

# GeoReach

Newsletter from the  
SCAR Geoscience Standing Scientific Group



Volume 3, Number 1

March 2004

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### From the CO's Desk

No news received from the Chief Officer for this edition

### GIG News

#### Composite Gazetteer of Antarctica (CGA)

The [CGA web](#) site is being updated quarterly in order to include new names, amendments and new definitions for existing names.

The last updating will be released on the web on 1 April 2004.

The work on the names database proceeds towards a new publication to be released at the SCAR Open Science Conference (Bremen, July 2004).

The publication, to be printed with SCAR's funding, is very comprehensive and supersedes any other updating after March 1998.

The most recent acquisitions to the Gazetteer include the names (1855 names in total) of the "Diccionario de Nombres Geográficos de la Costa de Chile", 2nd Edición, a publication on paper and digital form which is expected to bring into the CGA 401 new records (new features and several corrections) plus the descriptions for all the new and old features.

Another important injection of new information comes from the US where the relevant Committee, US-ACAN, has met recently approving 264 names of features submitted after the ACAN's last meeting in 2002.

[Thanks to Roberto Cervellati, PNRA, Italy, for providing this information]

#### Australian Antarctic Data Centre Web Feature Server Implementation

The Australian Antarctic Data Centre is implementing the open source GeoServer Web Feature Server (WFS: [geoserver.sourceforge.net](http://geoserver.sourceforge.net)) to provide Australian Antarctic GIS data to the

Geoscience Standing Group's Cybercartographic Atlas project  
([www.geoscience.scar.org/geog/geog.htm#cyber](http://www.geoscience.scar.org/geog/geog.htm#cyber))

The Web Feature Server provides access the Data Centre's Antarctic GIS data (stored in an Oracle Spatial database) using the Open GIS Consortium's specification for Web Feature Servers ([www.opengis.org/](http://www.opengis.org/)). The OGC specification is the foundation for web services that facilitate the sharing of GIS data through the XML variant called Geographic Markup Language (GML). By using a web browser (or a WFS client), a GIS layer (feature) can be delivered using GML.

The AADC has implemented a WFS administration utility that allows the addition of GIS layers to the WFS via a web-based interface linked to the Feature Catalogue developed within the Geographic Information Group. The AADC's full implementation will be able to be exported to any country also wanting to use the WFS standard to deliver GIS data.

[Thanks to Lee Belbin, AADC, for this article]

#### **Antarctic Digital Database Version 4.1**

There have been a few changes to one of GSSG's flagship geographic information products. The following may be of interest to you:

- Substantial improvements to rock layer in tiles SP19\_20, SP21\_22, SQ19\_20, SQ21\_22 and SR19\_20.
- New traverse and elevation data from Australia, China and Italy.
- Corrections to contour data in tiles SP19\_20, SP21\_22, SQ19\_20, SQ21\_22 and SR19\_20.
- Layers with no data are no longer returned (previous versions included some export files containing no features).

The ADD has acquired a new website as well – have a look at it and the improved dataset at - [www.add.scar.org](http://www.add.scar.org)

#### **Cybercartographic Atlas news**

Researchers at the Cybercartographic Atlas of Antarctica Project (CAAP) (see [www.carleton.ca/gcrc/caap](http://www.carleton.ca/gcrc/caap)) are working with a number of Antarctic research organizations to establish a network of geographic information servers (see earlier article in this edition about AADC web server implementation).

Initial prototypes currently under development provide users a portal useful for identifying, viewing and in some cases downloading data from a variety of International sources. For more demanding applications, the site will direct users to other on-line resources developed by organizations managing geographic information on Antarctica.

Using the data available through the portal, the research team is concurrently developing a number of thematic content modules including:

- Ice-sheet Margin Changes in Antarctica;
- The Effects of Global Environmental Change on Southern Ocean Ecosystems; and
- The Antarctic Treaty System.

A team of researchers from a number of disciplines (e.g. Cognitive Science) will evaluate the content modules for effectiveness and usability. This process is already underway with a group of high school aged science students.

[Thanks to Peter Pulsifer, Carleton University, for this article]

#### **ANTEC News**

No information received for this newsletter – Dr Terry Wilson is currently on field work in the Ross Sea.

#### **AGEANT News**

No information received for this newsletter.

