The scientific objectives of this FIELD RESEARCH PROJECT concern volcanology, glaciology, biology and ecology.

**3. Time period:**

**(a) Specific Activity No. 1 (COMMUNICATIONS PROJECT)**

10 March 2016 and 30 April 2016.

**(b) Specific Activity No. 2 (FIELD RESEARCH PROJECT)**

10 March 2016 and 30 April 2016.

**4. Authorised persons:**

**(a) Specific Activity No. 1 (COMMUNICATIONS PROJECT)**

All persons listed on the crew and passenger manifests of the vessel *MV Braveheart* may undertake Special Activity No. 1 (COMMUNICATIONS PROJECT).

**(b) Specific Activity No. 2 (FIELD RESEARCH PROJECT)**

All persons listed on the crew and passenger manifests of the vessel *MV Braveheart* may undertake Special Activity No. 2 (FIELD RESEARCH PROJECT). Teams undertaking Specific Activity No.2 must:

- consist of at least two persons;
- consist of no more than six persons; and
- include a person capable and suitably experienced in field operations.<sup>4</sup>

<sup>3</sup> As per definition of 'field studies' at page 4 of Cordell Expeditions' submitted Environmental Approvals Application Form: '[f]ield studies related to recent environmental changes, biodiversity and climate change'.

<sup>4</sup> Persons capable and suitably experienced in field operations must: (i) possess relevant and extensive field operations experience; and (ii) be fit and healthy enough to undertake effective search and rescue operations.



THE 2016 CURRIE EXPEDITION  
**HEARD ISLAND**  
Team Handbook

Section 1  
**HEARD ISLAND**  
Volume 6 of 13 (Date: 27 October 2016, 2:00 PM)



 CANTON CONSULTING  
ANTARCTIC RESEARCH PROJECT  
The Antarctic Peninsula Project  
 ANTARCTIC RESEARCH



