N E W S L E T T E R

EXPEDITIO

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Your link to the South

1997 B P Antarctic Award Winner

INSIDE

EXPEDITIO
South African National Antarctic Programme

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Prof S L Chown

Prof Steven Chown of the Department of Zoology and Entomology at the University of Pretoria is the 1997 recipient of the prestigious B P Antarctic Award, due to his outstanding contribution to sub-Antarctic research, specifically pertaining to the Prince Edward Islands.

His PhD was awarded in 1989 for research undertaken at the Prince Edward Islands. He consequently participated in the writing of the Management Plan for these Islands, and has served as the first chair and subsequent member of the Prince Edward Islands Management Committee since 1996. He represents South Africa as Secretary the Scientific Committee on Antarctic Research (SCAR) Working Group on Biology.

The award ceremony was held at the Directorate: Antarctica and Islands' Conference Room in Pretoria. The award was presented by Mr P Peterson and Ms M Maubane both from B P Southern Africa. Present also were Dr M Bester and Prof C Scholtz from the University of Pretoria, as well as Prof Chown's wife and various officials from the Department of Environmental Affairs and Tourism.

The recipient of the 1998 award will be announced early in the new year.

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Upcoming Events

·The 1998 South African Committee for Antarctic Research (SACAR) meeting was be held on 1 December 1998.
·The Council of Managers of National Antarctic Programmes (COMNAP) Executive Committee meeting will be held in Hobart, Tasmania, Australia from 7 - 11 December 1998.
·The Antarctic Management Committee (AMC) meeting will be held in January 1999.
·The 1999 Antarctic Treaty Consultative Meeting (ATCM) will be held in Lima, Peru from 24 May to 4 June 1999.
·The COMNAP meeting will be held in Goa, India in August 1999.

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Personnel Changes

Tebogo Matolong

Tebogo joined this Directorate on 3 August 1998 as a Senior Administrative Officer. He has a BSc degree and six years experience as a Mathematics teacher.

Maria Mofokeng
Maria joined this Directorate on 8 July 1998 as an Assistant Administrative Officer. She has a BSc degree and one year experience working in the Post Office.

Zaid Watson
Zaid joined this Directorate on 22 January 1998. He is a General Assistant at the Paardeneiland Store.

Olga Moitsi
Olga, who joined this Directorate as an Assistant Administrative Officer on 1 August 1997, was transferred to the Directorate: Natural Environment, Species Conservation on 2 November 1998. We wish her the best in her new post.

Jan Hattingh
Jan worked for this Directorate as a Principal Engineer from 1 September 1993 to 30 November 1998. We wish him well in his new endeavours.

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A new man at the steering wheel

Prof Patrick FitzGerald, born in Germiston in 1954, was appointed as the new Director-General for the Department of Environmental Affairs and Tourism on 10 September 1998.

He obtained his Bachelor of Arts degree from Wits University and his Masters in Public Administration and Management degree from the University of Liverpool in the United Kingdom.

He was previously a Public Service Commissioner and Chairperson of the Gauteng Provincial Service Commission, in the Gauteng Government. He has been involved in facilitating DEA&T transformation and restructuring processes.

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A giant iceberg

(Mail & Guardian 21/08/98 p.29)

A giant iceberg, bigger than the Cape Peninsula, known as Atlantic 22B, is making its way north at an estimated 5 km a day from Antarctica. This will fire scientists' dreams of mining icebergs for fresh water.

