The Shackleton Crossing, 2016

POST EXPEDITION REPORT

Expedition Leader: Seb Coulthard FRGS | Shackleton Legacy Ltd | December 29, 2016

1. INTRODUCTION

In conjunction with Antarctic tour operators Ice-Tracks Expeditions and Polar Latitudes, Shackleton Legacy Ltd planned and lead a commemorative expedition to cross the interior of South Georgia on the 100th anniversary of Sir Ernest Shackleton's voyage aboard the *James Caird* lifeboat. Lead by British explorer Seb Coulthard FRGS and mountaineer John Howie, a group of 7 mountaineers (9 persons in total) attempted to retrace Shackleton's 1916 route from King Haakon Bay to Stromness Whaling Station. Using modern clothing and safety equipment, the expedition had a 3-day window of opportunity to conduct an expedition. The expedition had two objectives, both of which were partially accomplished due to poor weather conditions.

Expedition Team:

NAME	ROLE	CAPACITY
Seb Coulthard FRGS *British*	Overall Expedition Leader: all decisions are ultimately the responsibility of Seb Coulthard. Experienced mountaineer, IAATO certified field guide, remote areas medic	Professional
John Howie *British*	Mountain Leader and advisor to Seb Coulthard on alpine/glacial terrain.	Professional
James Parker *British*	Experienced mountaineer and overall team medic.	Amateur
Dr John Shears FRGS *British*	Experienced polar expert and environmental impact advisor to expedition leaders.	Amateur
David Howarth *British*	Experienced mountaineer	Amateur
Kevin 'Ed' Murphy *USA*	Experienced mountaineer and photographer	Amateur
Cindy Outlaw *USA*	Experienced mountaineer.	Amateur
Paul 'Jeff' Leck *USA*	Experienced mountaineer	Amateur
Stephen Murgatroyd *British*	Experienced climber and advisor to expedition leaders on rope descents, casualty extraction and retrieval.	Amateur

2. EXPEDITION OBJECTIVES

The primary objective of this expedition was to approximately follow Sir Ernest Shackleton's 1916 route across the glacier fields of South Georgia with the omission of original navigational errors from King Haakon Bay to Stromness Bay following an East Magnetic course.

The secondary objective of the expedition was to conduct a photographic comparison of glacier images taken by explorer Duncan Carse in October 1956, and the Shackleton Crossing team in November 2016. By undertaking comparative photography in the vicinity of the original South Georgia survey photos, the team hoped to visually capture the impact of 60 years of glacial retreat on South Georgia.

3. REPORTS ON ACTIVITIES

Due to poor weather conditions at the time of arrival off the coast of South Georgia, the The Shackleton Crossing Expedition had to be called-off. Upon assessing detailed maritime weather forecasting services (GRIB, BVS and WindyTV), it was clear that the island was expecting a large low pressure systems from the North-West. The possibility of whiteout conditions on the Crean and Fortuna Glacier on the second day of the proposed crossing schedule was very high with potential wind speeds in excess of 65 knots in the mountains. The basic weather forecast for 8-11 November 2016 is attached on pages 4-6 of this report (please note these are sea level weather forecasting screen grabs).

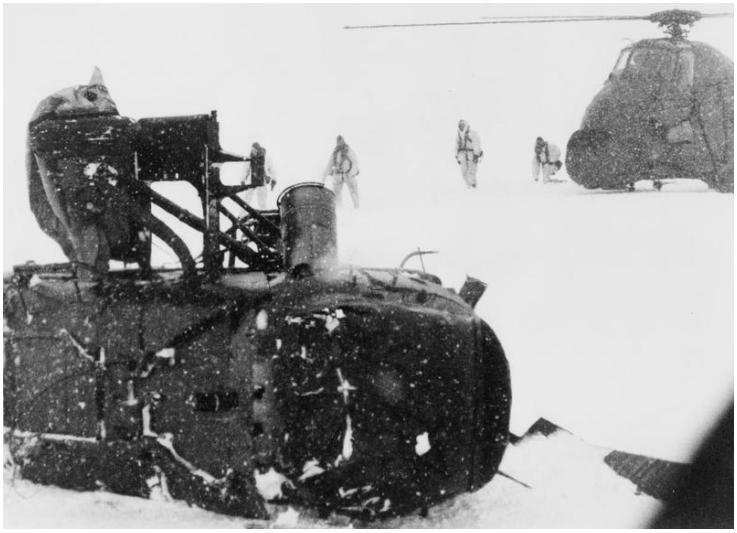
The greatest worry was the possibility that if the overland expedition had been delayed by 24 hours, it would impact on the fixed sailing schedule of support ship *MS Hebridean Sky*. Had the team become tent-bound on the Crean or Fortuna Glacier the ship would have been forced to delay its itinerary impacting directly on a subsequent visit to the Antarctic Peninsula. This ripple effect would unfairly hinder the wilderness experience expected by an additional 90 guests embarked on the ship. Every effort was made by Brandon Harvey, Director of Expedition Operations and Capt. Andrey Rudenko, Master of *MS Hebridean Sky* to manoeuvre the ship around the weather but sadly the window of opportunity closed very quickly. It was disappointing for everyone involved in the planning and preparation. However, the team overcame adversity and eventually managed to conduct a series of short day excursion on South Georgia, the South Orkney Islands and the Antarctic Peninsula.

