



SEASON'S FIRST SCIENTISTS ARRIVE AT PRINCESS ELISABETH ANTARCTICA

Antarctica, 22 November 2012 –Nine scientists from Belgium, UK, Japan and Germany [1], touched down today at Princess Elisabeth Antarctica [2], to begin the Belgian Antarctic Research Expedition (BELARE) summer science season. Expedition leader Alain Hubert welcomed the new arrivals to the zero emission station, which is operated by the International Polar Foundation.

“Princess Elisabeth Antarctica, and the International Polar Foundation is proud support the work of polar scientists, who are here to carry out important research, that will help us all understand more about the Earth and its climate-related mechanisms”, said Alain Hubert. “In the coming weeks, we will be travelling far into the Antarctic wilderness with the IceCon and Be:Wise teams, and providing them with strong support on the ice and at Princess Elisabeth Antarctica. Throughout the season, our team here will continue to maintain, develop and innovate the station’s systems, as part of its ongoing evolution”.

Six of the scientists will work on the IceCon project, which aims to gain a better understanding of the rate of the loss of ice - now and in the past - from the ice sheet in the Dronning Maud Land region [3]. By investigating a “meltwater pulse” from 14,000 years ago, which caused sea levels to rise 20m within 500 year, the team hopes to use the pulse’s effect on oceanography and climate as a potential analogue for current and future rapid ice sheet loss.

IceCon is comprised of six partners from Belgian and foreign institutions: Université Libre de Bruxelles (ULB), Royal Observatory of Belgium (ROB), University of Luxembourg (UL), Norwegian Polar Institute (NPI), and Aberystwyth University (AU).

Brussels-based German glaciologist Reinhard Drews also disembarked at Princess Elisabeth Antarctica today, where he will begin his Be:Wise project. Drews received the prestigious €150,000 InBev Baillet Latour Antarctic Fellowship in October, for his plan to investigate how the

potential disintegration of Antarctic floating ice shelves could contribute to increased ice flow from inland glaciers, and a resulting rise in global sea levels [4].

Also present is veteran Princess Elisabeth Antarctica researcher, Alexander Mangold, from the Royal Observatory of Belgium, who is for a fourth season to continue the BELATMOS project, the objective of which is to carry out observations on the composition and chemistry of the atmosphere in the area of the Princess Elisabeth Station.

The scientists' arrival at Princess Elisabeth Antarctica was delayed by just one day, and comes after the arrival International Polar Foundation operations team at Princess Elisabeth Antarctica was last week held up six days due to bad weather. The scientists travelled from Cape Town on board an Ilyushin Il-76 aircraft, via Novo Air Base, reaching Princess Elisabeth Antarctica on November 22nd at 0900 CET [5]

During the 2012-2013 BELARE season, Princess Elisabeth Antarctica will host some 30 scientists working in the fields of atmospheric science, glaciology, meteorology, geology, and microbiology, from several different countries, including large campaigns from Belgium, Germany and Japan [6].

The International Polar Foundation supports polar scientific research for the advancement of knowledge, the promotion of informed action on climate change, and the development of a sustainable society [7].

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Notes:

[1] The scientists who arrived on at Princess Elisabeth Antarctica November 22nd are:

IceCon:

Frank Pattyn (BE, Université Libre de Bruxelles)

Jean Louis Tison (BE, Université Libre de Bruxelles)

Bryn Hubbard (UK, Aberystwyth University)

Kenichi Matsuoka (JP, Norwegian Polar Institute)
Morgane Philippe (BE, Université Libre de Bruxelles)
Nicolas Bergeot (BE, Royal Observatory of Belgium)

BELATMOS:

Alexander Mangold (BE, Royal Meteorological Institute of Belgium)

<http://belatmos.blogspot.be/>

http://www.antarcticstation.org/science_projects/detail/belatmos_monitoring_antarcticas_atmosphere/

Inbev Be:Wise

Reinhard Drews (DE, Université Libre de Bruxelles)

Denis Callens (BE, Université Libre de Bruxelles)

http://www.antarcticstation.org/science_projects/detail/bewise_the_buttressing_effect_why_ice_selves_are_essential/

[2] About Princess Elisabeth Antarctica:

Princess Elisabeth Antarctica is located in the Sør Rondane Mountain Range, Dronning Maud Land, East Antarctica. The station lies at 71° 57' S and 23° 20' E, 220 km due South from the edge of the ice shelf, at an altitude of 1380m.

As an Antarctic legacy project of the 2007-2009 International Polar Year, Princess Elisabeth Antarctica research station was designed and built to respect the letter and spirit of the Madrid Protocol to the Antarctic Treaty. But the project went a step further: Princess Elisabeth is the world's first Zero Emission polar research station. The world's first zero emission research station Located in East Antarctica's Sør Rondane Mountains, Princess Elisabeth Antarctica welcomes scientists from around the world to conduct research in this little-studied and pristine environment.

Operated by the International Polar Foundation, in partnership with the Belgian Polar Secretariat, the station is an evolving technical prototype. Princess Elisabeth Antarctica's design and construction seamlessly integrates passive building technologies, renewable wind and solar energy, water treatment facilities, continuously monitored power demand and a smart grid for maximising energy efficiency.