BAJA SEAFOOD RESTAURANT

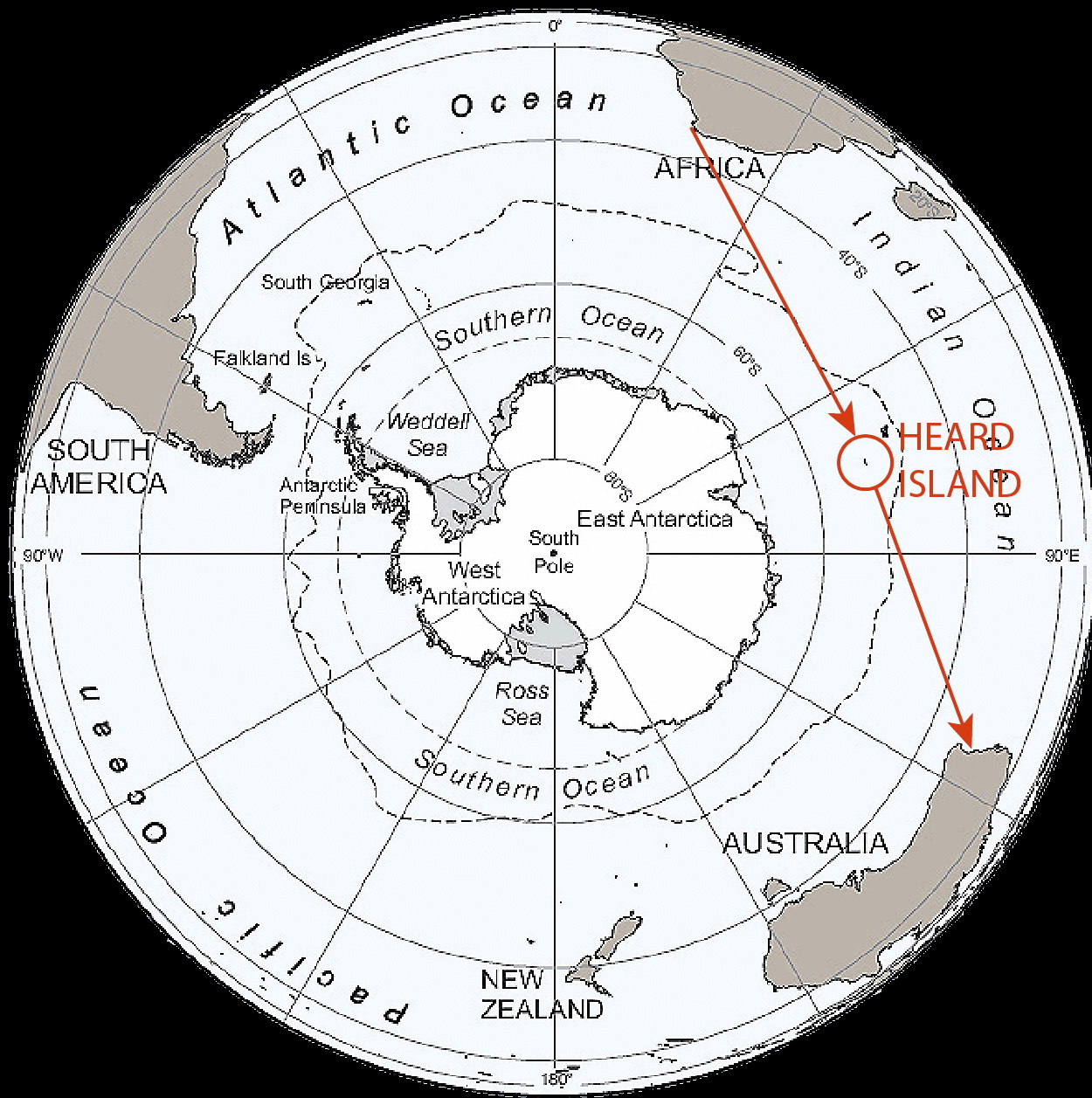
EVE BOOKS

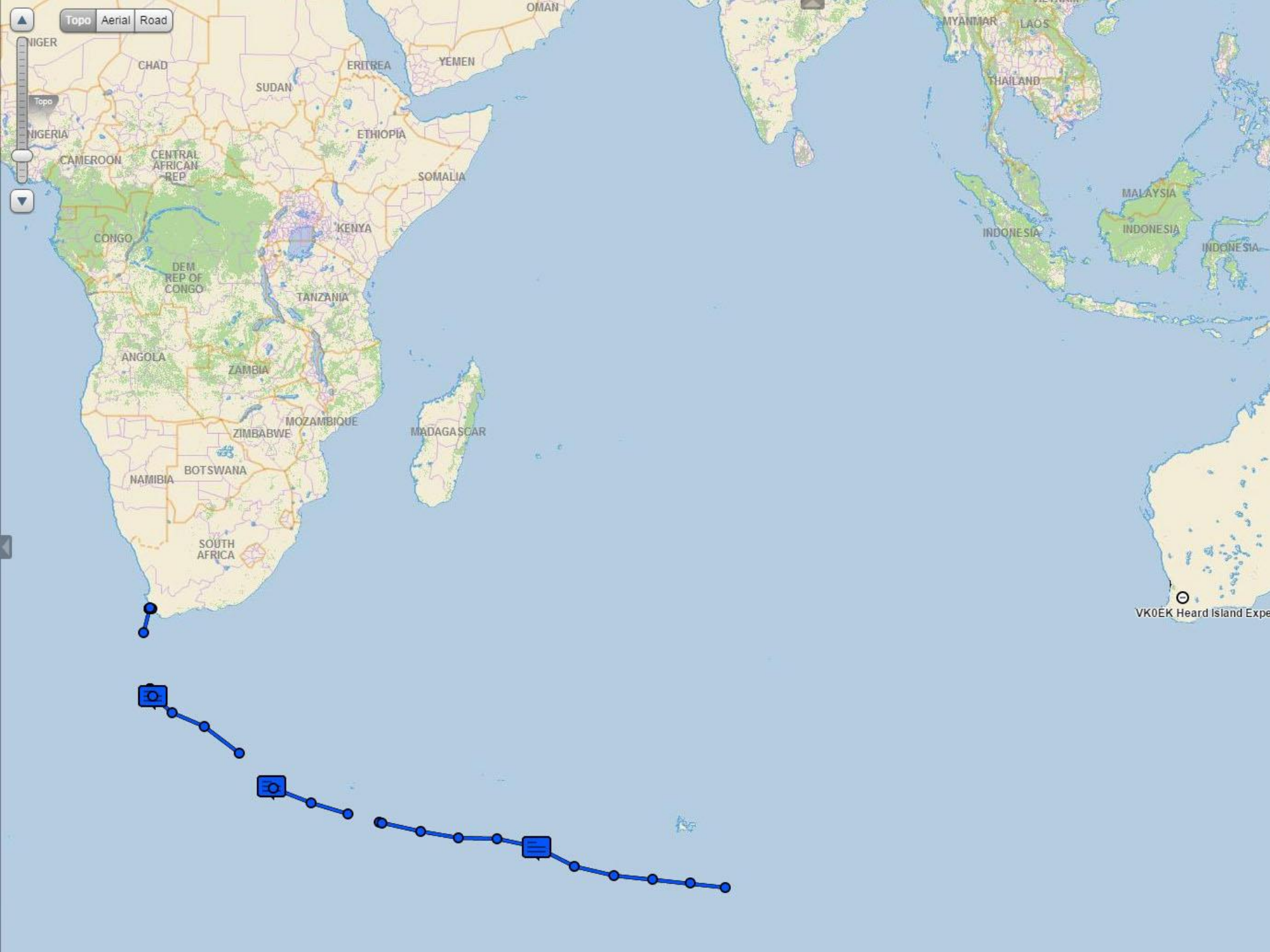
BRAVEHEART











Topo Aerial Road

NIGER

CHAD

SUDAN

ERYTHREA

YEMEN

OMAN

NIGERIA

CAMEROON

CENTRAL AFRICAN REP

ETHIOPIA

SOMALIA

CONGO

DEM REP OF CONGO

KENYA

TANZANIA

ANGOLA

ZAMBIA

MOZAMBIQUE

ZIMBABWE

MADAGASCAR

NAMIBIA

BOTSWANA

SOUTH AFRICA

MYANMAR

LAOS

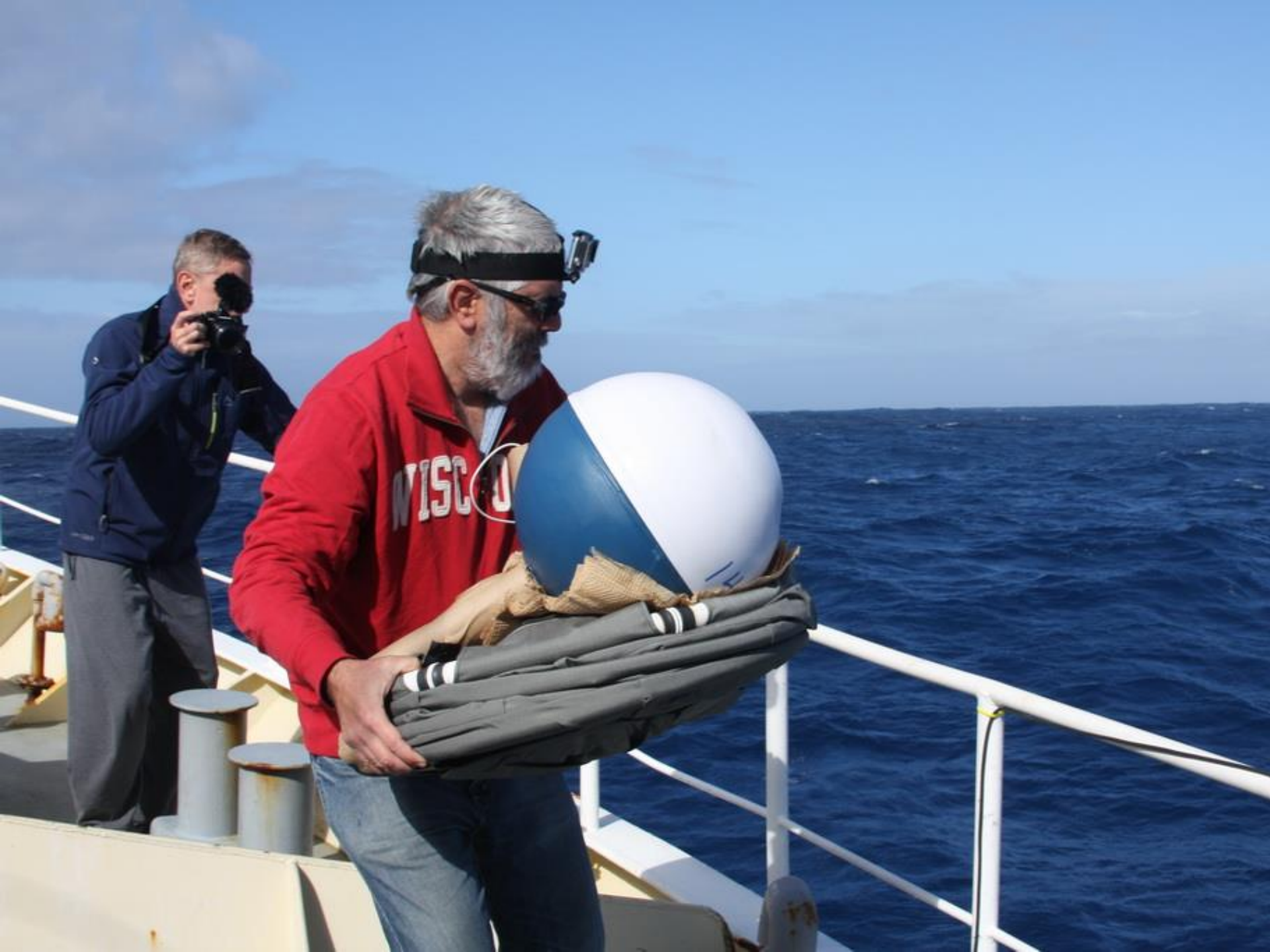
THAILAND

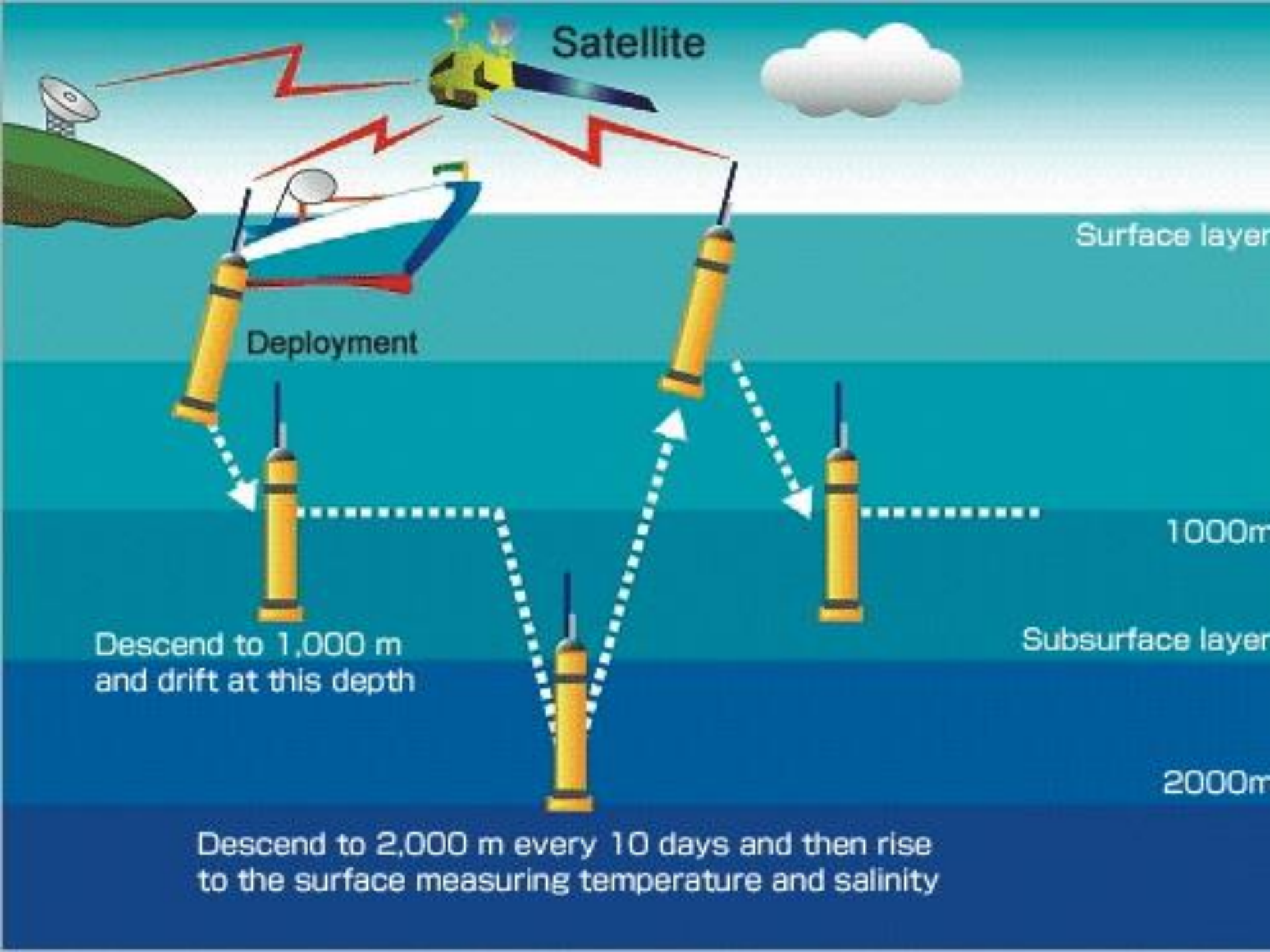
MALAYSIA

INDONESIA

INDONESIA

VK0EK Heard Island Expe





Satellite

Surface layer

Deployment

1000m

Descend to 1,000 m and drift at this depth

Subsurface layer

2000m

Descend to 2,000 m every 10 days and then rise to the surface measuring temperature and salinity