Of the two expedition objectives, the first objective was partially accomplished by landing the team at Fortuna Bay in order to conduct a day excursion to the Fortuna Glacier with access through the glacial outwash beach below Turnback Glacier, Anchorage Bay: Lat 54° 07' 45.4" S, Long 36° 49' 11.9" W.

The team trekked-up Turnback Glacier which connects to the main Fortuna Glacier. This is the approximate glacierl location were Sir Ernest Shackleton, Tom Crean and Frank Worsley turned back in May 1916 when they realized that they had ventured too far in the hope of finding a route down into Stromness Bay. Turnback Glacier runs down to the western shoreline of Fortuna Bay, the best gateway to ascend and descend the interior of

South Georgia at the time of this expedition, avoiding the treacherous slopes of Breakwind Ridge as used by Shackleton and crew in 1916.

The team also expressed interest in visiting the remains of the Royal Navy Wessex Mk.5 helicopters which crashed on the Fortuna Glacier in April 1982 during Operation Paraquat on the lead up to the Falklands Conflict. The operation was originally supposed to involve both SAS and Special Boat Service (SBS) forces being infiltrated onto South Georgia by helicopters from RFA Tidespring and HMS Antrim, but the plan had to be changed when the two Wessex helicopters transporting SAS troops from an ambitious location on the northeast coast of South Georgia crashed in bad weather on Fortuna Glacier; the troops and aircrew were rescued by Antrim's Wessex helicopter, the last Wessex remaining to the expedition. The position of the crash site is estimated to be at Lat 54° 06’ 54.0” S, Long 36° 52’ 48.0” W.



One of two Westland Wessex HU.5 assault helicopters (this one XT464) from 845 Naval Air Squadron and operating from RFA TIDESPRING which crashed while taking off in a blizzard from on Fortuna Glacier, South Georgia after landing an SAS party on the glacier during the assault on the island on 22 April 1982. Another of 845 NAS's helicopters is in the background picking up the survivors.

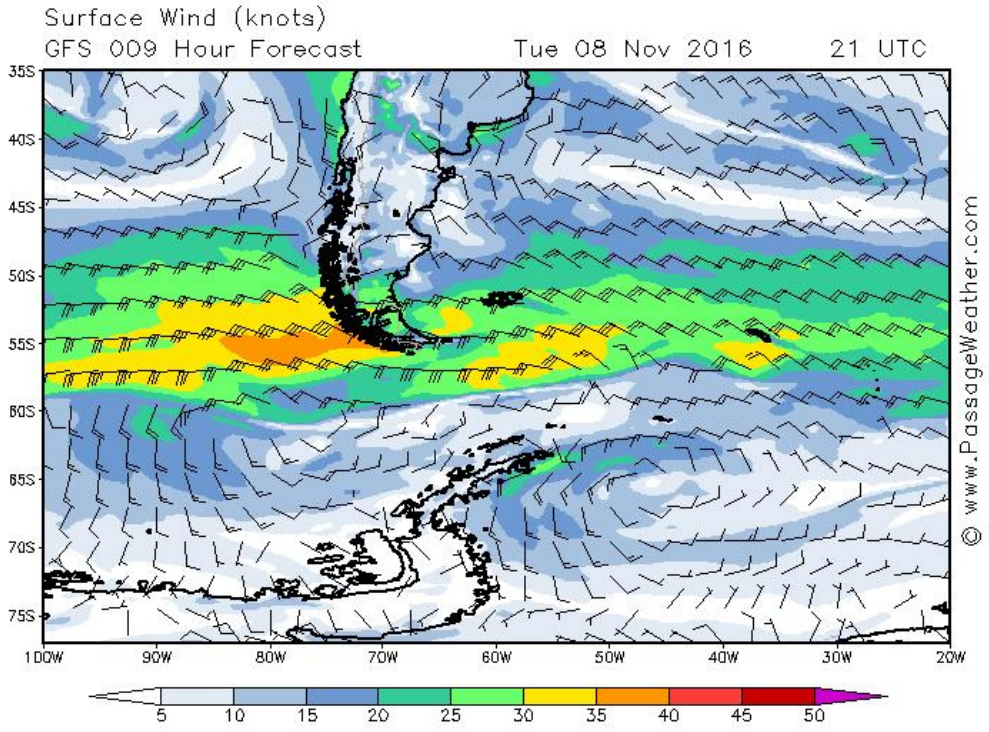
The two doomed helicopters plus a further Wessex HU.3 from HMS ANTRIM were evacuating a reconnaissance party of members of 22 Special Air Service Regiment from Fortuna Glacier, South Georgia when an extreme blizzard forced them off. The Wessex HU.3 was able to leave and carried the survivors, a total of sixteen people, to safety.