#### **ACE News**

ACE held a session at the Fall AGU (10 December 2003) entitled "Evolution of the Antarctic Climate System: Modelling and Observation", convened by Tony Payne, David Pollard, Martin Siegert and Rob DeConto (in absentia).

The session covered a full day and included posters in the morning and talks in the afternoon.

The ACE proposal to SCAR, to be formed as a Scientific Research Programme, was submitted prior to the AGU meeting. It is hoped that ACE will begin its science programme on 1 January 2005.

More information can be found at:

[www.agu.org/cgi-bin/SFgate/SFgate?&listenv=table&multiple=1&range=1&directget=1&application=fm03&database=%2Fdata%2Fepubs%2Fwais%2Findexes%2Ffm03%2Ffm03&maxhits=200&="PP31C"](http://www.agu.org/cgi-bin/SFgate/SFgate?&listenv=table&multiple=1&range=1&directget=1&application=fm03&database=%2Fdata%2Fepubs%2Fwais%2Findexes%2Ffm03%2Ffm03&maxhits=200&=)

and

[www.agu.org/cgi-bin/SFgate/SFgate?&listenv=table&multiple=1&range=1&directget=1&application=fm03&database=%2Fdata%2Fepubs%2Fwais%2Findexes%2Ffm03%2Ffm03&maxhits=200&="PP32D"](http://www.agu.org/cgi-bin/SFgate/SFgate?&listenv=table&multiple=1&range=1&directget=1&application=fm03&database=%2Fdata%2Fepubs%2Fwais%2Findexes%2Ffm03%2Ffm03&maxhits=200&=)

plus the ACE website at [www.ace.scar.org](http://www.ace.scar.org) which has the full proposal available for download.

[Thanks to Martin Siegert, Bristol University, for this article]

### **ADMAP News**

No news for this edition.

### **Permafrost News**

No information received for this newsletter.

### **Other News**

#### **SCAR Executive Director appointed**

The SCAR Executive Committee is pleased to announce that Dr Colin P Summerhayes has been appointed Executive Director of SCAR. He will be working with SCAR from 1 January 2004 and will take up the appointment full-time at the SCAR Secretariat on 1 April 2004.

Dr Colin Summerhayes is an oceanographer and geologist. He comes to SCAR from UNESCO's Intergovernmental Oceanographic Commission, in Paris, where he has served since May 1997 as the Director of the Global Ocean Observing System (GOOS) Project Office, and as the IOC Secretariat lead for the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology. Dr Summerhayes' career includes spells in academia, government and industry in several countries. Prior to joining UNESCO he was Deputy Director of the Southampton Oceanography Centre (1995-97), Director of the UK's Institute of Oceanographic Sciences Deacon Laboratory, Wormley (1988-95), and a Senior Research Specialist at the BP Research Centre (1982-88), where he was also Manager of the Stratigraphy Branch of the Exploration Division.

In his earlier career he has been a Research Specialist and Project Leader in Petroleum Geochemistry in Basin Analysis for Exxon Production Research in Houston, an Assistant Scientist at Woods Hole Oceanographic Institution, Massachusetts, a researcher at the University of Cape Town, and a marine geologist for the New Zealand Oceanographic Institute.

While in New Zealand Dr Summerhayes carried out marine geological research on the New Zealand Sub-Antarctic and the Macquarie-Balleny Ridge. He is an expert in the oceanography, geology and climatic history of continental margin upwelling systems and their associated mineral deposits, and has used his expertise on that topic to devise models for petroleum source rock exploration in basins in America, Europe, Asia and Australasia. He has been much involved in deep-ocean drilling. He maintains a strong interest in seabirds and has published several papers on their distribution in the southern hemisphere.

Dr Summerhayes has published around 180 research papers and articles, co-edited 7 books, and produced 120 reports for government and industry. His most recent book (by Island Press, August 2002) is "Oceans 2020: Science, Trends and the Challenge of Sustainability", co-edited with John Field and Gotthilf Hempel. Dr Summerhayes holds a BSc degree in Geology from University College London, a PhD degree in Applied Geochemistry from Imperial College, and MSc and DSc degrees in Marine Geology from Victoria University, Wellington NZ. He is a Chartered Geologist and Chartered Marine Scientist. He has served on many national and international scientific management committees, including a stint on the Scientific Steering Group for the Scott Polar Research Institute (1988-97), and was Chair of the SCOR Working Group on Improved Global Bathymetry from 1996-2002. Currently he is the Editor in Chief of the Journal of Marine Science and the Environment, published by the Institute of Marine Engineering, Science and Technology. In 1996 he won the President's Award of the Society for Underwater Technology for his contributions to marine geology, ocean science and technology.