ARGO 7321

ARGO 7325

NOAA 145779

ARGO 7323

NOAA 145780

ARGO 7327

NOAA 145789

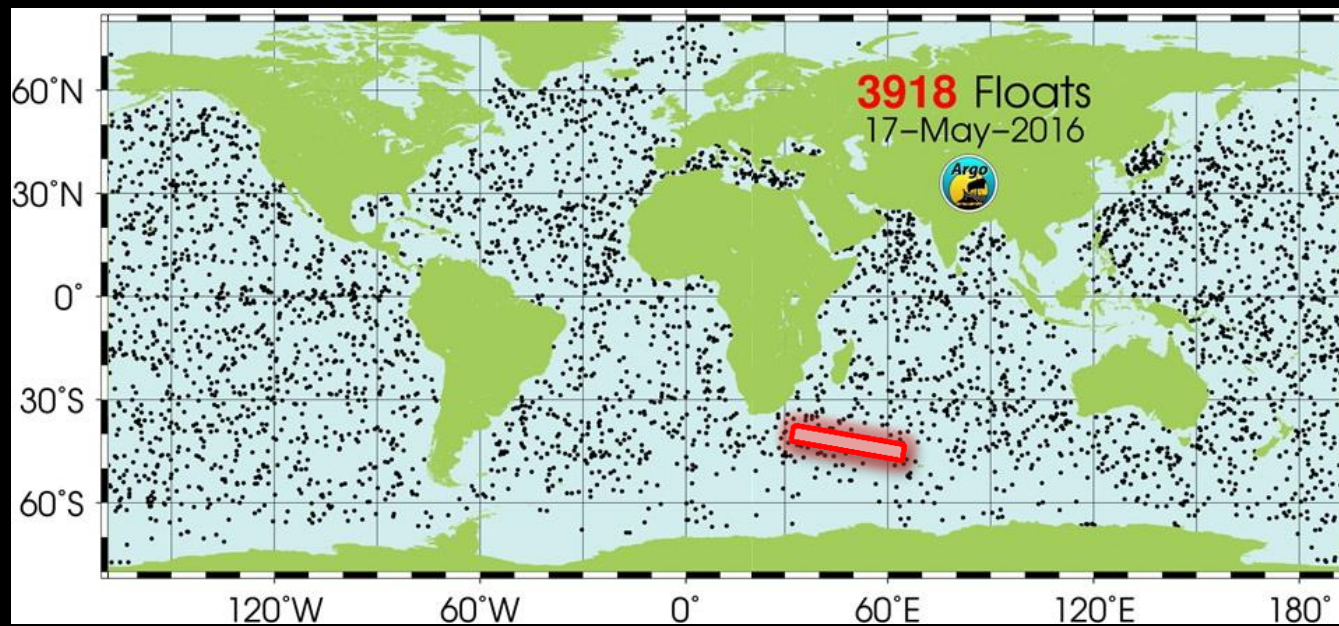
NOAA 145782

Heard Island

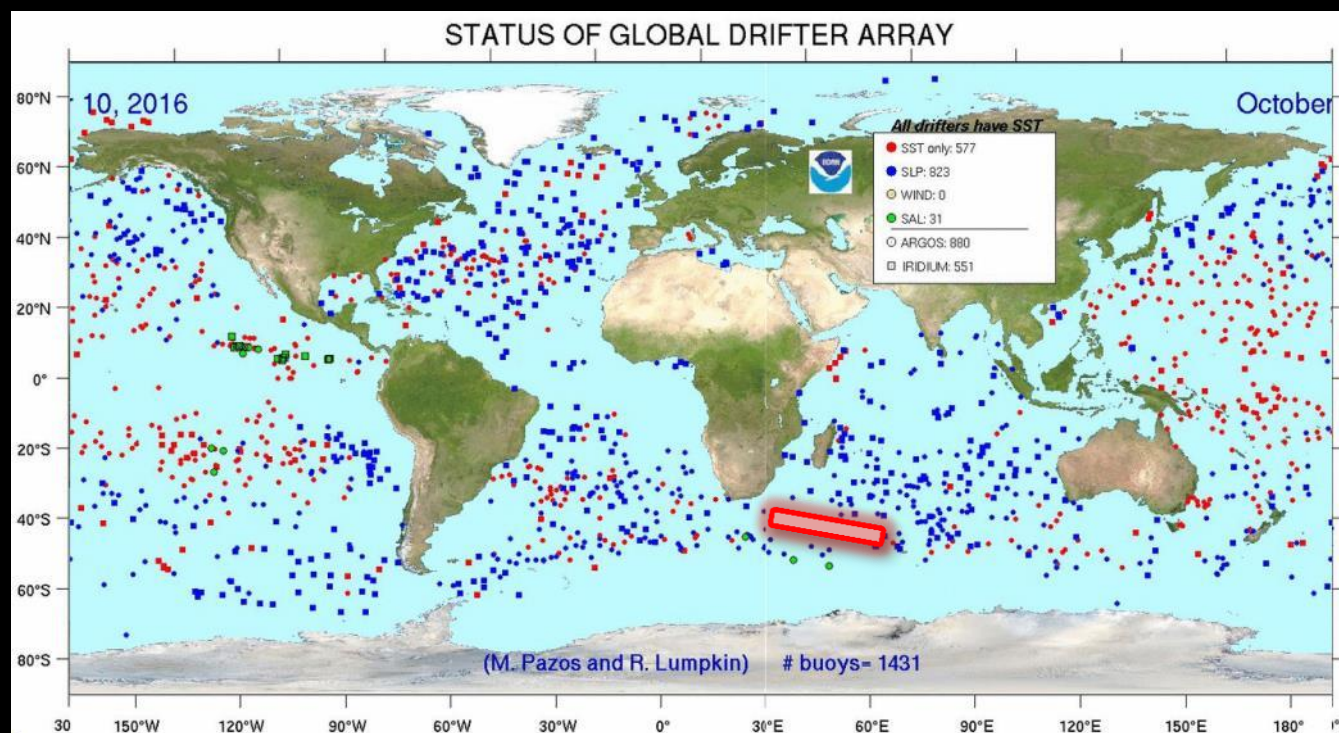
Image Landsat  
Data SRTM, NOAA, U.S. Navy, NGA, GEBCO  
Image U.S. Geological Survey

Google earth

Imagery Date: 12/13/2015 52° 40.770' S 69° 12.049' E elev. 10546 ft eye alt 3641.20 mi



WHOI Divers



NOAA drifters









Atlas Cove









Campsite



Personnel

Cargo

1997 VKØIR  
2003 SHELTERS

1947 RESEARCH  
STATION

2016 VKØEK  
CAMPSITE

















# Mawson Peak

2 miles up

Operations

Dormitory











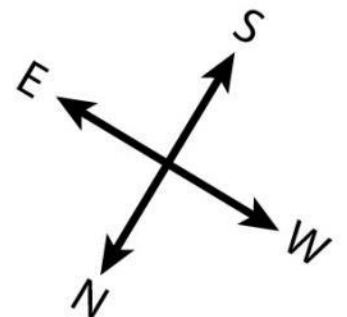
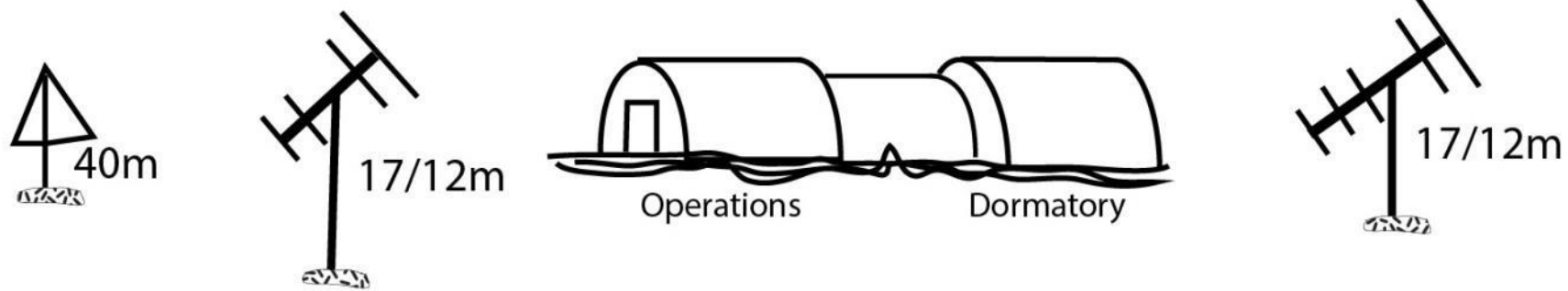
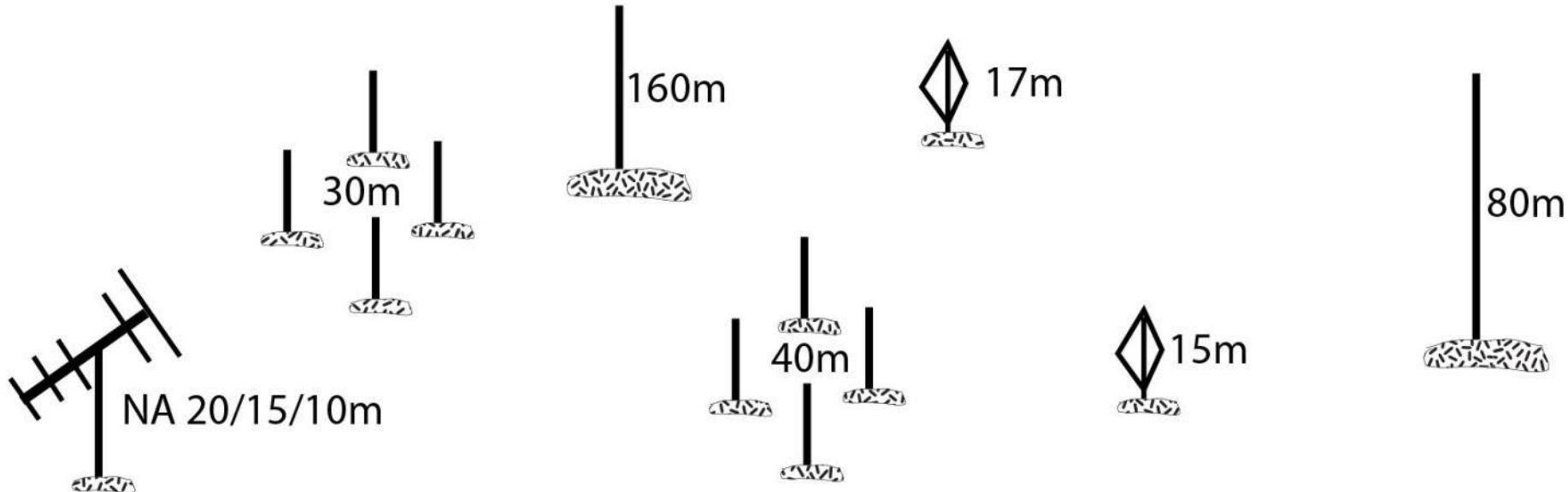












# VKØEK 2016





VKØEK HEARD ISLAND 2016



























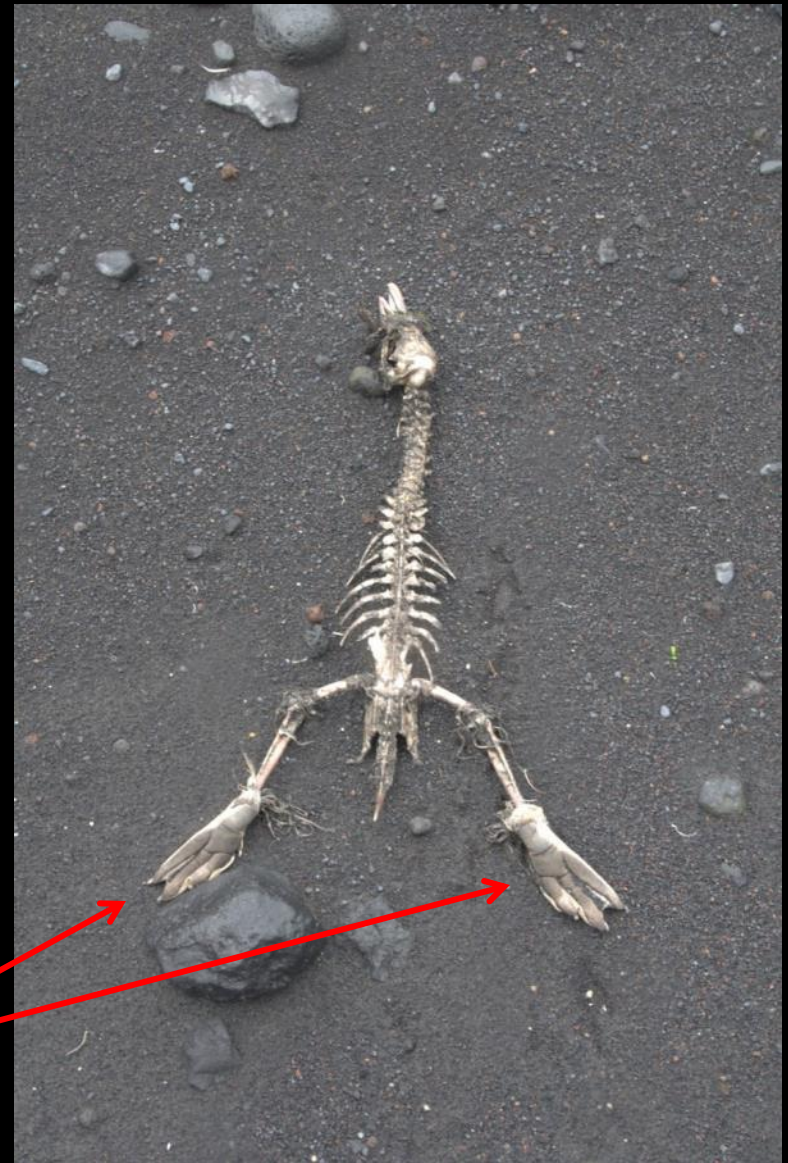








# The end of penguins



Notice the feet!



