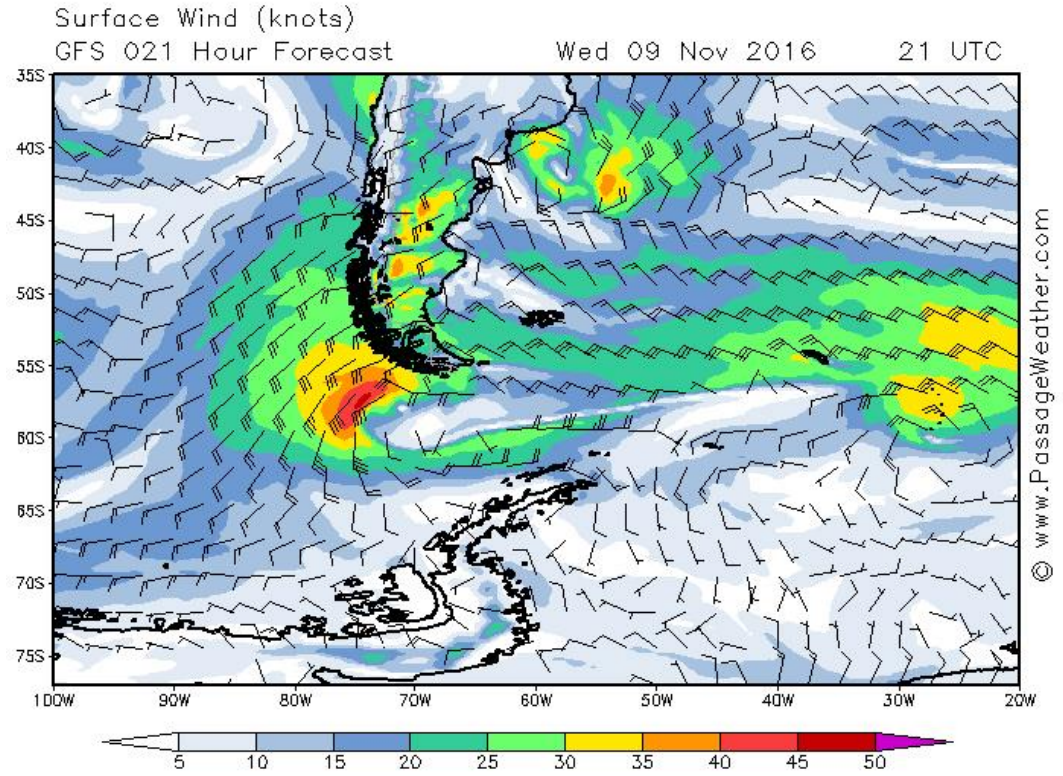
As expedition leader (and a former Royal Navy aircraft engineer) I shared in their enthusiasm and interest to visit this war site and began to formulate a plan that would allow us to follow our proposed overland route in reverse order. This adaptation was considered a serious possibility and was dynamically risk assessed in conjunction with the Deputy and Assistant Expedition Leaders.

With support from *MS Hebridean Sky*, a team of 9 mountaineers set off at 0830 hrs on 10 Nov 2016 reaching the crest of Turnback Glacier at 1000 hrs. The team accessed the glacier thanks to an esker which connects to the main slope. The surface underfoot was hard ice with the odd visible snow bridge over thin crevasses. The sound of running water was very audible beneath the eroded ice surface. The center of the glacier is dividd by a large steep col with portions of the glacier surface covered in supraglacial material, the team moved diagonally across the right-hand side of the glacier to avoid the steeper terrain on the left-hand side. The gentle slope did not necessitate crampons at first however, once the team reached the transition point from ice to snow (near the firn line), the team divided into three rope groups and donned their alpine snowshoes. As the team advanced over the crest of the glacier many crevasses were found running north-south. Carefully, each rope team weaved their way around the crevasses and up on to the Fortuna Glacier.