#### **ICESat**

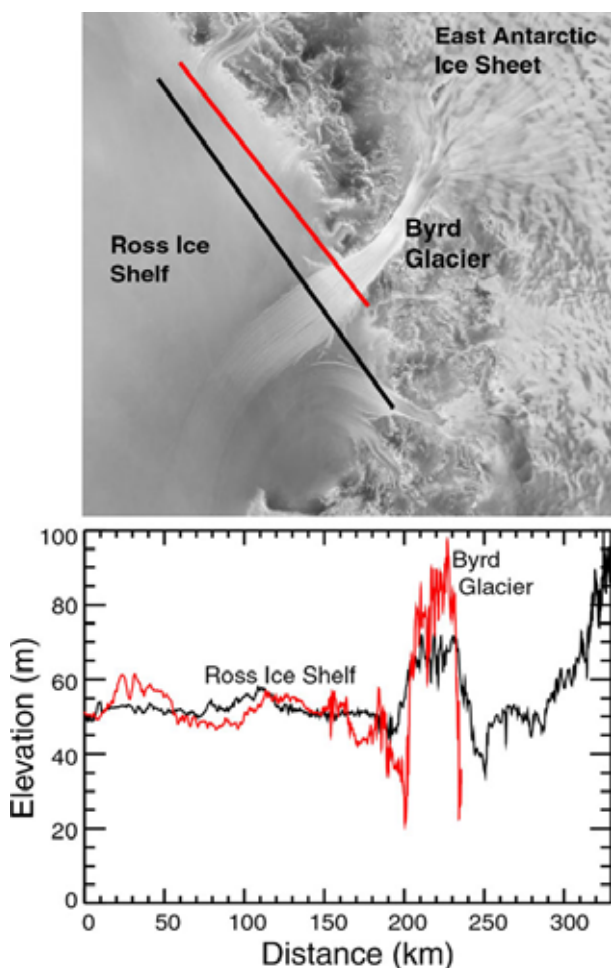
The ICESat (Ice, Cloud, and land Elevation Satellite) – launched on January 12, 2003 has been streaming back high quality images to the US National Snow and Ice Data Center.

Since late March 2003 mission had been "on hold" during several months of engineering review into

the cause of an anomaly affecting the first laser on ICESat's instrument GLAS (the Geoscience Laser Altimeter System).

On September 25<sup>th</sup> 2003 ICESat resumed measurements of the Earth's polar ice sheets, clouds, mountains and forests with the second of its three lasers. To date, the science and engineering data sent from the satellite indicates that all is well as ICESat begins its second major period of ice, cloud, and land elevation data acquisition.

"Operating in a near-polar orbit, ICESat is adding to our understanding of the mass-balance of the Greenland and Antarctic ice sheets. ICESat's first topographic profiles across Antarctica revealed details of features such as the ice streams of the Siple Coast and the Amery Ice Shelf, as well as the atmospheric phenomena above them."



Data available from the National Snow and Ice Data Center at: [www.nsidc.org/daac/icesat/](http://www.nsidc.org/daac/icesat/)

Data animations can be found at: [icesat.gsfc.nasa.gov/animations.html](http://icesat.gsfc.nasa.gov/animations.html)

Or visit the ICESat home page: [icesat.gsfc.nasa.gov/](http://icesat.gsfc.nasa.gov/)

## Ecuador and the Antarctic

During the 9th expedition in the Antarctic Peninsula the **INSTITUTO OCEANOGRAFICO DE LA ARMADA, DEPARTAMENTO CIENCIAS DEL MAR, SECCION GEOLOGÍA** will develop two research programs on the following topics in Greenwich Island, Fort Williams Point (also called Spark Point):

1 – Climatic variations during the Holocene using cross-correlation between spacing, altitude and age of the marine beach ridges.

