

## SNAPSHOT

## In the spirit of Scott

Dangling by rope into an icy abyss is the stuff of nightmares, but Major Phil Carotte actually threw himself into this crevasse as part of essential training for a voyage to the remotest region on Earth. Carotte and 23 other members of Britain's armed forces are mounting a two-month-long expedition to Antarctica in January, which will see them crossing terrain deemed too dangerous for scientists of the British Antarctic Survey, climbing uncharted mountains and carrying out data measurements for climate scientists thousands of kilometres away.

In this photo, Carotte and the team are on the Moiry Glacier of Valais in the Swiss Alps, preparing for one of the biggest risks they will face on the Antarctic Peninsula when they traverse the Murphy Glacier and the Larsen Ice Shelf: falling into a crevasse. The teams will cross the most risky terrain in 'ropes' of four people tied together. If the first person falls into a crevasse, then the three people behind immediately drop to the ground and dig in with their ice axes and crampons (or skis and poles). These three will then secure themselves in position using ice screws. One of them will then untie from the rope system and produce

another rope to use in conjunction with some other equipment, such as carabiners and ropemen, to form a pulley system with which they will recover their colleague from the crevasse.

The British Services Antarctic Expedition will sail on *Australis*, a 75-foot yacht, from Puerto Williams, south of Punta Arenas in Chile, and cross the Drake Passage to arrive on the Loubet Coast of Antarctica on 4 January 2012. From there, the expedition — which commemorates the centenary of Robert Falcon Scott's ill-fated expedition to the South Pole — will split into three teams of eight servicemen to explore the peninsula, returning to base camp on 26 February. Much of the area is uncharted and so the team do not have an accurate picture of where the crevasses are, but they are known — from dog-sled forays made some decades ago — to be extremely large. The most dangerous crevasses will be the unseen ones that are hidden by weak ice bridges.

Surgeon Rear Admiral Lionel Jarvis, who is the science patron of the expedition, explains that the servicemen will be travelling "in the spirit of Scott," whose original expedition was made considerably harder by the team's dedication to carrying out scientific

fieldwork. The 2012 military explorers will be able to reach places too remote and perilous for civilian scientists, he says, allowing them to provide data about this rapidly warming region for climate scientists to analyse at institutions including University College London and Newcastle University.

At strategic sites, the team will manually drill ten metres down into the ice for temperature measurements and bring back core samples. They will fix two GPS units at certain rocky outcrops in the glaciers to determine how much the Antarctic crust is moving, so that the volume of ice being lost from the glaciers can be better calculated now and for the past. During the expedition, equipment will be worn by the team to record ultraviolet radiation penetration during the various weather conditions and altitudes they experience, to gather more information about the ozone effects there.

Before the team set off into the interior, they will carry out measurements from the *Australis* on conductivity, temperature and depth of the water off the Loubet Coast, to determine to what degree the relatively warm Upper Circumpolar Deep Water is undercutting the ice on the western side of the peninsula. Sea ice, and the algae living on its underside, plus sediment samples will also be collected so that the past and present levels of sea-ice cover can be investigated.

The expedition will be tough on mind and body — each participant will have to haul all the scientific and personal equipment they need on sleds (dogs are banned on the continent) in temperatures that commonly dip to  $-50^{\circ}\text{C}$ . Rear Admiral Jarvis says that 126 service personnel originally signed up to the expedition, and the number has now been whittled down to 24 hardy individuals of which the youngest is just 22 years old. "Knowing that they are contributing to a legacy of scientific exploration is enormously inspirational for them," he says.

You can follow the expedition online at <http://bsae2012.co.uk/>.



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