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Protecting Ice Memory

Scientists are joining forces to create a global archive of glacial ice for our future generations

The project's first mission to protect the world's ice memory will be launched in France on 15 August, in the Mont Blanc massif. Researchers from the CNRS, the IRD and the Université Grenoble Alpes will be extracting ice samples from the Col du Dôme, ultimately for storage in Antarctica.

"In the coming decades, or even centuries, this ice archive will be invaluable – be it for entirely unprecedented scientific discoveries or for understanding local changes in the environment. This project has my full support."

– Jean Jouzel, climatologist and Vice-Chair of the IPCC, 2002–2015; winner of the 2007 Nobel Peace Prize.

On Monday 15 August, and until the beginning of September, an international team of ten or so glaciologists and engineers – French, Italian, Russian and American – will be travelling to the Col du Dôme (4,300 m (14,108 ft), Mont Blanc) to drill the first ice cores for the Protecting Ice Memory project. The team will be coordinated by Patrick Ginot, a research engineer from the French Research Institute for Development (IRD) working within the UGA-CNRS Laboratory of Glaciology and Environmental Geophysics (LGGE), and Jérôme Chappellaz, Director of Research at the CNRS and working within the same laboratory. The goal is to build the world's first library of ice archives extracted from glaciers which are threatened by global warming.

Three ice cores, each measuring 130 m in length, will be extracted and lowered into the valley by helicopter before being transported to the LGGE in Grenoble, while maintaining a strict cold chain throughout the process. One core will be analysed in 2019 to begin building a database available to the entire world scientific community. The other two will be transported by ship before being transferred onto tracked vehicles on the high plateaus of Antarctica in 2020 for storage at the Concordia station, which is run by the French Paul-Emile Victor Polar Institute (IPEV) and its Italian partner, the National Antarctic Research Programme (PNRA). The long-term plan is to have dozens of ice core archives stored in a snow cave at -54°C – the most reliable and natural freezer in the world.

The Col du Dôme glacier represents the first step in this major project, originally launched in 2015 by the LGGE, Ca' Foscari University of Venice (Italy) and the CNR (Italian National Research Council),

backed by the Université Grenoble Alpes Foundation. A second, longer and more complex operation will be carried out in 2017 on the Illimani glacier in the Bolivian Andes. A number of other countries are already candidates to join this project and protect the memory of the glaciers to which they have access: Germany, Austria, Switzerland, Brazil, the United States, Russia, China, Nepal and Canada.

Why choose now to build this archive?

The idea to create this project was born when scientists observed a rise in temperatures on several glaciers. At ten-year intervals, the temperature near to the glaciers on the Col du Dôme and Illimani in the Andes has risen between 1.5° and 2°. At the current rate, we are forecasting that their surface will undergo systematic melting over the summer in the next few years and decades. Due to this melting and the percolation of meltwater through the underlying layers of snow, these are unique pages in the history of our environment which will be lost forever. *“We are the only community of scientists working on climate to see a chunk of its archives disappearing. We urgently needed to build this heritage for the future, much like the Svalbard Global Seed Vault kept on the island of Spitsbergen,”* explains Jérôme Chappellaz, the French project initiator. A vital contribution to environmental and climate science, and crucial for more effectively predicting our future, ice sciences will soon run out of high-quality raw material collected from mountain regions due to global warming.

“Our generation of scientists, which bears witness to global warming, has a particular responsibility to future generations. That is why we will be donating these ice samples from the world’s most fragile glaciers to the scientific community of the decades and centuries to come, when these glaciers will have disappeared or lost their data quality,” adds Carlo Barbante, the Italian project initiator and Director of the Institute for the Dynamics of Environmental Processes – CNR, Ca' Foscari University of Venice.

A strong scientific campaign and a major sponsorship effort

The IPEV, the PNRA and Communauté Université Grenoble Alpes are working closely with the scientific bodies behind the project – Université Grenoble Alpes, the CNRS, the IRD, the CNR (Italy), Ca' Foscari University and the University Grenoble Alpes Foundation.

The project contributes to the UNESCO International Hydrological Programme (IHP) within the framework of the snow, glacier and water resources activities of the IHP-VIII (2014-2021) ‘Water Security: Responses to Local, Regional and Global Challenges’.

This project benefits from the skills and equipment of its partner organisations and receives financial support from private sponsors. The Université Grenoble Alpes Foundation would like to thank the sponsors of this first mission, without whom the project could never have happened – Prince Albert 2 of Monaco Foundation, whose purpose is to protect the environment and to encourage sustainable development, Findus France, French manufacturer of frozen food, French glaciologist and ice coring pioneer Claude Lorius, Foundation of French manufacturer of mountain equipment Petzl, GMM, French manufacturer of cable transportation systems, and Pressario, press agency.

The Foundation’s funding campaign for the 2017 Bolivia expedition is already under way.

For more information: <http://fondation.univ-grenoble-alpes.fr/menu-principal/actions/preservation-des-patrimoines/sauvegarder-la-memoire-de-la-glace/>

Specific press campaign coordinated by the Université Grenoble Alpes and the UGA Foundation, in collaboration with CNRS and IRD:

Regular information will be made available from 18–30 August 2016, with the following daily updates between 22 and 26 August: news from the scientists on the drilling mission and videos/images from Wild-Touch's Sarah Del Ben (director Luc Jacquet's team). The information and videos will be posted on the Foundation, the CNRS and the IRD's social media accounts. A platform for rushes will be provided for the media to retrieve videos for their own broadcasts, and researchers will be on-site in Chamonix to give interviews during this time.

Social media accounts to follow the drilling campaign from August 18th to August 30th:

On Facebook : [Protecting Ice memory](#)

On Twitter : [@Fond_UGA](#)

Your press contacts for any inquiries, retrieval of images and reports, appointments for interviews with the scientists on-site

Sylvie Vincent-Ledoux, Agence Pressario – +33 (0)6 62 76 57 30 – sylvie.ledoux@pressario.fr

Muriel Jakobiak, External Communications Manager, Université Grenoble Alpes – +33 (0)6 71 06 92 26 – muriel.jakobiak@univ-grenoble-alpes.fr

International contact: Anne-Catherine Ohlmann, Director of the UGA Foundation – +33 (0)7 85 68 46 62 – Anne-Catherine.Ohlmann@univ-grenoble-alpes.fr

About

Université Grenoble Alpes Foundation

The Université Grenoble Alpes Partnership Foundation, created in September 2014, strives to accelerate the creation and sharing of knowledge to foster societal transformation in the 21st century. In particular, it backs heritage preservation projects, research chairs and pedagogical experimentation, all the while supporting students in their outstanding commitments, such as performance sport. www.fond.univ-grenoble-alpes.fr

LGGE

The Laboratory of Glaciology and Environmental Geophysics (LGGE) is a joint research unit of the CNRS and the Université Grenoble Alpes created in 1958, bringing some 150 people together to focus on research into snow and ice, glaciers, climate – atmosphere, ice and oceans – and the environment. Over the past half-century, the LGGE has built much of its scientific renown through the study of past climate change and the composition of the atmosphere via archives comprising snow and ice accumulated over time. Every year, many LGGE researchers and engineers embark on expeditions to our planet's cold and



ice-covered environments – the Arctic, Antarctica, the Alps, the Himalayas and the Andes.
<http://lgge.osug.fr/>