Several works made in the Shetland Islands on coastal morphology successively by English, Chilean, Spanish and recently Ecuadorian research groups resulted in a general evaluation of the post-glacial uplift and the additional tectonic effect. In most studies climate variation during the Holocene appears as a determining parameter for the detail shaping of beach ridge constructions. The objective of the Ecuadorian program is precise the possible climate input in the shaping of beach ridges. According to previous works it may be hypothesized that beach ridge spacing is representative of climatic variations at local or regional scale. Climate variation should combine with reservoir capacity of sediment provided by glacier and coastal processes to determine the spacing and volume of successive lines of beach ridges. The methods involved include GPS topography, gravimetry, lateral variation of pebble morphology, and sampling will be made for classical C14 and cosmogenic dating (contact with CEREGE for cosmogenic dating).

2 – Fault kinematics of an active margin in relation to hydrothermal activity and mineralogical associations.

The preliminary neotectonic study of the area of Fort Williams Point provided a general overview of the main fault events with their kinematic characteristics. In particular the two main events observed are representative of the morphologic evolution of the South Shetland Islands. The objective is to stress better the fault analysis in order to define more precisely the relation between fracturing, hydrothermal process and associated mineralogy. The hypothesis of kinematic-geometric relationship determining preference zone of opening near cross cut fractures will be tested. The area lacks of precise dating of the main volcanic units, and samples will be collected for the purpose. Besides stratigraphic correlation with other islands this dating will provide data for the timing of fault events, as the older fault event is considered as sub-



contemporaneous of the sill and basalt cover, and the recent event post-dates them. The fault analysis will be made using fault measurement and analysis to determine stress tensor with Carey method. Observation of fault planes will be complemented by the study and sampling of mineral coated fractures. Laboratory mineral analysis and K/Ar dating will be made partly in Ecuador and Chile.

[My thanks to Essy Santana - [geologia@inocar.mil.ec](mailto:geologia@inocar.mil.ec) for this information]

More news about these and other Ecuadorian activities will be appearing in the next edition of GeoReach.

### **SCAR Executive Meeting**

The SCAR Executive met in Bremerhaven, Germany on 20-21 January – with the main agenda item being the SCAR Open Science Symposium in late July.

The GSSG budget was discussed and finalised. Those seeking funding approval from the 2003 budget money will be receiving confirmation shortly.

At this stage no further details of the meeting are available.

### **Peru and the Antarctic**

Dr Hugo de Zela Martinez has succeeded Dr Cesar Castillo Ramirez as President of INANPE - the Peruvian National Antarctic Committee.

The 15<sup>th</sup> Peruvian campaign to Antarctica (ANTAR XV) being conducted this austral summer will be mainly fulfilling logistic objectives and thus participation in scientific research projects is considerably reduced. This year the expedition did not travel by ship (the BIC Humbolt) but rather by air.

[Thanks to Domingo Espinoza, Universidad Nacional Federico Villarreal, Peru, for this news]

### **Mario Zucchelli**

It is with great sorrow that we report the death of Mario Zucchelli on 24 October 2003.

“He led 16 Italian expeditions to Antarctica, bore overall responsibility for the building of Terra Nova Bay station, and negotiated many international cooperative agreements on behalf of

Italian scientists, notably Concordia at Dome C and the Cape Roberts drilling project. He was the second Chairman of COMNAP, 1991-94, and was the Alternate Delegate for SCAR from 1996. Away from the Antarctic he was involved with government ministries, organising and coordinating scientific and technical activities, and he played an active role in local politics.

Mario was a familiar figure at meetings of SCAR, COMNAP and the Antarctic Treaty where his irrepensible energy ensured his active participation. He was an enthusiastic communicator who was addicted to his mobile telephone; a workaholic who was never out of touch with his office. The development and success of the Italian Antarctic Programme is due in large measure to his unstinting efforts and will serve as his lasting monument.

We offer our deepest condolences to his family and colleagues; he will be sadly missed.”

[Thank you to Peter Clarkson and SCAR Circular 756 for this article]

### **Terra Nova Bay station renamed**

“Terra Nova Bay” Station has been renamed “Mario Zucchelli” Station

Dr Pier Angelo Guermani, President of the Consorzio per l'attuazione del Programma Nazionale di Ricerche in Antartide (PNRA) has advised COMNAP that “Terra Nova Bay Station” had been officially renamed “Mario Zucchelli Station” in honour of the late Mario Zucchelli, head of the Italian Antarctic Programme for 16 years and chairman of COMNAP from mid 1991 to mid 1994.

