British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

PhD Studentship
BAS anticipates a studentship in the following topic in 2013
(subject to funding)

Scaling up: using remote-sensing methods to estimate regional penguin population trajectories in a changing environment

Supervisors: Phil Trathan and Peter Fretwell (BAS)
Gareth Rees (Cambridge University)

Antarctic penguin populations are believed to be threatened by predicted climatic warming, but the study of population trajectories by ground based methods has proved difficult due to the remoteness and size of penguin colonies. Recent advances in remote sensing have enabled us to locate, differentiate and count several species of Antarctic penguin. Remote sensing offers the potential of accurate, consistent, data collection on a continental scale enabling us to answer questions and test previously modelled hypotheses on population decline that have hitherto been impossible to address. New satellite sensors and platforms will expand the possibilities of research within the next three years.

The investigation and construction of new techniques and algorithms to study Antarctic penguins by remote sensing and the continuation of present high profile research into emperor penguin populations.

Using a variety of image analysis and GIS techniques to formulate, test and quantify new methods to detect, differentiate and count several species of Antarctic penguin by satellite. Additionally the project will involve the use of satellite imagery to assess sea-ice variability at breeding sites to quantify habitat suitability that could be a crucial ingredient in modelling future population changes.

The NERC PhD Studentship is linked to the British Antarctic Survey Ecosystems programme. Polar ecosystems have global ecological and economic importance. They have unique biodiversity, play a major role in climate processes, and support indigenous communities and commercial fisheries. Polar ecosystems have adapted to cold and highly seasonal conditions, making them sensitive to climate and human impacts. Recent global, climate-driven changes, combined with expanding commercial fishing, threaten the balance of these unique marine and terrestrial ecosystems. By understanding their response, we can use them as a warning system for climate change across the planet.

The *Ecosystems* programme undertakes integrated analyses of Antarctic ecosystems and develops understanding of the large-scale operation of Arctic ecosystems and the role of polar ecosystems in the Earth System.

The studentship is expected to last 3.5 years from October 2013 subject to NERC funding. Stipend for 2012/2013 was £13,590 p.a. For eligibility go to http://www.nerc.ac.uk/funding/available/postgrad/eligibility.asp

Applications for this anticipated studentship should be addressed to Dr Phil Trathan, include a covering letter, CV and the e-mail addresses of two referees and sent to basstudentoffice@bas.ac.uk Please quote reference number BASDTG/trat/3

Closing date for applications: 31st January 2013.

For further details about the British Antarctic Survey please see: http://www.antarctica.ac.uk