With clear weather and good visibility all round, no trace of the Wessex helicopters could be found on the surface; the airframes quite likely buried under several meters of winter snow. After trekking 3.8 kilometers the team spent approximately 15 minutes on the ice field taking photographs, admiring Fortuna Glacier, Breakwind Ridge and Caird Nunatak before a low-band of fast moving clouds to the north encouraged us to return to Anchorage Bay at 1130 hrs. *MS Hebridean Sky* lay at anchor at the head of Fortuna Bay from where a Zodiac was dispatched to pick-up the team at 1240 hrs before setting sail to Stromness Bay.

Weather Forecast for South Georgia: 8 - 11 November 2016




Surface Wind (knots)
GFS 021 Hour Forecast
Wed 09 Nov 2016
21 UTC
35S
40S
45S
50S
55S
60S
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70S
75S
100W
90W
80W
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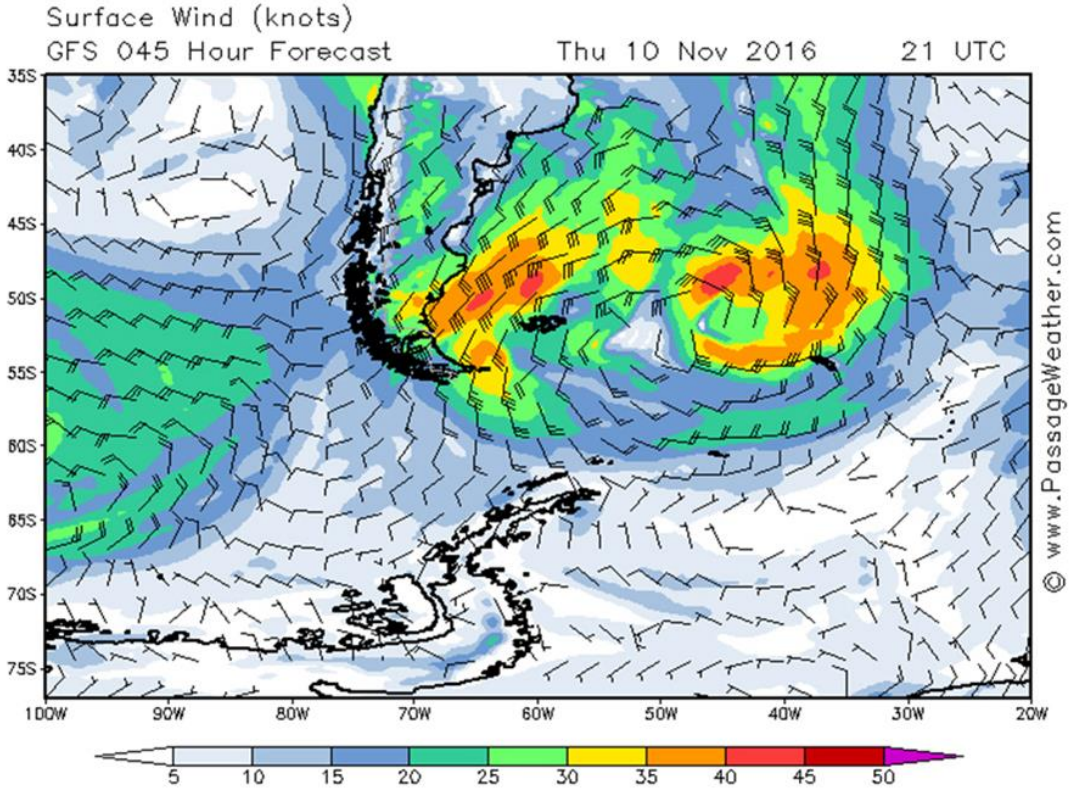
Surface Wind (knots)
GFS 045 Hour Forecast
Thu 10 Nov 2016
21 UTC
35S
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70S
75S
100W
90W
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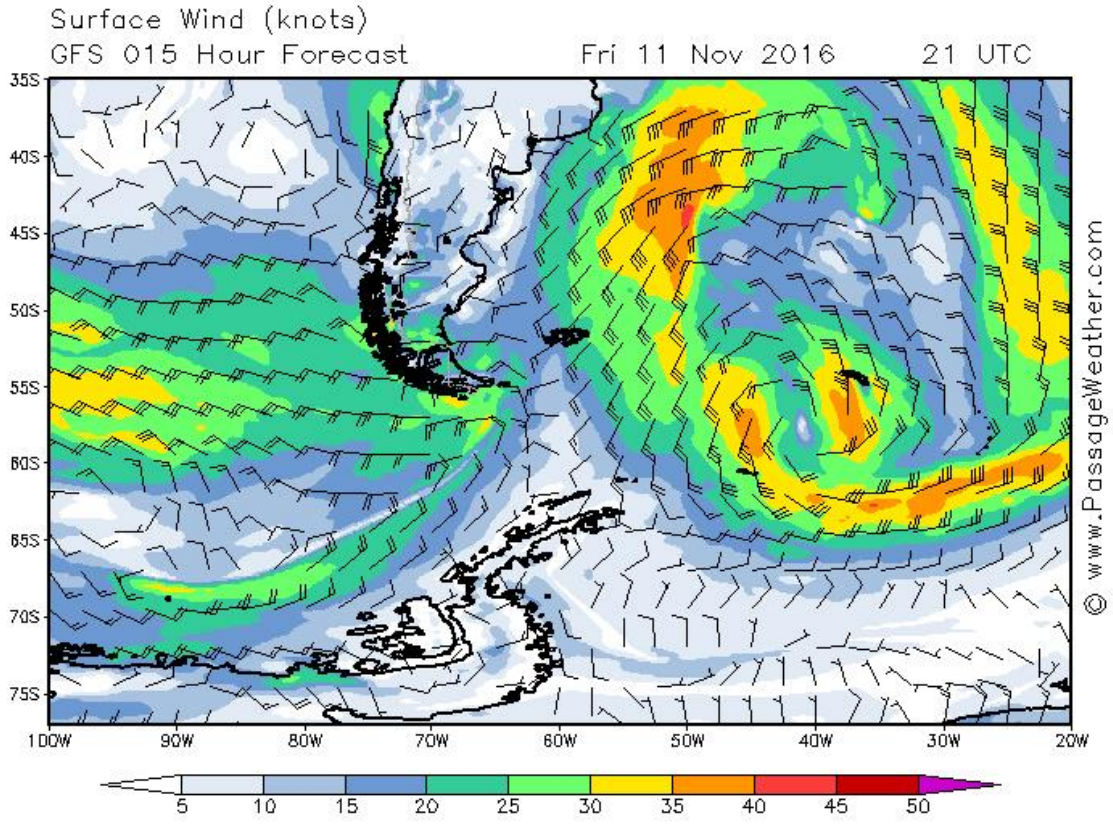