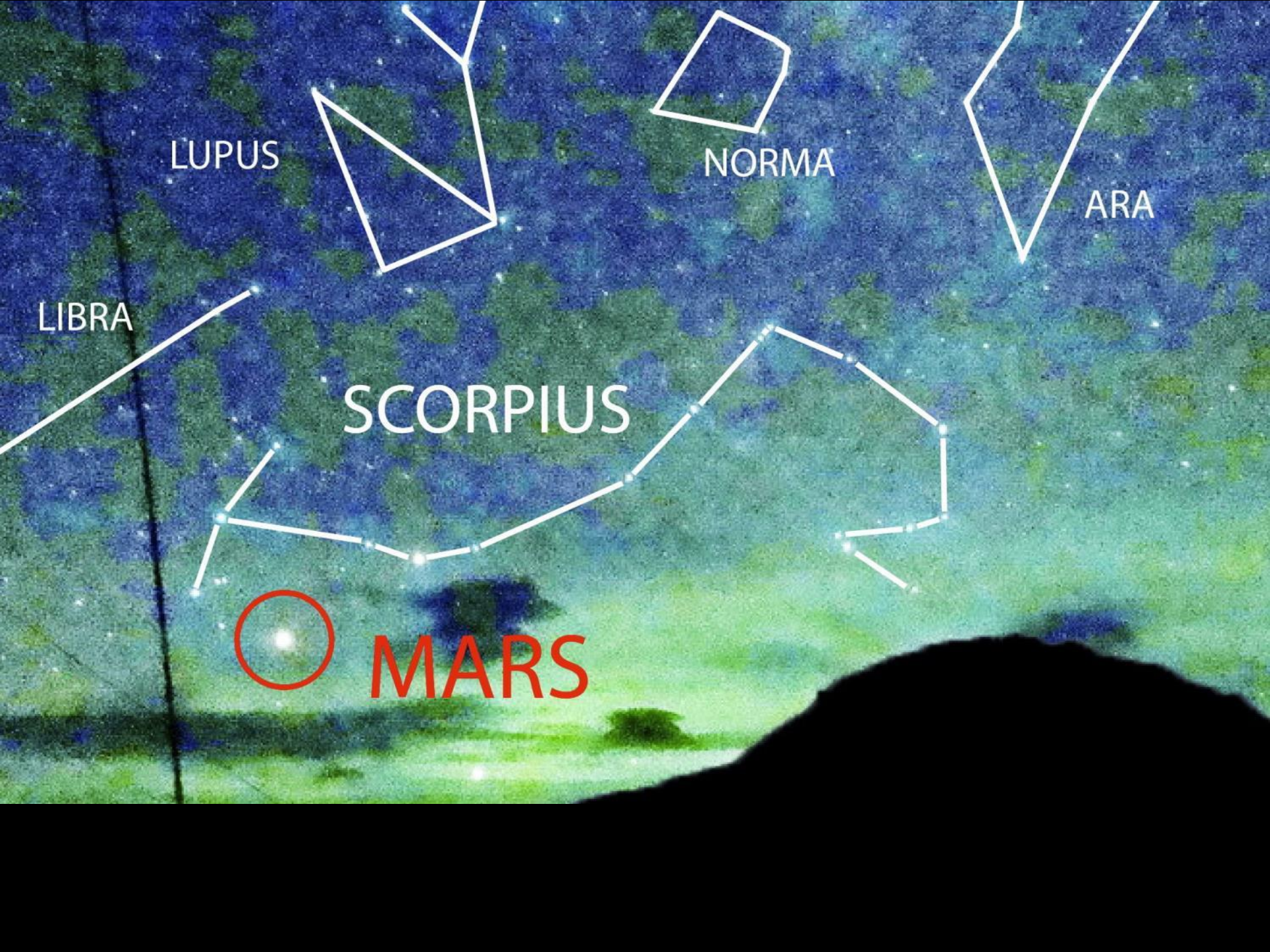








Eruption



LUPUS

NORMA

ARA

LIBRA

SCORPIUS



MARS

























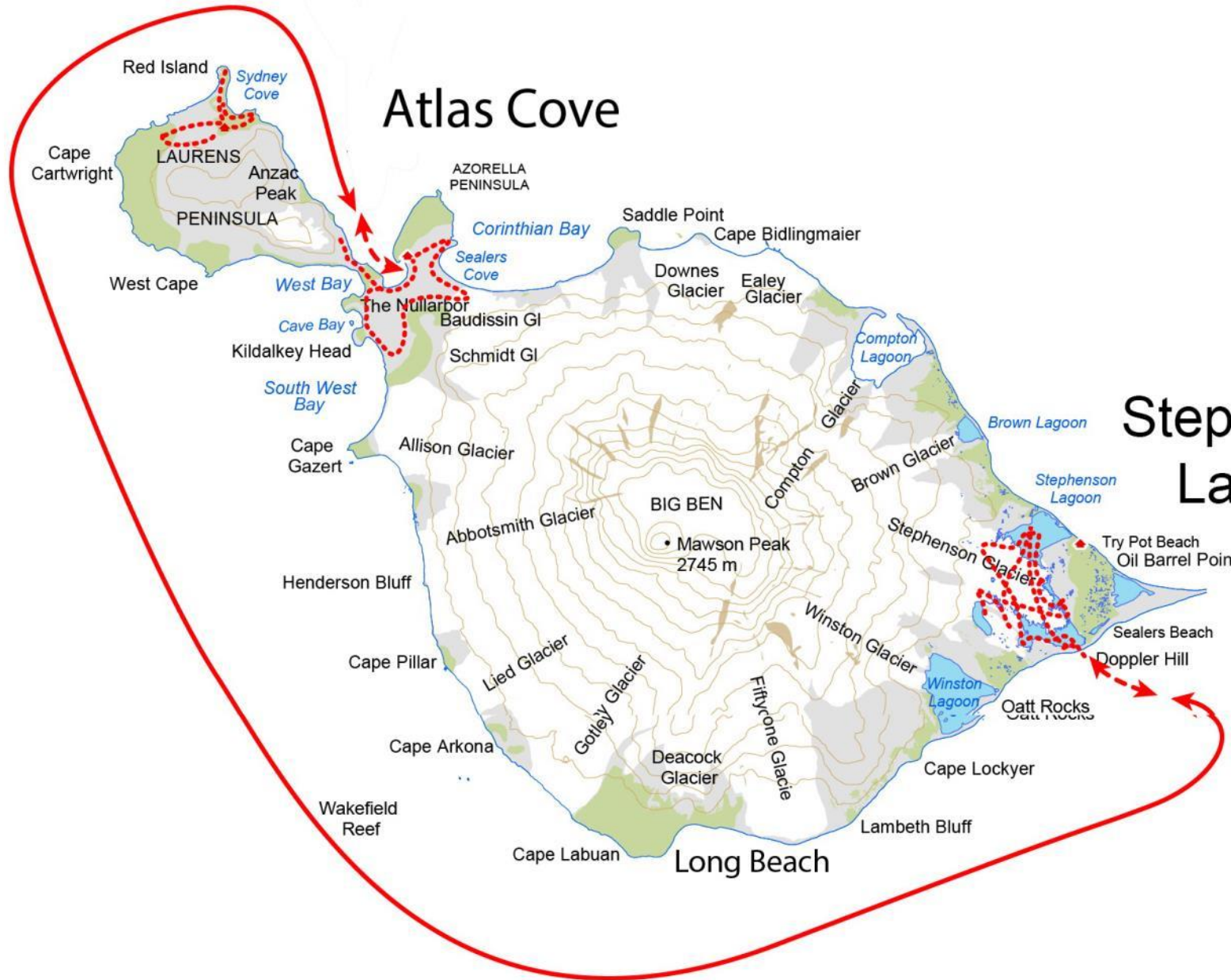






# Atlas Cove

# Stephenson Lagoon



Red Island  
Sydney Cove  
Cape Cartwright  
LAURENS  
Anzac Peak  
PENINSULA

AZORELLA PENINSULA  
Saddle Point  
Cape Bidlingmaier  
Corinthian Bay  
Sealers Cove

West Bay  
Cave Bay  
The Nullarbor  
Kildalkey Head  
South West Bay  
Schmidt Gl  
Baudissin Gl

Cape Gazert  
Allison Glacier

Henderson Bluff  
BIG BEN  
Mawson Peak  
2745 m

Cape Pillar  
Lied Glacier  
Cape Arkona  
Götley Glacier

Wakefield Reef

Long Beach

Downes Glacier  
Ealey Glacier

Compton Lagoon  
Compton Glacier

Brown Lagoon  
Brown Glacier

Winston Lagoon  
Winston Glacier

Cape Lockyer

Brown Lagoon  
Stephenson Lagoon

Stephenson Glacier  
Try Pot Beach  
Oil Barrel Point  
Sealers Beach  
Doppler Hill  
Oatt Rocks