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Prince Edward Island Management Committee (PEIMC) members

Various research and monitoring projects are being undertaken in the Prince Edward Islands and these are overseen by the Prince Edward Islands Management Committee. The research is conducted by scientists from various universities who are financially supported by the Department of Environmental Affairs and Tourism. The new members of the PEIMC are:

Mr Dirk van Schalkwyk *(Chair)*
Director: Antarctica and Islands
Private Bag X 447,
PRETORIA, 0001

Mr John Cooper
Avian Demography Unit
Dept. of Statistical Sciences
University of Cape Town
RONDEBOSCH, 7701

Ms Antoinet van Wyk
Kruger National Park (Nature Conservation), Private Bag X 402,
SKUKUZA, 1350

Dr Denzil Miller
Sea Fisheries Research Institute
Private Bag X 2
ROGGE BAY, 8012

Dr Sue Jackson
Department of Physiology
Wits Medical School
7 York Road, **PARKTOWN,** 2193

Ms Funeka Nginza
S A National Parks
P O Box 787
PRETORIA, 0001

Prof Steven Chown
Dept. of Zoology and Entomology
University of Pretoria
PRETORIA, 0002

Mr Johan Loock *(ad hoc)*
National Monument's Council
University of the Orange Free State
P O Box 339
BLOEMFONTEIN, 9301

Dr Theo Wessenaar *(ad hoc)*
Dept. of Zoology and Entomology
University of Pretoria
Pretoria, 0002

Mr Corrie Jacobs *(ad hoc)*
Department of Public Works
Private Bag X 65
PRETORIA, 0001

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The National Aeronautics and Space Administration (NASA) Group Achievement Award (1998)

Prof A D M Walker and his Ground Based Investigation Team/SuperDARN and Global Geospace Science (GGS) Investigation Team were awarded the NASA Group Achievement award on 16 June 1998, in recognition of their contribution to the highly successful exploration of geospace by the Global Geospace Science programme.

Prof Walker is the head of the Department of Physics at the University of Natal (Durban). Nationally, he is a member of the Physical Sciences Task Group, the South African Committee for Antarctic Research (SACAR) and the Antarctic Management Committee (AMC). Internationally, he has served on the Scientific Committee on Antarctic Research (SCAR) since 1994, and is chair of

the SCAR Working Group on Solar-Terrestrial and Astrophysical Research (STAR) and a member of the SCAR Working Group on Physics and Chemistry of the Atmosphere (PACA).

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NEW SANAE 38 TEAM

The new team to overwinter at South Africa 's SANAE IV base in Antarctica during 1999 has been appointed and is scheduled to depart on this expedition on 3 December 1998. SANAE 38 comprises Duncan Cromarty (Leader), Ryan Earl (Mechanical Engineer), André Botha and James Kwalepe (Diesel Mechanics), Karel Koster (Electronic Engineer), Mike Cromhout (Electrical Engineer), Daniel Malan, Conrad Mahlase and Fanus Olivier (Physicists), Ernest Buitendag (Medical Doctor).

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IN MEMORY OF

Mr Gordon Cox *(28/10/1950-28/09/1998)*

Mr Gordon Cox of the Logistics Section of the Directorate: Antarctica and Islands' Cape Town Office passed away on 28 September 1998 after along illness. He was in service of the Department for over 20 years and will always be remembered for his hard work and dedication in the performance of his duties on behalf of the South African National Antarctic Programme, and his enthusiasm, sense of humour and zest for life will greatly be missed by us all.

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SOUTH AFRICANS ELECTED TO ANTARCTIC POLICY BODIES

At the XXV Scientific Committee for Antarctic Research (SCAR) Meeting held in Concepcion, Chile from 20 to 31 July 1998, Prof A D M Walker *(see NASA award)* was selected to serve as Vice President of SCAR and Prof S L Chown *(see B P award)* re-elected as Secretary of its Working Group on Biology.

Mr Dirk van Schalkwyk (Director: Antarctica and Island) was elected as Vice President of Council of Managers for National Antarctic Programmes (COMNAP) which meets simultaneously with SCAR.

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South Pole Wanders From The Straight And Narrow

The South Pole is not where it should be. At least not according rumours circulating in Antarctica. Like many rumours, this one has a germ of truth. The Pole has moved. But in fact, it is now in its proper place, after years of marking the wrong spot.