Dr Pier Angelo Guermani reported:

“Soon after the death of Mario Zucchelli a proposal spontaneously arose both in Italy and among the expedition members in Antarctica. The proposal was to honour Mario's memory by dedicating the Italian Station at Baia Terra Nova to him. Actually it is broadly acknowledged, also outside Italy, that Mario put every effort for about 16 years to make the station large, efficient and clean. The Ministry for Education, Universities and Research, which is the official body responsible for the Italian programme in Antarctica (PNRA), agreed to the proposal.

Accordingly, the name Stazione “Mario Zucchelli” (in English “Mario Zucchelli” Station) will replace from now on the previous name Stazione “Baia

Terra Nova" (in English "Terra Nova Bay" Station)."

### GSSG web site

The "Search" function on the website has been fixed and upgraded.

[My apologies it has taken so long to do!]

### New Lab at Rothera opens

A new £3 million (US\$5 million???) laboratory was opened at the British Antarctic Survey's (BAS) Rothera Research Station on 10 January 2004. The new Bonner Laboratory replaces the research facility destroyed by fire in September 2001.



More information and pictures can be found at:  
[www.antarctica.ac.uk/News\\_and\\_Information/Press\\_Releases/story.php?id=92](http://www.antarctica.ac.uk/News_and_Information/Press_Releases/story.php?id=92)

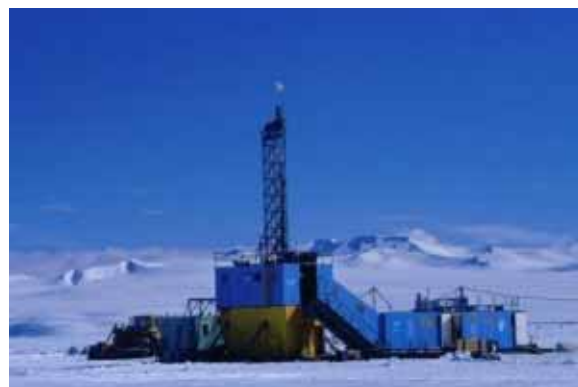
### ANDRILL update

ANDRILL is a multinational initiative to improve understanding of Antarctica's role in Cenozoic (65 million years ago to Present) global change through stratigraphic drilling of marginal sedimentary basins.

In the coming summer season a 17-strong team from Otago University, IGNS and Webster Drilling will again be on the Ice for two months continuing the ANDRILL data gathering work in the White and Black Island areas to the south of Scott Base.

Update on the project can be found at either:  
[www.antarcticanz.govt.nz/Pages/Science/Projects/ANDRILL/Andrill\\_update.msa](http://www.antarcticanz.govt.nz/Pages/Science/Projects/ANDRILL/Andrill_update.msa)

or the ANDRILL home page:  
[andrill-server.unl.edu/](http://andrill-server.unl.edu/)



### Papers from Advanced SAR Workshop 2003

Papers for a Special Collection in the Canadian Journal of Remote Sensing (CJRS) on "SAR Polarimetry, Interferometry, and Polarimetric Interferometry: Calibration, Requirements, and Applications" will be published shortly.

This Special Collection in CJRS will primarily be derived from papers and discussion from the joint CEOS/Advanced SAR Workshop that was held at the Canadian Space Agency in Saint-Hubert, Canada in June 2003

For more information:  
[www.space.gc.ca/asc/eng/csa\\_sectors/technology/development/csa\\_labs/expertise/cjrs.asp](http://www.space.gc.ca/asc/eng/csa_sectors/technology/development/csa_labs/expertise/cjrs.asp)

### Polar Environment Times

UNEP/GRID-Arendal has published Issue 3 of the Polar Environment Times. It features articles from several environment ministers that visited Svalbard last August, news from Antarctica, and a feature story on NATO bombing ranges on traditional Saami lands in northern Norway. You can read these and other stories on-line at [www.grida.no/environmenttimes/polar](http://www.grida.no/environmenttimes/polar) or request a copy by emailing [polartimes@grida.no](mailto:polartimes@grida.no).