Fortuna Bay Map

Red line indicating direction of travel towards the Fortuna Glacier helicopter crash site. Image capture from: http://www.sggis.gov.gs/

The team did not attempt a crossing of the Shackleton Valley towards Stromness Whaling Station due to deteriorating weather conditions in the form of rapidly moving fog at approximately 300 meters above sea level. Instead it was decided that the team would sail aboard *MS Hebridean Sky* to Stromness Whaling Station and trek inland towards Shackleton's Waterfall as part of an IAATO approved day-excursion.

Fortuna Bay Photographs

Turnback Glacier picture from Anchorage Bay. Photo by Seb Coulthard

Team getting ready on the beach at the base of Turnback Glacier (left). Photo by Seb Coulthard

Ascending Turnback Glacier heading North West. Photo by Seb Coulthard

Expedition deputy leader John Howie giving instructions to the team at the crest of Turnback Glacier (Anchorage Bay and Fortuna Bay in the background). Photo by Seb Coulthard

Photograph taken in the approximate position of the Fortuna Glacier helicopter crash site. Beautiful weather, plenty of sunshine and wind. Photo by Seb Coulthard.

Seb leading a rope team across the transition line between Turnback and Fortuna Glacier. Photo by Ed Murphy.

View looking South-East down Turnback Glacier, towards Breakwind Ridge (right) and Anchorage Bay (left). Photo by Seb Coulthard