America's South Pole Station has two poles. One, the "ceremonial pole" is not the pole at all, just a nice spot to take official photographs. It features a metal ball surrounded by the flags of all the nations that have signed the Antarctic Treaty.

The second pole, just a few metres away, is the "true" geographic pole, featuring a series of markers placed each year by the US Geological Survey. Because the overlying ice sheet moves at about 10 metres a year, carrying the marker with it, the pole has to be staked out anew each year.

The annual markers march off into the distance in a nice straight line and about 10 metres apart. At least, they did until two years ago. The markers for 1995 and 1996 are parallel to the earlier ones but offset to one side. If you did not know better you would probably assume that the ice sheet had lurched in a different direction and then resumed its original course.

Gordon Shupe of the USGS says this is not the case. " The ice flow is quite uniform," he says. The explanation lies in a change in the way the pole was located. In the past, the USGS took the previous year's marker as the starting point and paced out 10 metres to account the movement of the ice. But in 1995, it used the Global Positioning System - the satellite-based navigation system - to pinpoint the pole's exact position.

Shupe - who flew to the pole especially to determine its position - says that the GPS estimate is accurate to within 1 metre. The location pinpointed is just a few tens of centimetres off to one side of the line of markers. "Its not a big change," says Shupe. " We presume that the new measurement is more accurate, so we yanked it in to where it should be."

Officials at the US National Science Foundation, which runs the South Pole Station, say they are confident in Shupe's measurements.

Kiernan, V. 1996. South Pole wanders from the straight and narrow. *New Scientist*, 149 (2016), 10.

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Did Antarctic explorers starve to death ?

CAPTAIN Robert Scott and the members of his ill-fated expedition to the South Pole in 1912 are generally thought to have died of vitamin deficiency. But dietary data collected by the explorers Mike Stroud and Ranulph Fiennes during a trek across the South Pole suggest that Scott and his companions actually died of starvation.

Stroud described how he and Fiennes set out in November 1992 to cross Antarctica on foot in temperatures as low as -50°C. Each pulled a sledge carrying enough food

to provide them with 5500 calories a day - more than twice the intake of a normal adult - for 100 days. But Stroud, of the Defence Research Agency's Centre for Human Sciences in Farnborough, anticipated that even with this high intake they would still lose weight, probably up to 10 kilograms each. In fact Fiennes lost 25 and Stroud lost 22 kilograms. When their energy expenditure reached its maximum each man was burning up about 11 000 calories per day. "Our [energy] deficit was more than running a marathon a day and not eating," said Stroud.

Comparing his data from blood and urine analyses with data from the 1912 expedition, Stroud suggested that Scott's daily energy intake of 4 300 calories was nowhere near enough. Scott and his companions would have lost between 30 and 40 kilograms during the expedition, said Stroud, and they probably starved to death. More-over, Stroud and Fiennes diet contained 57 per cent fat, which provides more calories per gram than any other food, minimising the burden they had to drag. Scott's rations contained a much higher proportion of protein, so they had to carry more to provide a given amount of energy.

Stroud said that although his data are limited - with only two of them on the journey - the figures he gathered on energy intake, output and balance are unusually accurate. The rations were fixed and there was time to make detailed measurements of work output.

Blood samples taken by Stroud and Fiennes during the expedition showed blood glucose levels so low at times that they should have been either unconscious or dying. Yet the two explorers kept going. Stroud concludes that they were metabolising ketones, products of fat breakdown that are used as fuel by hibernating animals.

Despite eating relatively large amounts of butter, the men's total cholesterol levels did not change. There was an increase in the HDL form of cholesterol, which is beneficial, but a decrease in the harmful LDL form. According to Stroud, this suggests that prolonged exercise can compensate for a diet high in saturated fat.

Biopsies taken before and after the journey showed that despite three months of hard daily exercise the men's muscles grew less efficient at carrying oxygen. Once they became malnourished, said Stroud, muscle tissue was broken down and burnt to provide energy for survival.