### Upcoming meetings

## SCAR 28, Bremen

A draft timetable for GSSG meetings during SCAR 28 has been developed – further information will be posted on the GSSG web site in coming months. [Please note: this has not been finalised yet]

### Friday 23 July 2004

*Bremerhaven*

- Antarctic Geodesy Symposium 2004 - all day
- Geospatial Information Group meeting - all day

### Saturday 24 July 2004

*Bremerhaven*

- Geospatial Information Group meeting - all day
- Antarctic Geodesy Symposium 2004 - all day

### Sunday 25 July 2004

*Bremerhaven* (in the morning)

- Joint meeting ANTEC & GIANT/GIG 9.00am to 12.00

*Bremen* (in the afternoon)

- Whole of GSSG meeting from 12:00 to 17:00

### Monday 26 July 2004

SCAR Open Science Conference

Antarctic Geodesy topics will be addressed

Geospatial Information topics will be addressed

### Tuesday 27 July 2004

SCAR Open Science Conference

Antarctic Geodesy topics will be addressed

Geospatial Information topics will be addressed

### Wednesday 28 July 2004

SCAR Open Science Conference

Antarctic Geodesy topics will be addressed

Geospatial Information topics will be addressed

### Thursday 29 July 2004

Whole of GSSG meeting

- Break into Action Groups, Programme Planning Groups, etc to determine project programmes for 2004-2006.
- International Bathymetric Chart of the Southern Ocean (IBCSO) meeting
- Antarctic Geodesy Symposium 2004 (AGS'04) - organisational issues to be discussed

### Friday 30 July 2004

Whole of GSSG meeting

- Break into Action Groups, Programme Planning Groups, etc to determine project programmes for 2004-2006.
- Prepare final GSSG report to SCAR Executive.

- International Bathymetric Chart of the Southern Ocean (IBCSO) meeting
- Joint GSSG/JCADM meeting?

### Saturday 31 July 2004

SCAR 28 Excursions

### AEGIS, Cambridge, UK

AEGIS - Antarctic Exploitation of Geospatially Irregular Samples

A meeting and workshop (in Cambridge, UK, 18-20 July, 2004) to present and develop means of exploiting spatial or temporal data that are sampled sparsely, irregularly or where sampling is dense along tracks but tracks are sparsely distributed.

Examples of these problems can be found in most areas of science, and are particularly relevant to Antarctic work, where logistic difficulties and operating costs may preclude obtaining improved samples.

Although Antarctica provides the focus for the meeting, examples and methodologies from elsewhere are very welcome.

Further information is available from the [AEGIS web site](#) or contact the workshop Convenor [Mr Paul Cooper](#), BAS.

### Other meetings

- UNEP/GRID-Arendal has published Issue 3 of the Polar Research: Let Us Share: Amiqqaaluta. The 20th Polar Libraries Colloquy June 7 - 11, 2004 Ottawa, Ontario, Canada. The Organizing Committee of the 20th Polar Library Colloquy invites you to visit their conference web site at [www.plc2004.org](http://www.plc2004.org)
- SCAR GSSG meeting (including meetings of the Geospatial Information Group and a joint meeting with JCADM) in Bremen, Germany, 23-25 July, 2004
- [SCAR Open Science Symposium](#), in Bremen, Germany, 25-31 July, 2004
- [32nd International Geological Congress](#) International Union of Geological Sciences, 20 - 28 August 2004, Florence, Italy

- International Symposium on the Geology and Geophysics of the Southernmost Andes, the Scotia Arc and the Antarctic Peninsula ([GeoSur 2004](#)), Buenos Aires, 22-23 November 2004

### **Next Edition**

We would ask for your contributions to the next edition on:

- News items
- Field work/workshop reports
- Reports from leaders of Action Groups, the Expert Group, Scientific Research Programmes and Scientific Programme Planning Groups
- Diary events

Details should be sent to Glenn Johnstone <[glenn@glennjohnstone.freemove.co.uk](mailto:glenn@glennjohnstone.freemove.co.uk)>.

The deadlines for contributions to the editions for this year are as follows:

- Vol. 3 No. 2 - Friday 7 May 2004
- Vol. 3 No. 3 - Monday 9 August 2004
- Vol. 3 No. 4 - Monday 1 November 2004