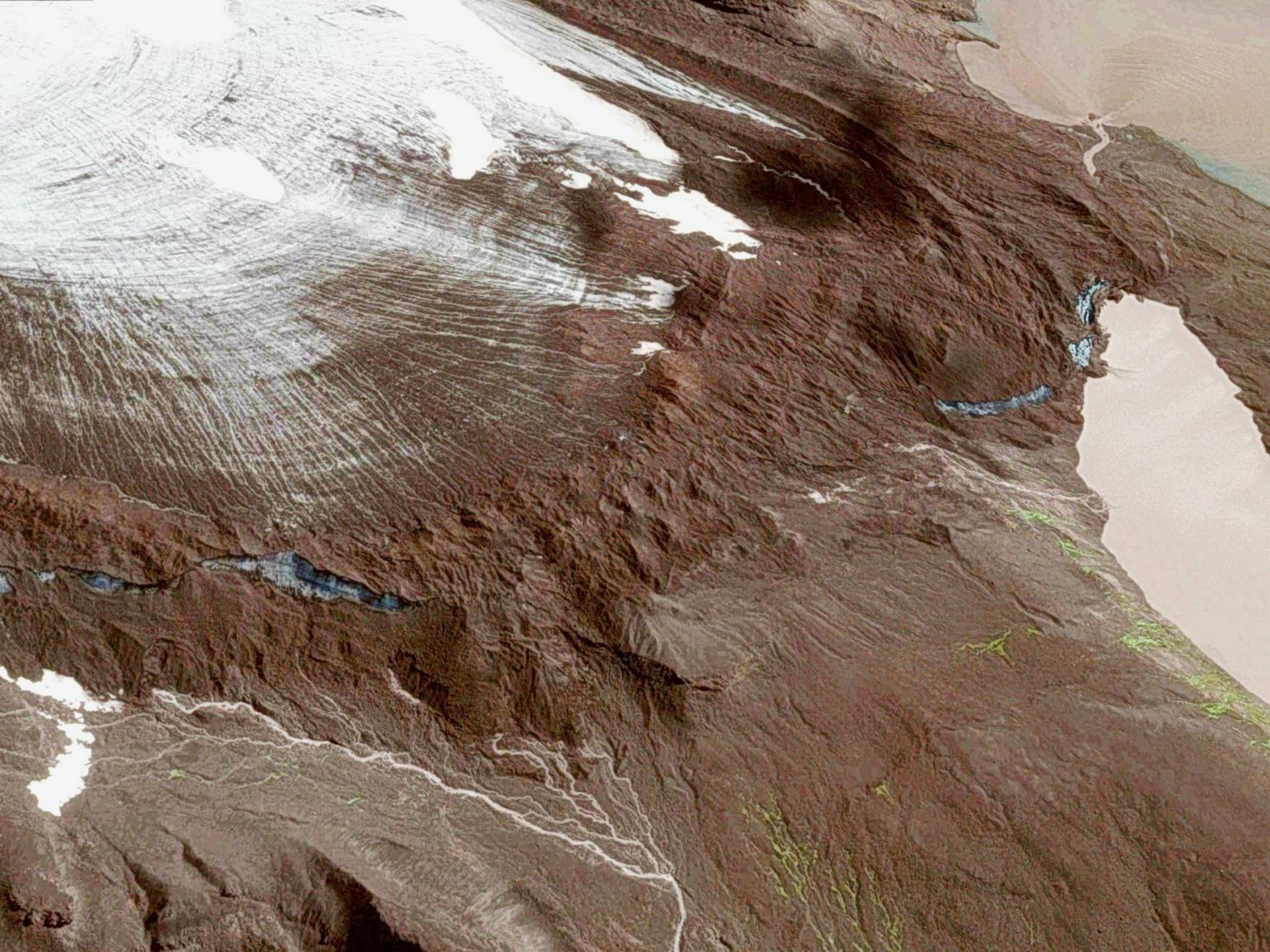






○ Ice slump





○ Blue gash





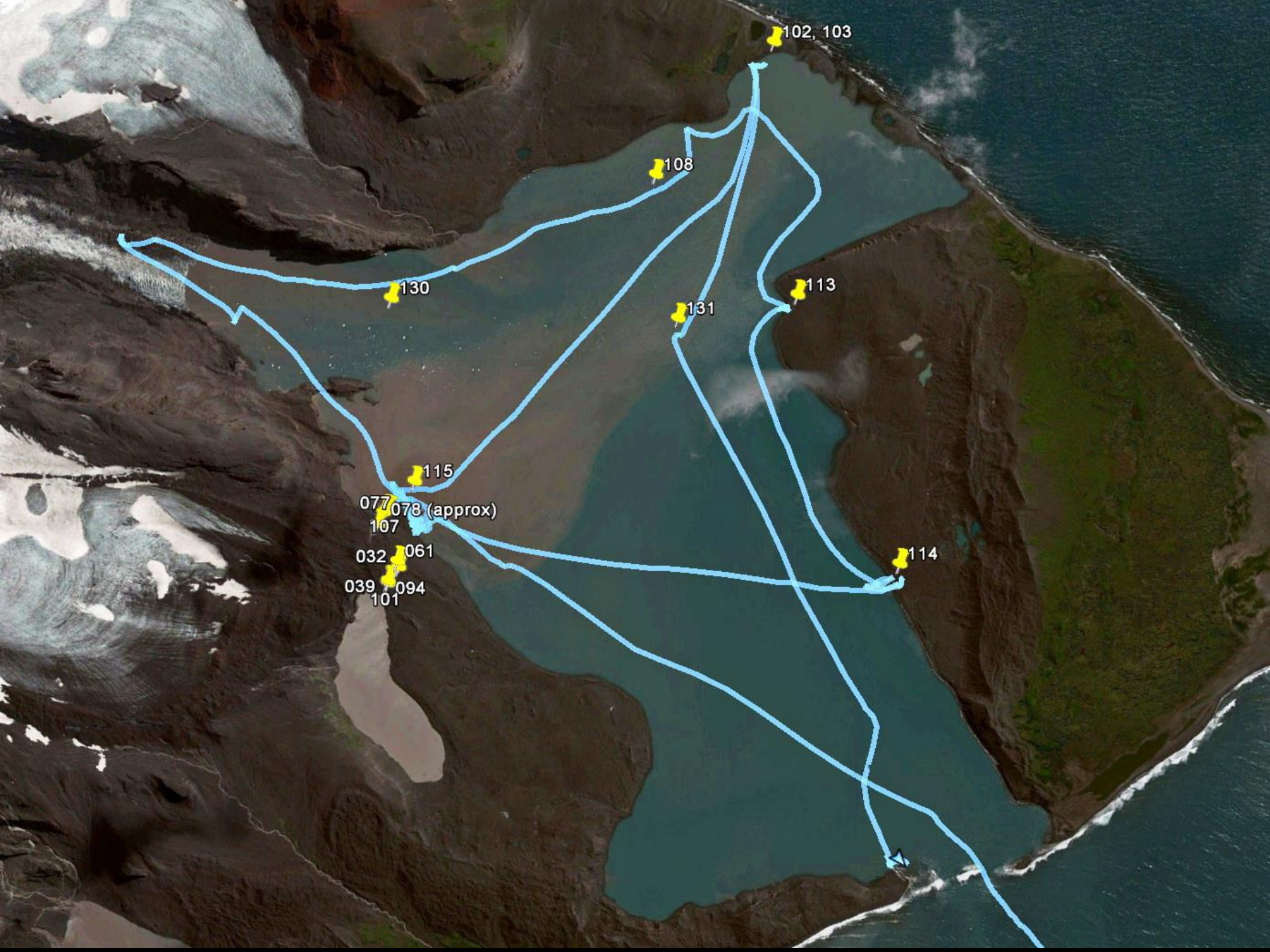
5/21/16

# Finding the entrance to the lagoon



# Entrance to the lagoon





102, 103

108

130

113

131

115

077, 078 (approx), 107

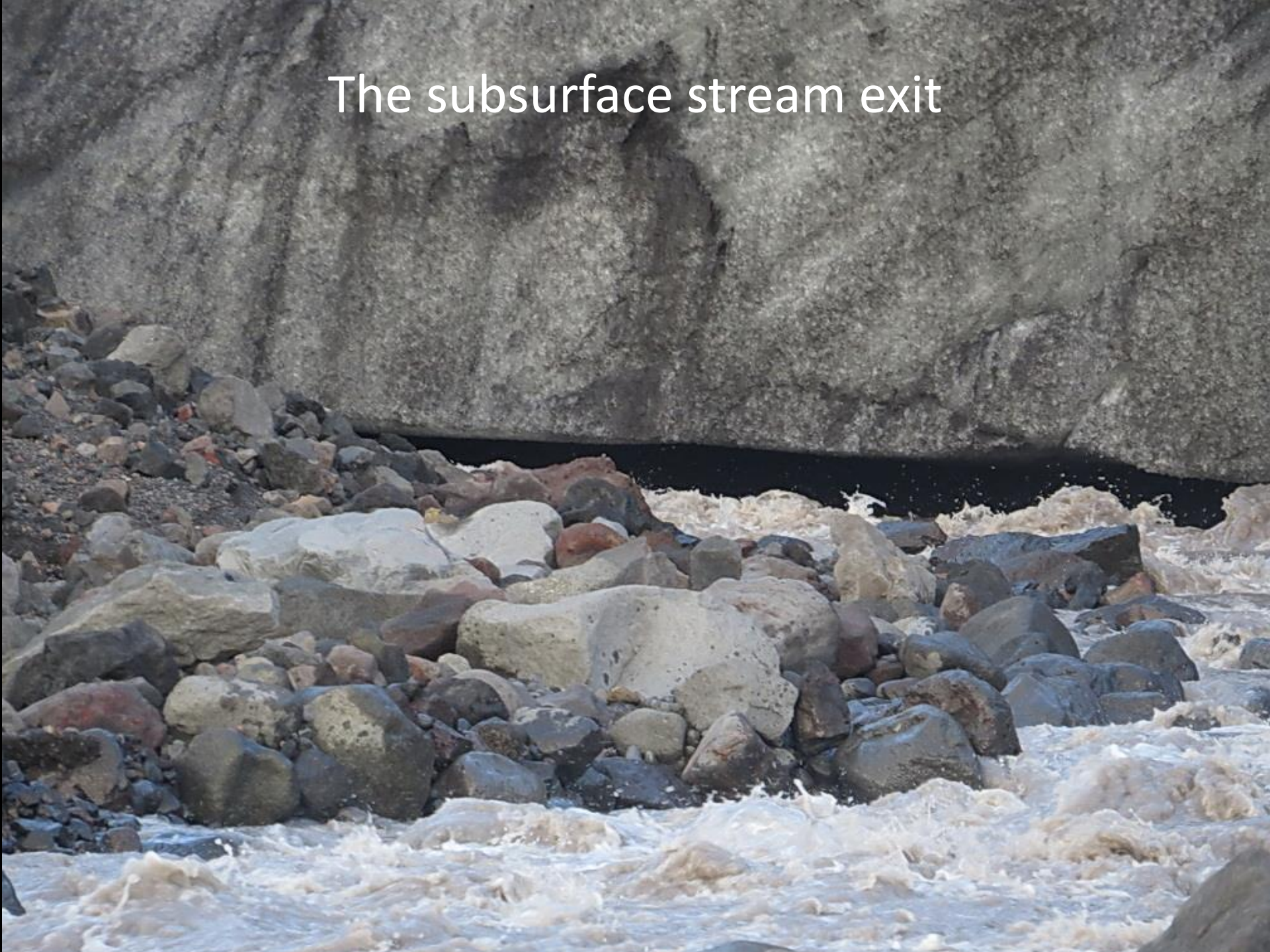
114

032, 061

039, 094, 101



The subsurface stream exit







Slump





The slump







Galcial ice, gin, and tonic







# The VKØEK Team



NP4IW

VK6CQ

KK6EK

HB9AXE

K2ARB

KM4MXD

W7XU

WJ2O

K3EL

UT4UD

NG2H

VK2BAX

N6TQ

AEØEE









# The Heard Island visitors log

## THE 2016 CORDELL EXPEDITION VK6EK

Entry made 11 April 2016

Landed 22 March 2016 by small boat Atlas Cove. Campsite set up ca 300 m SE of ANARE dunes, on a relatively flat terrace ca. 50 m from the Nullarbor, elevation ca. 20 ft. Campsite used 2 air-beam tents, ca. 20x20 ft. An 4-wheel-drive ATV was used with wagons to transport all equipment from the beach landing to the campsite. Personnel usually landed at wharf Pt. - ATV need to service the landing.

Purposes of the expedition:

1. Amateur radio operation
2. Field science re climate chg.
3. Advanced communications.

The radio operation logged about 75,000 contacts on all amateur bands and modes.

A collection of specimens of rocks, water, and soil was made.

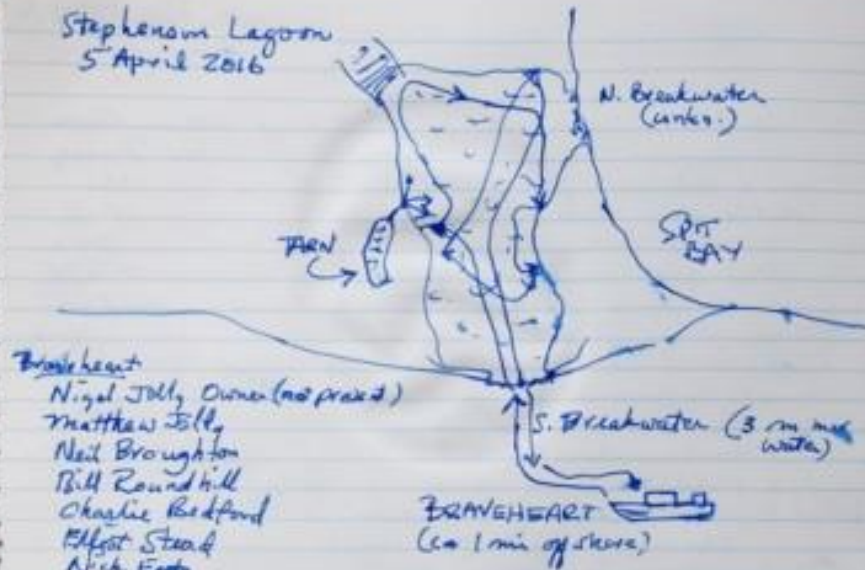
A 3-day visit to the Spit Bay area enabled us to enter Stephenson Lagoon by small boat (3 m water at entrance @ high tide). A collection of soil and water samples, and some rocks, was made.

The communications was enabled by 3 Inmarsat BGAN<sup>®</sup> terminals, and several sat. phones (incl. Iridium). With wifi all members of the team had open access to the internet. This was used to provide extensive public coverage of the expedition, much of it in real time.

Various members of the team made photo-documentation walks from camp. Two members made a 3-day field trip to Laurens Peninsula.