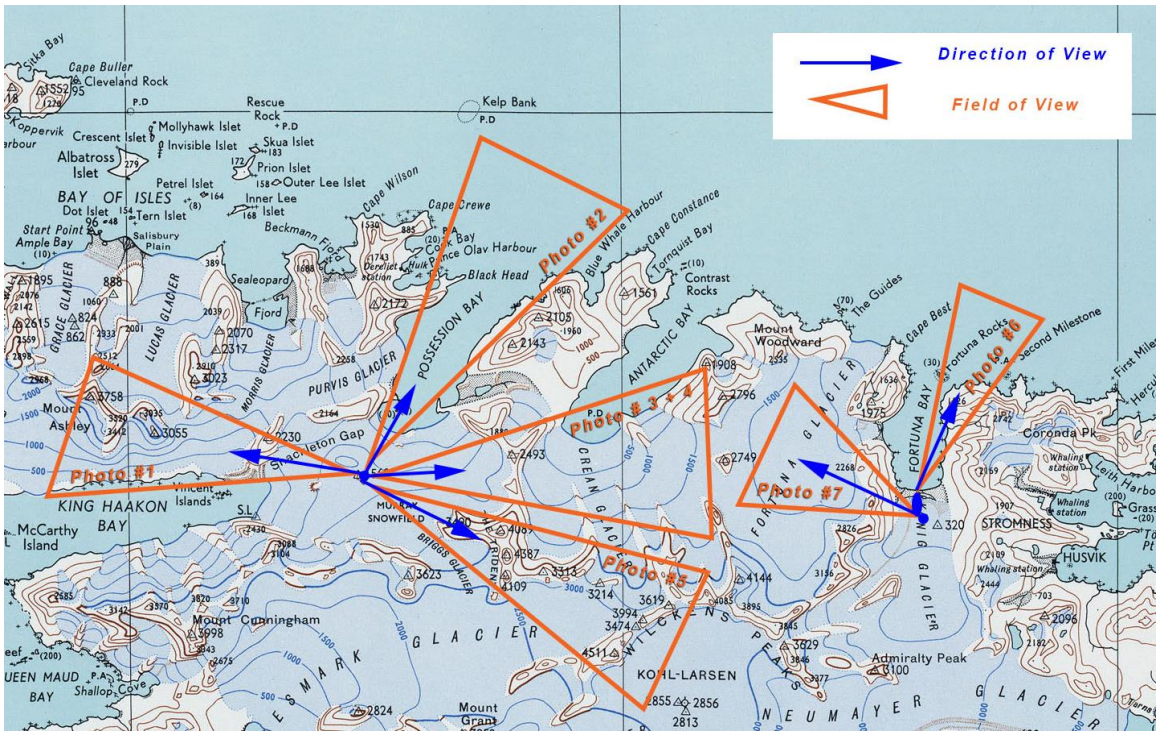
View looking West from middle of Fortuna Bay towards Breakwind Ridge (left) and Turnback Glacier (right). Photo by Seb Coulthard.

View looking South towards the head of Fortuna Bay, the König Glacier has receded to a new position approximately 2.4 kilometers inland. Photo by Seb Coulthard.

The second objective of the expedition was partially achieved as a result of a subsequent visit to South Georgia undertaken in my role as an IAATO field guide with Polar Latitudes on 9 December 2016. With support from *MS Hebridean Sky*, I managed to trek inland from the landing beach at Whistle Cove (Fortuna Bay) towards an expansive line of terminal moraine which lies across the Fortuna Glacier outwash plain.

An original Duncan Carse survey photograph taken in October 1956 captures two men hauling a wooden sled up the slope of the König Glacier at a point approximately 350-400 meters from the beachfront of Fortuna Bay. I positioned myself as close to this point as possible (terrain, wildlife and time permitting) to capture the same image. Upon visual assessment, the König Glacier appears to lie approximately 2.4 kilometers inland from the original 1956 position.

Dr John Shears and I had intended to carry out a comparison of seven original Duncan Carse images during the overland crossing. I was successful in reproducing Photo No.6 (see below):



Scott Polar Research Institute (SPRI) Picture Library catalogue reference numbers:

Photo #1. P54/19/A25/22. The country between Camp 10 and King Haakon Bay taken from the ridge north of the Camp
Photo #2. P54/19/A27/10. Possession Bay and Black Head from Trig station overlooking 'Murray Snowfield'
Photo #3. P54/19/A27/13. Carse looking over the Murray Snowfield
Photo #4. P54/19/A27/17.Smillie looking at the country north-east of trig station overlooking the 'Murray Snowfield'
Photo #5. P54/19/A27/19.Panorama from the trig station overlooking the 'Murray Snowfield' looking east (The Trident)
Photo #6. P54/19/A22/14.Carrying and pulling stores up the König Glacier (*see page 12*)
Photo #7. P52/26/6/2. Breakwind Rock & Fortuna

Fortuna Bay photograph by Duncan Carse, October, 1956.
© Scott Polar Research Institute (SPRI) Picture Library
Catalogue ref. no. P54/19/A22/014

Fortuna Bay photograph by Seb Coulthard, December 2016

König Glacier photographed by Seb Coulthard approx. 2.4 kilometers inland from original 1956 survey position.

The expedition team visited the following South Georgia locations as part of a permitted IAATO expedition cruise ship schedule aboard *MS Hebridean Sky*:

08 Nov	Salsbury Plain	08:00 – 12:30	54°03'S / 037°19'W
	Prion Island	4:00 – 18:00	54°02'S / 037°15'W
09 Nov	Jason Harbour	09:00 – 11:30	54°12'S / 026°35'W
	Grytviken	13:45 - 19:45	54°12'S / 036°29'W
10 Nov	Fortuna Bay	06:00 – 12:40	54°09'S / 036°48'W
	Stromness	16:30 – 19:00	54°10'S / 036°42'W
11 Nov	Moltke Harbour	06:00 – 08:40	54°31'S / 036°04'W
	Drygalski Fjord	12:00 – 13:30	54°50'S / 035°59'W
	Larsen Harbour	16:00 – 19:00	54°50'S / 035°59'W

4. SAFETY PLAN

The expedition planned to work in three groups (rope teams) dividing experience evenly between the teams. Critical Decision Points (CDP) were forced upon the team leaders by weather conditions prior to arrival in King Haakon Bay.