Spinney, L. 1996. Did Antarctic explorers starve to death? *New Scientist*, **147 (1996).**

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Does old moss tell tale of distant Antarctic summers?

A bed of ancient moss discovered high in Antarctica's Transantarctic Mountains by two American geologists may help to end a heated debate over whether Antarctica was relatively warm just three million years ago. The unfossilised moss was discovered by David Harwood of the university of Nebraska-Lincoln and Peter Webb of Ohio State University.

The researchers had previously discovered twigs and leaves at the same site, which they estimated to be 3 million years old. They insist that the East Antarctic ice sheet must have retreated for a time, leaving a climate suitable for trees.

Other scientists disagree with the way Harwood and Webb dated the deposit. They based their date on the presence of certain types of microscopic algae called diatoms that existed only between 2,5 and 3,1 million years ago. Their critics say that the ice sheet has stayed pretty much the same for the past 14 million years or so, and that the leaves and other materials Harwood and Webb have are much older than they think. They suggested that the diatoms were blown to the site long after the leaves fell.

"The big question here is whether we've got the age right," says Webb. The moss may answer the question, because the moss bed would have been home to many creatures that could be precisely dated.

The moss needs a summer temperature of at least 5°C for three months, so its existence tells us something about the climate at the time it grew. Webb thinks that the vegetation probably resembled that in the fjordlands of southern Chile. "What we're really saying is that there was Patagonian-type climate here 3 million years ago."

The two scientists are unlikely to win over their critics easily. Harold Borns, a glacial geologist at the University of Maine and one of the chief critics of their use of diatom dating, says that there is no evidence that the rest of Antarctica or the surrounding ocean was warm 3 million years ago. "I don't believe for a minute that it was a warming time," he says.

Kiernan, V. 1996. Does old moss tell tale of distant Antarctic summers? *New Scientist*, **149 (2020), 6.**

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Forthcoming Publications

A new booklet on the Prince Edward Islands, which is presently with the Department's Communication Section, is to be published in the near future, and the Environmental Impact Assessment (EIA) on Tourism to Marion Island will be published early in the new year.

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SANAP
VOYAGE SCHEDULE
1999 / 2000

VOYAGE NO / VESSEL	DESTINATION	ETD CAPE TOWN	ETA BASE	ETD BASE	ETA CAPE TOWN	VOYAGE DURATION	REMARKS
91 / mv SA Agulhas	Marion Island	1/4/99	6/4/99	1/5/99	6/5/99	36 Days	
* 92 / mv SA Agulhas	Tristan da Cunha	2/9/99	7/9/99	9/9/99			
	Gough Island		10/9/99	13/9/99			
	Buoy deployment		14/9/99	26/9/99			12 day buoy deployment window
	Gough Island		27/9/99	29/9/99			
	Tristan da Cunha		30/9/99	2/10/99	7/10/99	36 Days	
# 93 / mv SA Agulhas	SANAE	26/11/99	9/12/99	18/12/99	4/1/2000	39 Days	Buoy deployment en route SANAE to Cape Town
# 94 / mv SA Agulhas	SANAE	26/1/2000	6/2/2000	13/2/2000	23/2/2000	28 Days	

otes :
- *S A Agulhas dry-docking scheduled for June / July.*
- *All departure times from Cape Town will be 14:00.*
- *All schedules subject to change. Final confirmation will be provided with "SACAR 3 Voyage Participation Details" requests.*
- ** Pending approval from British Authorities.*
- *# To be confirmed, pending possible collaborative ventures.*

"That's it, sir . . . we've eaten the last of the geologists!"

SEASONS GREETINGS !

The Director and staff of Antarctica and Islands wish everyone a merry Christmas and a prosperous 1999 !

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Editorial Comment

As you may have heard, *Expeditio* has undergone a face lift and this is the first edition in the new format. Accordingly, suggestions from all interested parties are welcome.

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