Stephenson Lagoon  
5 April 2016

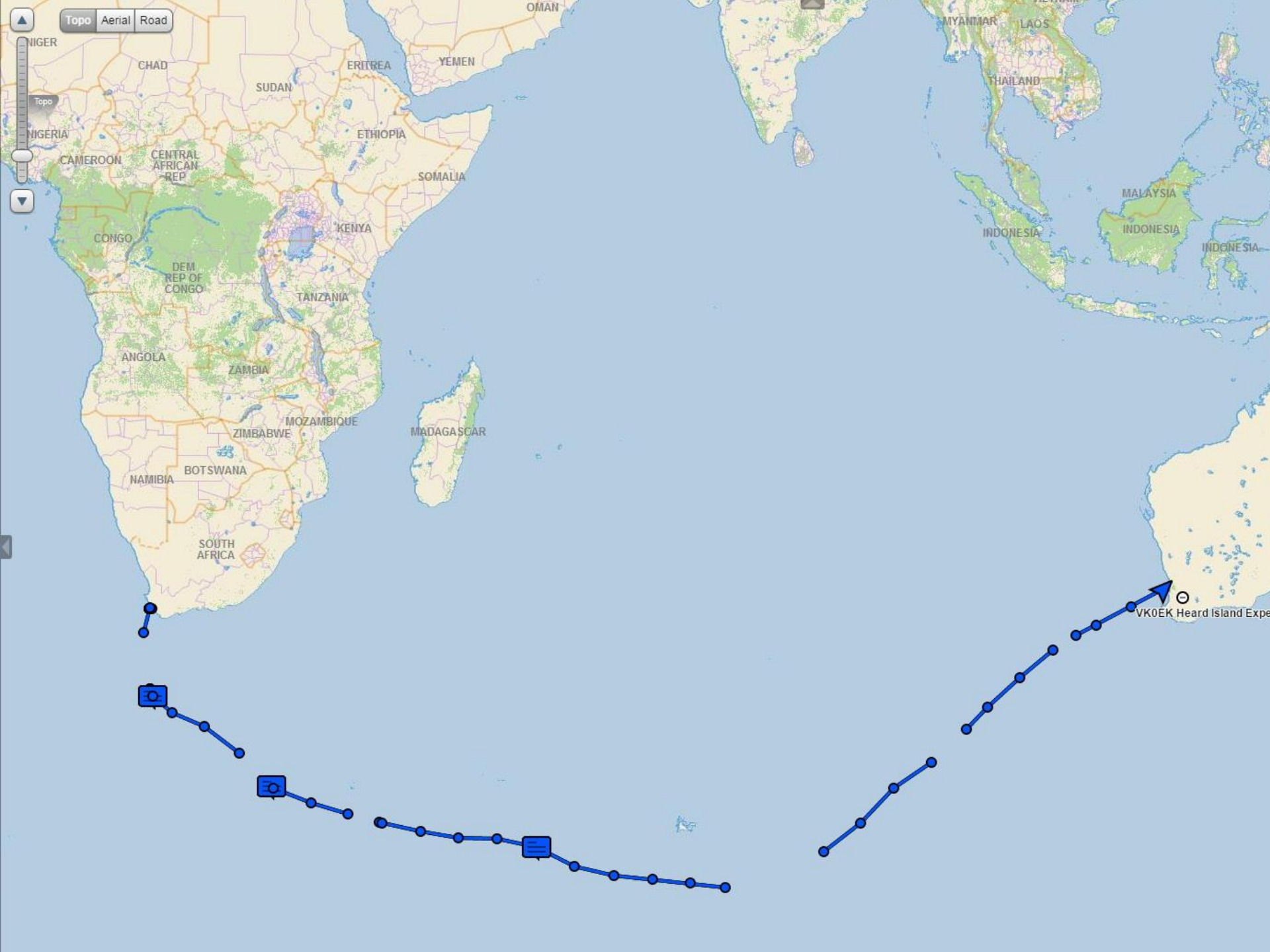


- Braveheart**
- Nigel Jolly, Owner (no proxy)
  - Matthew Jolly
  - Neil Broughton
  - Bill Roundhill
  - Charlie Bedford
  - Effie Stead
  - Nick Eade

- CordeLL TEAM:**
- Exped. Org. Robert Schmieder VK6EK
  - Radio Ldr. Dave Lloyd K3EQ
  - Fred Bolton K4YMXD
  - Adam Brown K2ARB
  - Hans-Peter Blattler H09BXE
  - Alan Cleshine VK6CQ
  - James Colletto N6TA
  - Dave Farnsworth W0ZQ
  - Vadym Ivlior UT6LD
  - Kenneth Kern N4ZTI
  - Gavin Marshall VK2BAX
  - Bill Mitchell AE6EG
  - Carlos Nascimento NP1ICW
  - Artissa Thompson W7YXU

*(Handwritten signatures and names)*

Robert Schmieder  
Fred Bolton  
James Colletto  
Gavin Marshall  
Artissa N. Thompson