All glaciers and snowfields on the route were monitored thanks to satellite communication with other expeditions which had completed crossings of the island earlier in the season. I would like to officially express my gratitude to Kevin Nicholas of Lindblad Expeditions, *National Geographic Orion,* and Caradoc Jones of the *South Georgia Centenary Traverse 1916-2016 with Tom Crean's Family* for sharing invaluable information prior to my arrival on the island. Both Kevin and Caradoc kindly supplied me with up-to-date gen on safe routes across The Trident and Crean/Fortuna Glacier. I cannot stress enough how important it is for future expeditions to collaborate in this

manner in order to build the best possible picture of conditions underfoot prior to landing on South Georgia. Having an understanding of alternative escape routes, roping and rescue techniques utilised during a time of need are nuggets of mountaineering gold! Post expedition reports from previous season expeditions were also consulted using the GSGSSI website.

Escape Routes were planned and colour coded throughout the route across South Georgia. These escape routes were explained in detail to the team before and after embarkation. All expedition team members were briefed well in advance of the land crossing using an expedition 'members only' website and social get-togethers.

The following escape routes were planned using the mapping references below:

a. **Escape Route Blue** – King Haakon Bay to Murray Snowfield. Any problems or injuries during this part of the crossing will see the teams move back to the original drop off point at Peggotty Bluff.

b. **Escape Route Red** – Murray Snowfield to 37° West on Crean Glacier (Antarctic Bay). Any problems or injuries during this part of the crossing will see the teams move to Possession Bay where the expedition support vessell will pick up.

c. **Escape Route Green** – 37° West (Antarctic Bay) to Shackleton Valley. Any problems or injuries during this part of the crossing will see the teams move to Fortuna Bay where expedition support vessell will be waiting.

d. **Escape Route Yellow** – Shackleton Valley to Stromness. Depending on where problem or injury occurs, the team will either return to Fortuna Bay or continue on to Stromness. Expedition support vessel will reposition as required.

Mapping References

a. Google Earth: 54°17′S 36°30′W (King Edward Point)
b. BAS (Misc) 12A and 12B Scale 1:200,000
c. South Georgia GIS http://add.antarctica.ac.uk/home/sggis
d. UKHO Admiralty Chart No. 3597 and 3586
e. Falkland Island Dependencies (South Georgia Chart) 1:200,000 D.O.S. 610

Training

Prior to departing the UK, seven expedition team members went through a 3½ day training package in the French Alps (23-27 September 2016). Three expedition team members residing in the USA underwent training on Mt Adams (alternative: Mt Baker), Washington State (USA) in mid-July and early October 2016.

Having attempted a crossing of the island twice over the years, I would suggest the following training package for any other future expedition teams:

a. Familiarisation of terrain using previous post-expedition reports, photographs,
a. documentary films and maps.
b. How to pack lightweight rucksacks for glacial and mountain travel

c. How to use Iridium satellite communications and Yellowbrick / Delorme InReach live-tracking equipment
d. Practical avalanche avoidance, rescue techniques and equipment.
e. Crampon and ice axe techniques including self-arrest.
f. Glacier movement to include roping techniques and crevasse rescue (assisted hoist, self-rescue and an unconscious/injured person)
g. Climbing and descending very steep terrain on rock, ice and snow (confidence at height, snow/ice anchors and bucket seat belays)
h. Lost and separated procedures for groups and individuals
i. Casualty evacuation techniques using 'Brooks-Range' eskimo rescue sled or adapted man-hauling pulks
j. Survival shelters in case of emergency.
k. Camp craft to include tent administration, cooking and toilet routine.
l. Medicine in Remote Areas (MIRA).
m. Map and compass navigation in all conditions (with GPS as an aid to navigation).

5. ENVIRONMENTAL PLAN

All members of the expedition were briefed and instructed to read both the *Code of Conduct Whilst Ashore* and the *Wildlife Protection Guidelines* as outlined in *Information for Visitors to South Georgia 2016-2017* and the legislation laid down in *Wildlife and Protected Areas Ordinance (2011 Amdt 2013)*.