The success of Princess Elisabeth Antarctica marks an important development in the philosophy of sustainable development, demonstrating how the climate challenge can be met through goodwill and collaboration between civil society, business and governments. The project proves how readily accessible technology can be harnessed to achieve a low carbon society, without compromising our collective or individual wellbeing.

The energy solutions perfected at Princess Elisabeth Antarctica are already being successfully commercialised by the project's technical partners for use in mainstream applications.

For more about Princess Elisabeth Antarctica, visit www.antarcticstation.org

The International Polar Foundation is the appointed operator of Princess Elisabeth Antarctica station for the Belgian State.

<http://www.antarcticstation.org/management/secretariat/>

[3] IceCon aims to gain a better understanding of the rate of the loss of ice – now and in the past – from the Antarctic ice sheet in the Dronning Maud Land area.

Knowledge of past ice volumes are important, since the ice sheet is still reacting to what happened in the past, especially since the Last Glacial Maximum (LGM), roughly 18,000 years ago, when the Antarctic ice sheet was significantly bigger. The study will provide local data for fine tuning and modifying large-scale ice sheet models.

IceCon's main hypothesis is that the LGM ice sheet volume in Dronning Maud Land was not as big as previously predicted by large-scale ice sheet models, although it advances further towards the coast. Less grounded ice during the LGM implies less ice loss during deglaciation (the process of mass loss between LGM and now), making it difficult to associate a historical event – “meltwater pulse 1A” to the Antarctic ice sheet. Meltwater pulse 1A was rise of around 20m in sea levels that took place during a 500-year period, some 14,200 years ago.

The freshwater source for this pulse remains controversial, but understanding its source is important to understand its effects on oceanography and climate, and because it provides a potential analogue for rapid ice sheet deglaciation now, and in the future. Some researchers place the pulse in the Northern Hemisphere, while others advocate that this important ice loss stemmed from the Antarctic ice sheet. Understanding the past changes in ice sheet volume in Dronning Maud Land will definitely improve our understanding of future changes of the ice sheet in this area.

During the 2012-2013 BELARE season, the IceCon team will install two geodetic GPS systems that will run all-year long. This puts serious constraints on power, so they will rely on batteries powered by solar panels and wind turbines. One of the geodetic GPS systems will be set up on Seal, a small nunatak in the vicinity of Romnoesfjellet. The purpose of the GPS systems is to monitor, over a four-year period, vertical changes of the lithosphere in response to the unloading of the ice due to post-glacial rebound. This will give IceCon insight into the volume of ice present in this sector of Antarctica's Dronning Maud Land during the Last Glacial Maximum. This information is essential for constraining models of Glacial Isostatic Adjustment (GIA), which form the basis of the interpretation of the GRACE satellite signal. One GPS system will also be deployed on Derwael ice rise. Understanding the dynamics of this ice rise will help understanding the deglaciation history as well. Ice rises are climate dipsticks that may tell us a lot on how the ice sheet behaved over the last thousands of years. By means of ice radar profiling and ice core drilling it is hoped to tie the ice dynamics of this area to the rest of the ice sheet.

More information:

<http://icecon2012.blogspot.be/>

http://www.antarcticstation.org/science_projects/detail/icecon_constraining_ice_mass_change_in_antarctica/

[4] Antarctic Ice Sheet Scientist Awarded €150,000 Fellowship

http://www.polarfoundation.org/news/press_release_detail/antarctic_ice_sheet_scientist_awarded_150000_major_fellowship/

Be:Wise -The Buttrressing Effect: Why Ice Shelves Are Essential

http://www.antarcticstation.org/science_projects/detail/bewise_the_buttrressing_effect_why_ice_shelves_are_essential/

[5] The Ilyushin Il-76 flight BT-67 (Lidia C-GEAI) departed Cape Town at 2130 UTC (2230 CET) on 21 November, and arrived at Novo 0315 UCT (0414 CET) on 22 November 2012. The connecting flight to Princess Elisabeth Antarctica landed at 0924 UTC (1024 CET).

[6] Details on all science projects at Princess Elisabeth in 2012-2013 can be found at

http://www.antarcticstation.org/science_projects/category/2012_2013/

Research Projects include:

BELATMOS - Ozone, UV radiation and aerosols - Belgian Royal Meteorological Institute (RMI),
Dr. Alexander Mangold

ICECON: Understanding ice dynamics – led by the Université Libre de Bruxelles (ULB)

BELDIVA: Exploration of microbiology diversity – Satoshi Imura, National Institute of Polar
Research (NIPR), Japan

GIANT-LISSA: Dr Olivier Francis, University of Luxembourg will install an absolute gravimeter

GEAll: Polar 6 airborne survey, Alfred Wegener Institute (Germany)

SAMBA: Meteorite search on the Nansen Icefields, Vrije Universiteit Brussel (VUB), ULB, and
NIPR.

LGGE: Surface mass balance observations carried out by the International Polar Foundation on
behalf of Grenoble-based Laboratoire de Glaciologie et Géophysique de l'Environnement
(LGGE), France

Micrometa: Search for microscopic extraterrestrial dust (VUB)

BE:WISE: Research on buttressing effects on ice shelves (ULB)

[7] For more about the International Polar Foundation, visit www.polarfoundation.org