Topo Aerial Road

NIGER

NIGERIA

CAMEROON

CONGO

DEM REP OF CONGO

ANGOLA

NAMIBIA

BOTSWANA

SOUTH AFRICA

CHAD

SUDAN

CENTRAL AFRICAN REP

ETHIOPIA

KENYA

TANZANIA

ZAMBIA

MOZAMBIQUE

ZIMBABWE

SOMALIA

ERITREA

YEMEN

OMAN

MADAGASCAR

MYANMAR

LAOS

THAILAND

INDONESIA

INDONESIA

INDONESIA

MALAYSIA

INDONESIA

INDONESIA

INDONESIA

INDONESIA

INDONESIA

INDONESIA

VK0EK Heard Island Expe







The gear  
comes  
home

# Studying the specimens



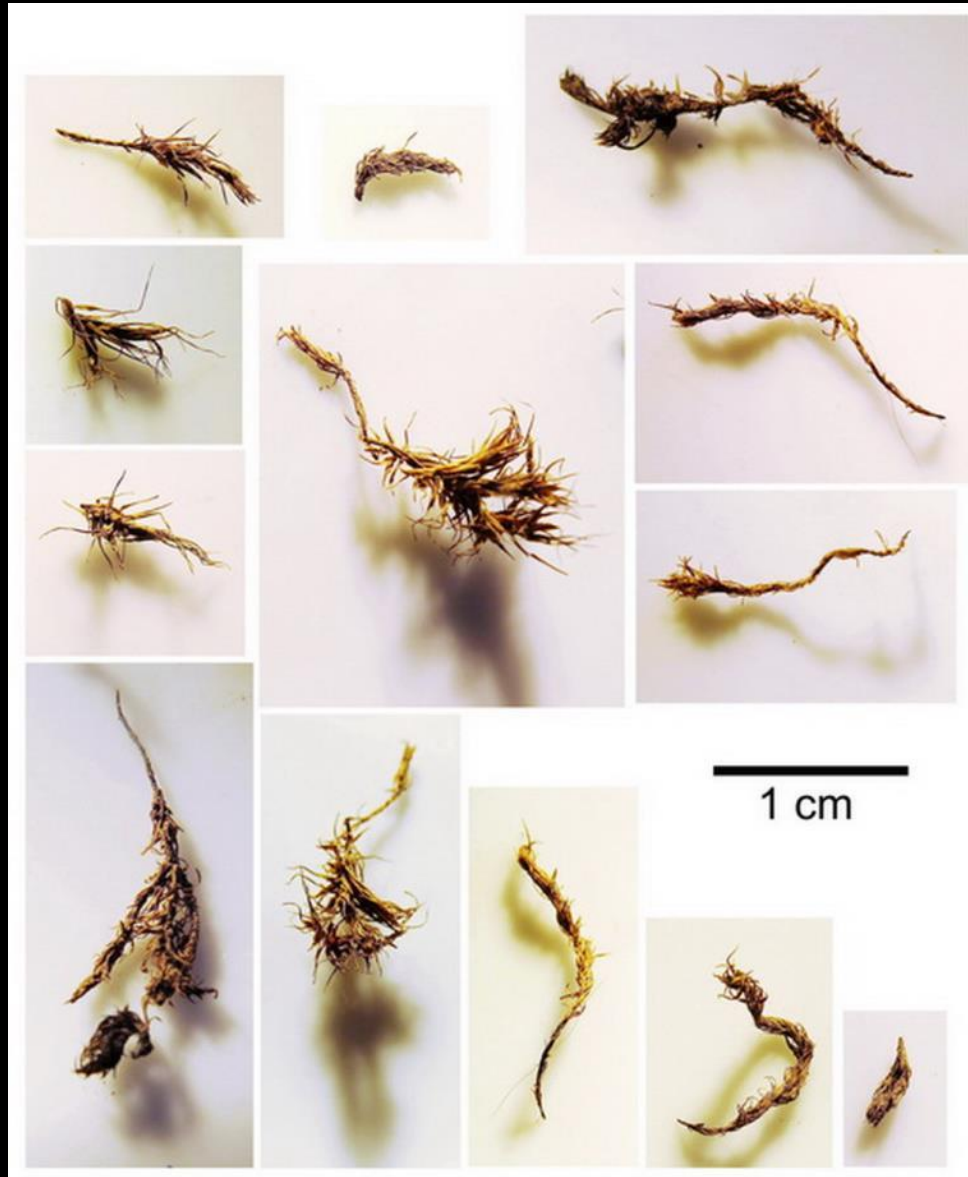
1 mm gravel



# Olivine crystals



# Unidentified fibrous plant



# WINGLESS FLY

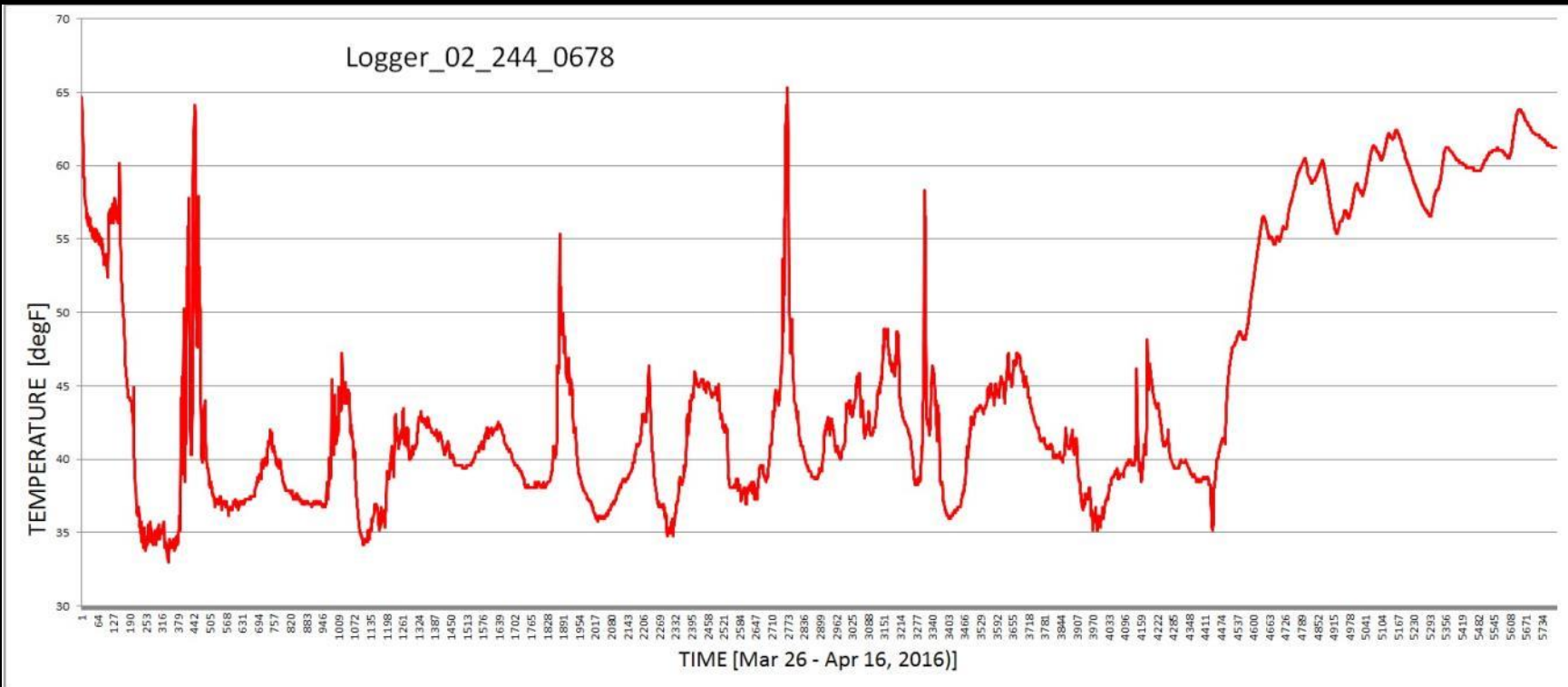
*(Anatalanta aptera)*

Heard Island

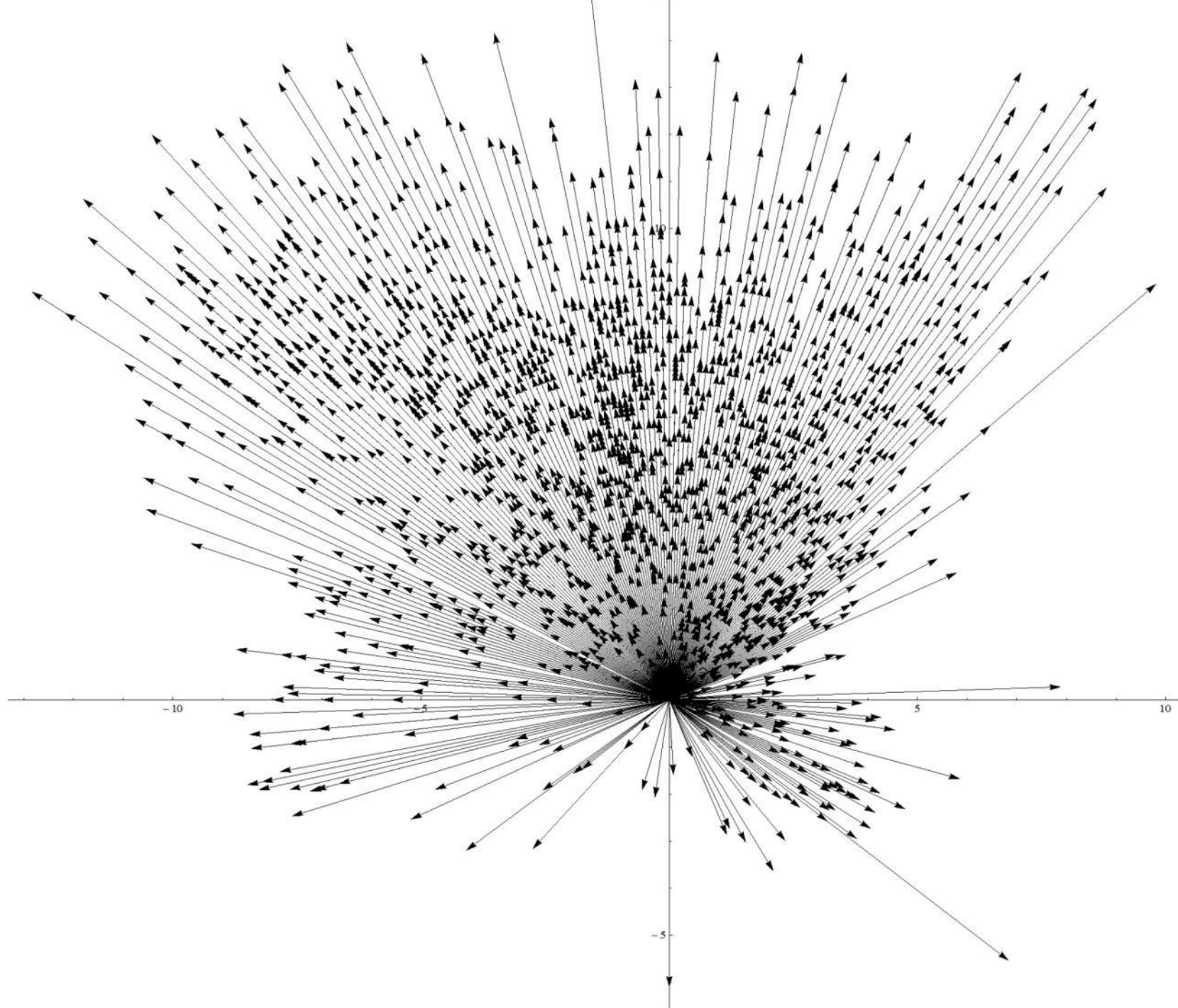


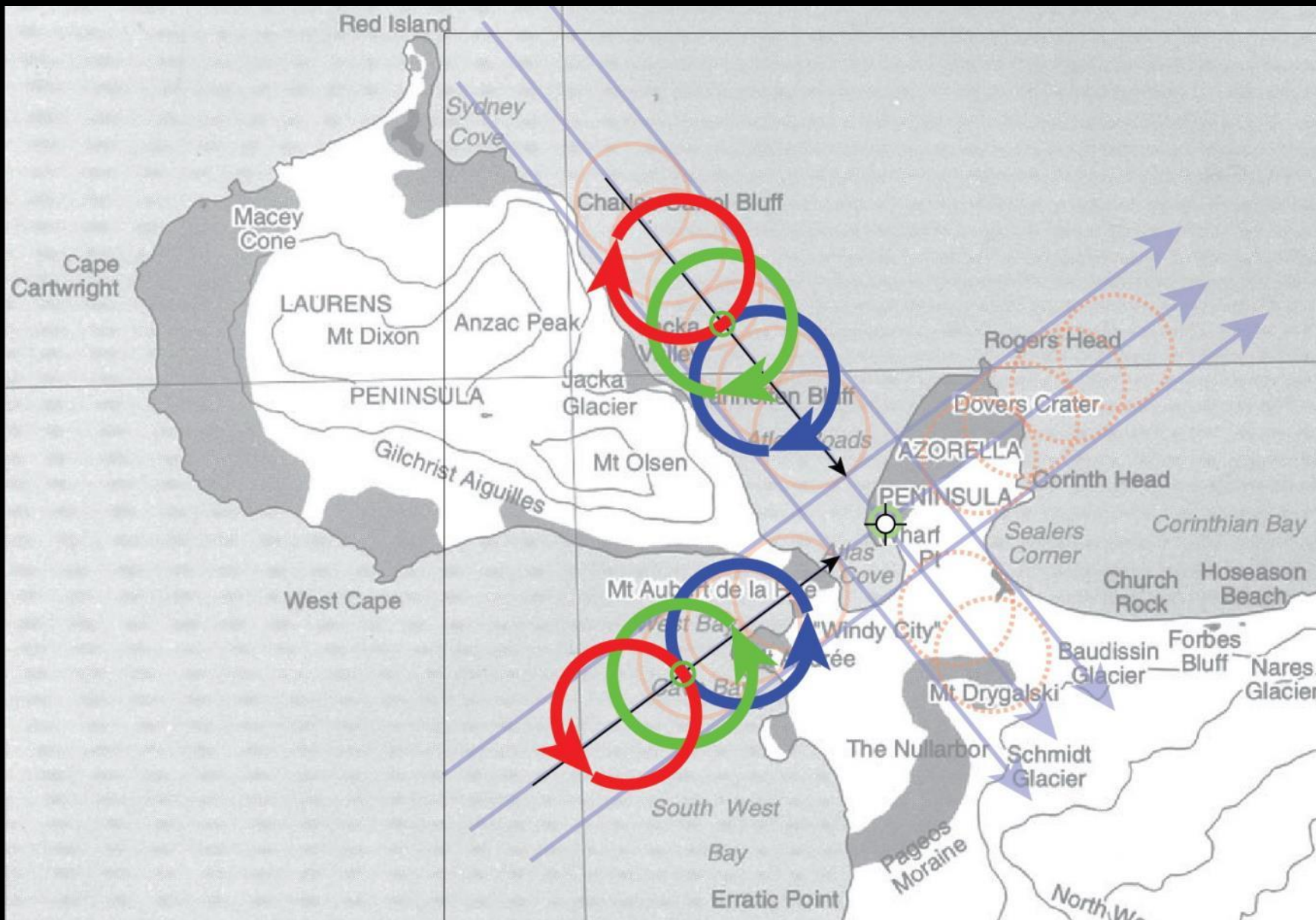
Reference



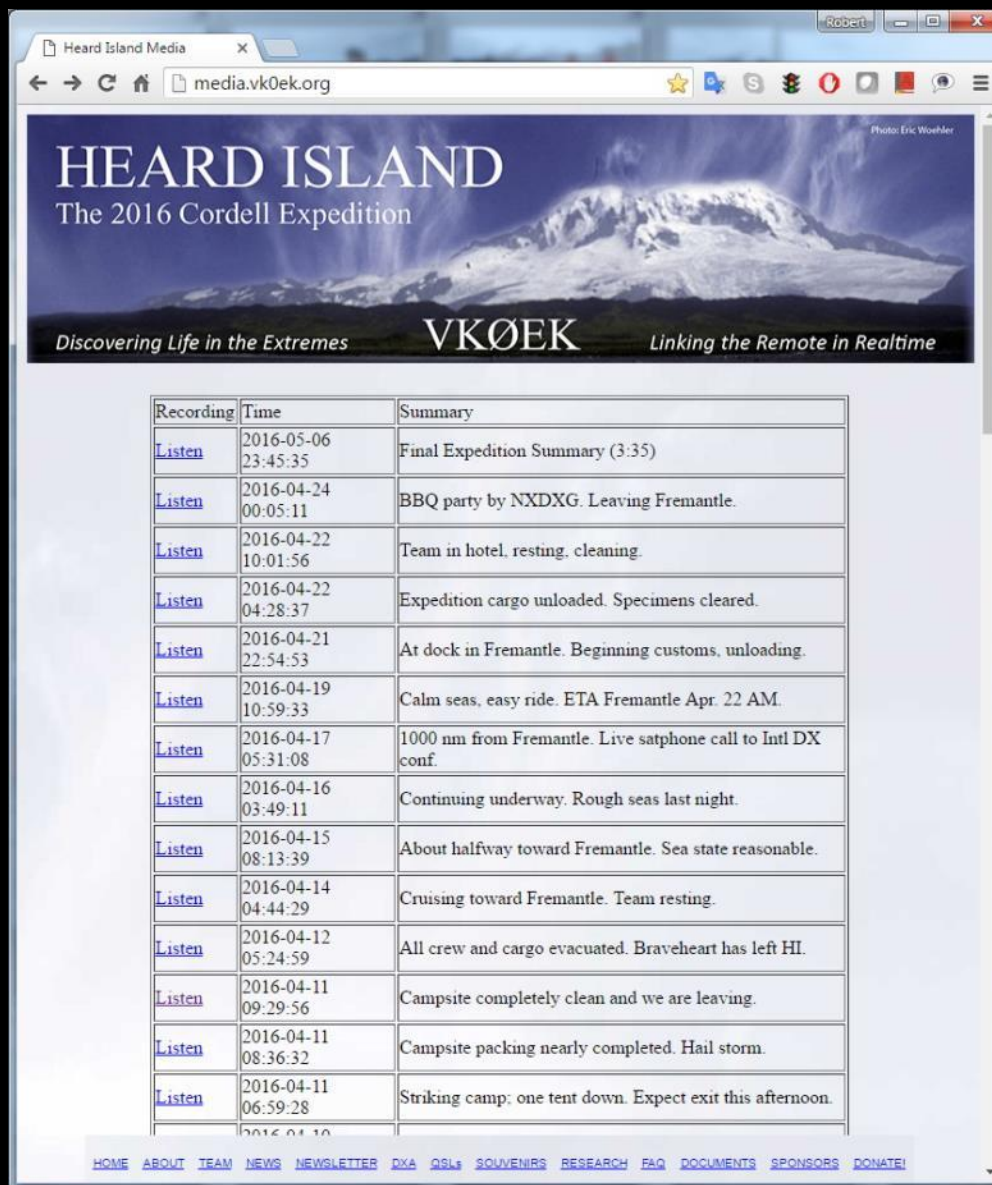








# THE ONLINE AUDIO LOG



The screenshot shows a web browser window with the URL [media.vk0ek.org](http://media.vk0ek.org). The page features a banner for "HEARD ISLAND The 2016 Cordell Expedition" with a photo of a snowy mountain and the text "Discovering Life in the Extremes VKØEK Linking the Remote in Realtime". Below the banner is a table of audio recordings.

Recording	Time	Summary
<a href="#">Listen</a>	2016-05-06 23:45:35	Final Expedition Summary (3:35)
<a href="#">Listen</a>	2016-04-24 00:05:11	BBQ party by NXDXG. Leaving Fremantle.
<a href="#">Listen</a>	2016-04-22 10:01:56	Team in hotel, resting, cleaning.
<a href="#">Listen</a>	2016-04-22 04:28:37	Expedition cargo unloaded. Specimens cleared.
<a href="#">Listen</a>	2016-04-21 22:54:53	At dock in Fremantle. Beginning customs, unloading.
<a href="#">Listen</a>	2016-04-19 10:59:33	Calm seas, easy ride. ETA Fremantle Apr. 22 AM.
<a href="#">Listen</a>	2016-04-17 05:31:08	1000 nm from Fremantle. Live satphone call to Intl DX conf.
<a href="#">Listen</a>	2016-04-16 03:49:11	Continuing underway. Rough seas last night.
<a href="#">Listen</a>	2016-04-15 08:13:39	About halfway toward Fremantle. Sea state reasonable.
<a href="#">Listen</a>	2016-04-14 04:44:29	Cruising toward Fremantle. Team resting.
<a href="#">Listen</a>	2016-04-12 05:24:59	All crew and cargo evacuated. Braveheart has left HI.
<a href="#">Listen</a>	2016-04-11 09:29:56	Campsite completely clean and we are leaving.
<a href="#">Listen</a>	2016-04-11 08:36:32	Campsite packing nearly completed. Hail storm.
<a href="#">Listen</a>	2016-04-11 06:59:28	Striking camp; one tent down. Expect exit this afternoon.

At the bottom of the page, there is a navigation menu with links: [HOME](#) [ABOUT](#) [TEAM](#) [NEWS](#) [NEWSLETTER](#) [DXA](#) [QSLs](#) [SOUVENIRS](#) [RESEARCH](#) [FAQ](#) [DOCUMENTS](#) [SPONSORS](#) [DONATE!](#)

# THE NEWSLETTERS

## HEARD ISLAND

The 2014 Coral Reef Expedition

### EXPEDITION SCHEDULED FOR EAR-APR 2016



**Newsline 7th of Feb 2016**  
**ON THE WAY**  
 The expedition vessel is currently in the South Pacific Ocean, en route to Heard Island. The vessel is expected to arrive at the island in early April 2016.

**W**ith the start of the expedition, the team will be conducting a series of scientific surveys and data collection. The expedition is expected to last for several months, with the team returning to Australia in late 2016.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### COORDINATING VKOER WITH FRIGATE'S EQUIPMENT

**A** series of meetings and discussions have taken place to coordinate the expedition's equipment and logistics. The team is currently in the process of finalizing the expedition's schedule and equipment list.

Item	Quantity	Notes
Food	1000kg	For 10 people for 100 days
Water	10000L	For 10 people for 100 days
Fuel	10000L	For 10 people for 100 days
Medical	100kg	For 10 people for 100 days
Tools	100kg	For 10 people for 100 days
Equipment	100kg	For 10 people for 100 days

**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### MAIN CAMP SITE WILL BE BUILT USING AIR-DROP TECHNIQUES

**A** series of meetings and discussions have taken place to coordinate the expedition's equipment and logistics. The team is currently in the process of finalizing the expedition's schedule and equipment list.



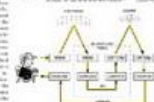
**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### THE TOP LEVEL OF INFORMATION IS BEING FORWARDED

**T**he top level of information is being forwarded to the relevant authorities. The team is currently in the process of finalizing the expedition's schedule and equipment list.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### THE HEARD ISLAND EXPEDITION EXPERIENCE

**T**he expedition is expected to last for several months, with the team returning to Australia in late 2016. The team is currently in the process of finalizing the expedition's schedule and equipment list.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### SPONSORS: "IT HELPED MAKE IT HAPPEN"



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### EXAMPLE FROM: VKOER - HEARD ISLAND, IN 2014