The adopted the following procedures:

a. Maintain a safe distance from all mammals and birds at all times to prevent disturbance; taking extreme care whilst moving through any areas of Tussac grass or other areas where it may be possible to inadvertently stumble on wildlife, in particular fur seals and hidden nesting birds
b. No animals will be given any of the expedition's food or food scraps.
c. The expedition will not import any animals or plants of any kind.
d. Zodiacs and support vessels will move in a way that will not disturb wildlife.
e. Seals and penguins within breeding colonies will not be disturbed by our presence, especially in order to affect a landing of any kind.
f. Should the expedition come across any wildlife, we will approach and pass in a slow, controlled manner in order to prevent stress or jeopardising the bond between parent and offspring. There will never be attempts to touch any wildlife.

All buildings and artefacts of historical value will not be touched, entered or tampered with in anyway. If unsure, seek advice from an IAATO certified field guide or South Georgia authorities. The expedition will be very clear about all of its movements on South Georgia.

Biosecurity Plan

The SG Biosecurity Protocols 2016 document was read and strictly adhered to by all expedition members. The expedition was fully aware of the importance of biosecurity on

SG and was fully-committed to ensuring the expedition did not in any way compromise the preventative work already done.

a. No animals, plants or seeds, or soil of any kind were brought ashore onto SG. A thorough search of each individual as well as their personal equipment was conducted at point of embarkation. The team used boot washing Biocide (Virkon S) aboard the support vessel to ensure all footwear and rucksack butts were thoroughly clean on arrival to SG.

b. No fresh meat, poultry, vegetables, fruit or unpasteurised dairy products were among the rations used ashore by the expedition team at any time.

c. All clothing was thoroughly inspected prior to all landings on SG and any signs of soil, seeds or other organic material were removed. Particular attention was paid to Velcro, footwear, gaiters, turn-ups in trousers, hoods in jackets, crampons, snowshoes, walking poles.

d. All baggage/equipment packs etc. were also thoroughly inspected paying particular attention to seams and pockets. All packs were turned completely cleaned with Biocide.

e. Seb Coulthard, John Howie and Dr John Shears were responsible for ensuring all the above biosecurity checks were carried out by the expedition with assistance from Polar Latitudes staff onboard *MS Hebridean Sky.* Self-audit checks were done in accordance with SG guidelines.

f. All solid refuse and any excess food were kept with the expedition team at all times. There was NO discarding of any waste whatsoever on SG. Every team member was issued with Disposa-John WAG bags in order to collect solid human waste. The team had plans to dig latrines in snow during the crossing away from all wildlife habitation and marked by a flagged pole. Upon breaking camp, urinals would be buried and covered with snow. The expedition team were planning to dispose of all human waste via the support vessel using the process and methods laid down in its own permit application.

g. The expedition did not plan to have any long-term campsite whilst on SG. All stops had been planned to carefully minimise the impact of cooking on the environment by using thermal flasks to store hot water for subsequent rewarming/boiling.

6. EXPEDITION APPLICATION AND PROCESSING

As expedition leader, I felt reassured that my plans were thoroughly checked by a team of very experienced mountaineers, professional mariners and government officials. The right questions were being asked and I felt as if my ‘best laid out plan’ was being tested. This is great, it is exactly what should happen to every expedition heading to such a remote area. I don’t have recommendations to improve the process, only praise for the excellent job being carried out by the Government of South Georgia and South Sandwich Islands. BZ in Royal Navy Jackspeak.

7. SUMMARY

Overall, the weather gods were not on our side. This is the second time I have personally being thwarted by this island. However, I remain inspired by Shackleton *"Never for me the lowered banner, never the last endeavour"*. South Georgia is notorious for its rapidly changing weather conditions and surrounding sea state. You may think you have the best Plan A, but in reality, any expedition leaders needs to accept that there is a strong likelihood that Plan A will not got to plan! You need to have those escape routes plotted on your chart, and make sure you are equipped to use them. Adapt and overcome where it is safe to do so. Make sure you are on top of the weather! Weather, Weather, Weather!

This expedition succeeded in implementing a heavily modified Plan B, an ascent of the Fortuna Glacier from Fortuna Bay and a visit to Stromness Whaling Station. Some members of the team went on to visit Shackleton's Waterfall as part of a separate IAATO guided day-excursion.

My sincere thanks to the expedition team for their motivation, patience and skill in adapting to rapidly changing plans. I would also like to express my gratitude to Ice Tracks Expeditions, Polar Latitudes and the ships company aboard *MS Hebridean Sky* for their invaluable support, enthusiasm and can-do attitude.

Seb Coulthard, Shackleton Legacy Ltd, 2016

Polar Latitudes IAATO field guide Bob Gilmore dressed in 1916 Shackleton expedition clothing at Stromness Whaling Station.

Photo by Dean Tatooles