

Dr Alexander
Kumar at the
Concordia Base
in Antarctica





ICE COLD *with Alex*

Could we exist on Mars?
Derbyshire's Dr Alexander
Kumar is spending a year in
Antarctica finding out. Mike
Smith speaks to him via
satellite phone...

A featureless plateau stretches as far as the eye can see; the altitude is the equivalent of 3,800 metres above sea-level; the temperature can drop below -80°C in winter and rarely rises above -25°C in summer; there is total 24-hour darkness for nearly four months of the year; and the nearest human settlement is 350 miles away. These are the conditions at the Concordia base in Antarctica, where Derbyshire-born Dr Alexander Kumar is spending a year of his life.

When Alex spoke to me by satellite phone from the base, the long period of total darkness was already six weeks old and the temperature had been dropping day by day or, to be more precise, night by night. Asked to sum up the conditions he is enduring with twelve other members of a multinational crew on the isolated research station, he said, 'Living in the Antarctic winter is like floating in time and space. We may as well be living on Mars.'

In fact, the surroundings of the Concordia station are as good a simulation of the conditions that would be faced by future astronauts on the surface of Mars as it is possible to achieve on earth and are the very reason for Alex's presence as the only Englishman on a base that was



Above: The tent in which Alex and two colleagues spent the night at -75°C to commemorate Scott's last diary entry

Right: The last sunset marking the beginning of winter

established in 2003 as a joint venture between the French Polar Institute and the Italian Antarctic Programme. While his colleagues conduct experiments in astronomy, glaciology, meteorology and seismology, Alex is carrying out research for the European Space Agency into the likelihood of humans being able to withstand some of the physiological and psychological stresses they would have to endure during a manned mission to the red planet.

Just three weeks before the last plane was due to fly away and leave the Antarctica station in isolation, Alex was asked to take on an additional role. Prior to asking him about this extra task, which is likely to test his skill and training to the limit, I wanted to delve into the background of this intrepid 29-year-old, who has chosen to leave behind his partner, Dr Kathy Duong, and his Siberian husky puppy, Mishi-Bear, while he spends a year in the coldest and remotest region on earth.

Alex told me that he had been brought up in Whaley Bridge by his Indian father and English mother, both of whom are retired professors and specialists in cancer



Left: Dr Kumar at work as the research and medical Doctor at Concordia

research. He said, 'My parents instilled into myself and my three siblings a great love of art and science. My sister is a painter, one brother is a film-maker and my other brother is a consultant medical doctor. After enjoying my time at the local primary school in Whaley Bridge and then attending Stockport Grammar School, I realised that my inherited ability lay in science, which became a means of satisfying my curiosity about the world and would lead me to make explorations in various parts of the globe.'

Explaining how he has sought to satisfy his inquisitiveness, Alex said: 'Rather than confining my studies to text books and

lecture halls, I have always tried to gain direct experience. Immediately after A-levels, I spent a year in Nepal, where I taught English, and I took time out from my medical degree in London, firstly to journey to the Arctic, where I studied the incidence of HIV in the Inuit people, and secondly to visit the Amazon jungle, where I studied the effects of snake bites. I love to travel, but I never travel without a reason or a cause. For me, the globe is an international classroom. All the world's problems have solutions – you just have to find them.'

The international theme is reflected in his family life. An Anglo-Indian himself, Alex met Kathy, who is of Vietnamese descent, in London, where the couple now

Right: Dr Kumar after taking an invigorating dip at Concordia in -65°C

Below: Table set for the Diamond Jubilee Tea Party with a photograph of the view from Eccles Pike as a reminder of Derbyshire



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have a home. Kathy is a surgeon and Alex was working as a trainee anaesthetist at the John Radcliffe Hospital in Oxford when he realised that the chance to spend a year on groundbreaking research in the Antarctic was just too good to miss.

Armed with a sense of humour, a passion for people, a medical degree, an additional qualification in International Public Health and a wealth of experience of research conducted in extreme regions, he made his application to the European Space Agency and was delighted, if a little surprised, to be accepted.

Another surprise came when he was asked, at the last minute, to take on the extra role of medical doctor at the Concordia base. Alex took a crash course

in dentistry at the McMurdo Antarctic base and was extremely grateful to be given assurances of telemedicine support by the British Antarctic Survey Medical Unit, but he knew the role would be demanding, not least because evacuation in a medical emergency would not be possible – Dr Rogozov had taken out his own appendix at one of Russia’s Antarctic bases in the 1960s. Alex said, ‘I realised that I would be carrying a great responsibility at Concordia, but I felt that my experience around the world had given me sound training.’

As the crew’s doctor, Alex has had to deal with a variety of complaints and has had to be prepared to treat ailments connected with the effects of altitude and

extreme cold, as well as stresses that result from isolation endured over a very long period. The identification of these symptoms is valuable information for his investigation into human endurance on an extended space mission, but he also makes himself the subject of his research for the European Space Agency by logging his own reaction to over-wintering in the Antarctic. He describes the self-contemplation that comes with prolonged isolation as ‘dredging the ocean depths of your mind.’

Of course, the stresses suffered by astronauts on a journey to Mars would be alleviated by the companionship of other crew members and the stimulus of team work. Alex said: ‘This is certainly the case



Above: 'Goodbye and good luck' as the last plane departs leaving the crew in complete isolation

Right: Invitation to the coldest and most remote Diamond Jubilee Tea Party on the planet

Below right: Alex indulges in his new hobby of astrophotography

at Concordia, which had already gained a high reputation for team research. For example, the recently completed multinational 'EPICA' deep-ice core-drilling project yielded 800,000 years of climate change history. Although the members of the present crew have individual research briefs, we often work together and we share our findings over dinners prepared by Giorgio Deidda, our wonderfully creative Italian chef. Stimulated by conversations about the discoveries awaiting us in the clear skies of Antarctica, I've taken up a new hobby of astrophotography, which has proved to be quite challenging as it is conducted outdoors at -70°C.'

Alex has helped maintain morale by organising some team events on special occasions. He celebrated the Queen's Diamond Jubilee by putting on a tea party for his colleagues, which included his first attempt at homemade scones and serving up cups of Fortnum and Mason's tea, given to him as a leaving present by his sister. The tea froze solid within a minute and the cups stuck to everyone's lips, but the scones remained soft long enough to eat. He decided to commemorate the



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centenary of Captain Scott's last diary entry by camping overnight in a tent outside the base with two other crew members, enduring temperatures of -75°C. When he woke up, he thought he had lost an arm to frostbite, but was relieved to find that the limb was numb because he had been sleeping on it.

The intrepid adventurer has already been offered a place as a medical doctor and scientist on an expedition which will take place in 2014 with the aim of completing plans put forward in 1914 by Shackleton for a complete crossing of the Antarctic continent. He intends to train in the Arctic, where he hopes to give his dog Mishi-Bear a chance to run with other

huskies. His current Antarctic adventures can be followed on a website designed and maintained by Mick Froggatt, who runs an IT services company in Chesterfield. When Alex is not marooned at the far ends of the earth, he makes frequent visits to his family in Derbyshire, a county that remains close to his heart. In fact, two of the things he is missing most on the dry, featureless Antarctic plateau are Derbyshire rain and the view of the High Peak hills from the summit of Eccles Pike. ■

Readers can follow Dr Alex Kumar's experiences in Antarctica on www.alexanderkumar.com