**T**he expedition is expected to last for several months, with the team returning to Australia in late 2016. The team is currently in the process of finalizing the expedition's schedule and equipment list.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### ANALYSIS OF HEARD ISLAND'S CORAL REEF SYSTEM

**A** series of meetings and discussions have taken place to coordinate the expedition's equipment and logistics. The team is currently in the process of finalizing the expedition's schedule and equipment list.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### THE VOYAGERS



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### HOW TO MAKE CONTACT WITH HEARD ISLAND



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### EXPEDITION IS ACTIVE ON HEARD ISLAND



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### EXPEDITION EXPERIENCES AN ISLAND OF EXTREMES

**T**he expedition is expected to last for several months, with the team returning to Australia in late 2016. The team is currently in the process of finalizing the expedition's schedule and equipment list.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### TEAM PRESENTS RESULTS OF THE EXPEDITION

**T**he expedition is expected to last for several months, with the team returning to Australia in late 2016. The team is currently in the process of finalizing the expedition's schedule and equipment list.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### TEAM PRESENTS RESULTS OF THE EXPEDITION

**T**he expedition is expected to last for several months, with the team returning to Australia in late 2016. The team is currently in the process of finalizing the expedition's schedule and equipment list.




**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

## HEARD ISLAND

The 2014 Coral Reef Expedition

### HEARD ISLAND EXPEDITION EXPERIENCE

**T**he expedition is expected to last for several months, with the team returning to Australia in late 2016. The team is currently in the process of finalizing the expedition's schedule and equipment list.



**HEARD ISLAND**  
 The 2014 Coral Reef Expedition

[www.VKØEK.org](http://www.VKØEK.org)  
[www.heardisland.org](http://www.heardisland.org)



# **VKØEK HEARD ISLAND 2016**

IOTA AN-004 • CQ Zone 39 • ITU Zone 68 • Loc. MD66qx

# ARTICLES

The January 2016 KSP DXpedition to Palmyra Atoll PAGE 69

**ARRL** **QST** DEVOTED ENTIRELY TO AMATEUR RADIO

October 2016 WWW.ARRL.ORG

## Extreme DX at the Bottom of the World!

*QST* reviews:

- **Expert Electronics SunSDR2 PRO**  
HF/VHF Software Defined Transceiver
- **SSB Electronic SP-200 and SP-70**  
Mast-Mounted Preampifiers
- **Alinco DR-735T**  
VHF/UHF FM Transceiver



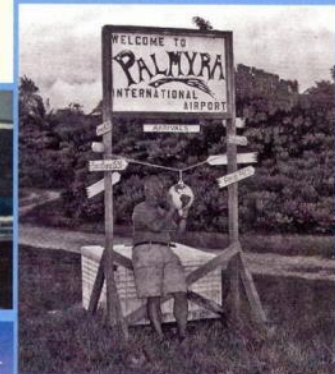
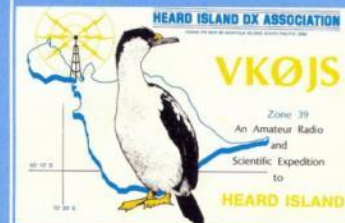
In this issue:

VKØIR - Heard Island - 1997

VP8SSI - South Sandwich - 1992

AH6NF/KH5 - Palmyra - 2005

Friedrichshafen - 2015



September/October 2015



KK6EK

# The 14 men



AEØEE



K3EL



UT4UD



VK2BAX



KM4MXD



VK6CQ



W7XU



N6TQ



NP4IW



NG2H



K2ARB



WJ2O



HB9AXE



INDIVIDUAL DONORS



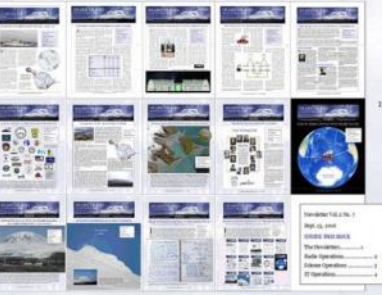


# HEARD ISLAND

The 2016 Cordell Expedition

Discovering life in the Extremes **VK0EOK** Linking the Remote to the Rest of the World

THE EXPEDITION IS OVER—THE WORK CONTINUES



## orough support of the QSL operation

250X 425X 435X 445X 455X 465X 475X 485X 495X 505X 515X 525X 535X 545X 555X 565X 575X 585X 595X 605X 615X 625X 635X 645X 655X 665X 675X 685X 695X 705X 715X 725X 735X 745X 755X 765X 775X 785X 795X 805X 815X 825X 835X 845X 855X 865X 875X 885X 895X 905X 915X 925X 935X 945X 955X 965X 975X 985X 995X

The first time the team of the Heard Island Expedition... The team consists of... The expedition was... The work continues...

Heard Island Expedition Newsletter Vol. 2 No. 7 — Sept. 15, 2016

Large table of QSL call signs and numbers, including columns for various call signs and their corresponding numbers.

Heard Island Expedition Newsletter Vol. 2 No. 7 — Sept. 15, 2016

# Last Newsletter will credit everyone!

Large table of QSL call signs and numbers, including columns for various call signs and their corresponding numbers.

Heard Island Expedition Newsletter Vol. 2 No. 7 — Sept. 15, 2016

# Heard Island 2016

Robert W. Schmieder  
Cordell Expeditions



Explorers Club

18 Nov. 2016