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Scientists install weather station network reaching the highest point in the Americas

Five weather stations installed on Aconcagua in Argentina will provide data crucial to understanding a region experiencing a mega-drought

MENDOZA, Argentina — On Feb. 18, 2025, a team of climbers and scientists summited Aconcagua – the highest mountain in the western and southern hemisphere – and installed a weather station a few meters from the top (at 22,769 feet or 6,940 meters above sea level). The summit station completes a network of five new observation sites that will provide crucial data about water availability in the Andes Centrales, a region severely impacted by a 15-year mega-drought and understudied as a major water tower in Argentina.

The expedition was led by climatologist Baker Perry, National Geographic Explorer and professor at the [University of Nevada, Reno](#), Pierre Pitte from the [Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales \(IANIGLA\)](#), and fellow National Geographic Explorer Tom Matthews from [King's College London](#) in the United Kingdom. In addition to the summit station, stations were also installed at Base Camp, called Plaza de Mulas (13,943 feet or 4,250 meters), Plaza Argentina (13,516 feet or 4,120 meters), Horcones Glacier Superior (14,632 feet or 4,460 meters) and Nido de Condores (18,110 feet or 5,520 meters).

“The Aconcagua weather stations will provide critical data to understand the hydrological cycle in this important water tower that sustains the Mendoza River and millions of people downstream,” Perry said.



The installation of the weather stations is part of Project Wayra: Monitoring the Atmosphere of Aconcagua. “Wayra” means “wind” in Quechua, an Andean Indigenous language. Project Wayra is an international collaboration between Argentina and the United States, along with numerous partners.

Since 2010, the Andes Centrales in South America have faced a mega-drought that has resulted in reduced stream flows necessary for agriculture (one of the region’s economic drivers) and has also increased glacial lake outburst flood hazards.

Temperatures in the region have risen 1 degree Celsius in 50 years, or double the global average rate, and contribution to streamflow from glacial melt reached 50% or more in dry years, far above the historical average of 10 to 20% percent. The flux station on Horcones Glacier Superior will be used to monitor glacial melting, helping scientists better understand the processes causing the melting.

Sensors on the weather stations will collect data about wind speed and direction, air pressure, temperature, relative humidity, radiation, precipitation and snow depth. The Aconcagua stations are now part of a wider network that monitors water availability in the Argentinian Andes. The data is transmitted to the global National Oceanic and Atmospheric Administration (NOAA) repository and uploaded in a [regional archive](#), which will ensure the data is accessible to scientists and the public around the world.

“This ground-breaking scientific project will allow researchers and policymakers to better understand water resource availability as water storage in glaciers and seasonal snowpack continue to decline,” Perry said. “These stations will give us a glimpse into the future.”

The stations can also be used to improve forecasts of weather conditions, which may help make Aconcagua safer for the 3,000 climbers who attempt to summit the peak each year and for the science team that will make the climb annually to conduct maintenance on the equipment.

The stations require specially designed equipment that can withstand extremely low temperatures and high wind speeds. [Campbell Scientific](#), [OTT HydroMet](#), [RM Young](#), [Mount Washington Observatory](#) and [Lightning Master](#) provided the equipment, all of which has been donated to IANIGLA and its parent organization, the [Consejo Nacional de Investigaciones Científicas y Técnicas \(CONICET\)](#).

Other partners include the [National Aeronautics and Space Administration \(NASA\)](#), which collected rock and soil samples high on the mountain, [INKA Expeditions](#), the providers of logistical support to the team, the provincial government of Mendoza and the Department of Irrigation of Mendoza.

“A project as ambitious and complex as Project Wayra was only possible through a network of dedicated partners who provided the required organization, workforce, technology and funding,” Pitte said. “It would have been impossible for us to accomplish what we did without a strong international collaboration, especially in this very complex moment for science.”

The project was also supported by the National Geographic and Rolex [Perpetual Planet Expeditions](#) program which aims to examine and document the impact of environmental and climate change on some of the world’s most critical yet fragile mountain, rainforest and ocean ecosystems. As part of the program, National Geographic Explorers Perry and Matthews installed high-altitude automatic weather stations in some of the most important water towers during successful expeditions to Mount Everest (Nepal), Tupungato Volcano (Chile) and Nevado Ausungate (Peru).

“Understanding the rapid changes occurring in these high-altitude environments is critical to developing solutions to protect the future of our planet’s natural resources,” Ian Miller, chief science and innovation officer at the National Geographic Society, said. “Weather stations are an important tool to collect data from these data-poor alpine environments, and the Society is honored to continue our support of Baker and Tom in their groundbreaking expeditions to install weather stations across the globe to fill critical knowledge gaps for the climate science community.”

“Our work has now taken weather observations to the highest reaches of Asia and the Americas, leading to new insights into high-mountain water resources,” Matthews said. “But the challenge ahead remains considerable with far too many blank spaces on the map of meteorological understanding. For example, the upper Karakoram headwaters of the Indus – a river basin home to hundreds of millions of people – remain almost unmonitored. Filling such gaps will require the type of ambitious, collaborative fieldwork shown by the Wayra team’s successful efforts.”

– @unevadareno –

Media can access the [Project Wayra press kit online](#), which includes photo/video assets and expedition team member biographies.

About the University of Nevada, Reno

The University of Nevada, Reno is a public research university that is committed to the promise of a future powered by knowledge. As a Nevada land-grant university founded in 1874, the University serves 21,000 students. The University is a comprehensive, doctoral university, classified as an R1 institution with very high research activity by the Carnegie Classification of Institutions of Higher Education. Additionally, it has attained the prestigious “Carnegie Engaged” classification, reflecting its student and institutional impact on civic engagement and service, fostered by extensive community and statewide collaborations. More than \$800 million in advanced labs, residence halls and facilities has been invested on campus since 2009. It is home to the University of Nevada, Reno School of Medicine and Wolf Pack Athletics, maintains a statewide outreach mission and presence through programs such as the University of Nevada, Reno Extension, Nevada Bureau of Mines and Geology, Small Business Development Center, Nevada Seismological Laboratory, and is part of the Nevada System of Higher Education. Through a commitment to world-improving research, student success and outreach benefiting the communities and businesses of Nevada, the University has impact across the state and around the world. For more information, visit www.unr.edu.

About King’s College London

King’s College London is amongst the top 40 universities in the world and top 10 in Europe (THE World University Rankings 2024), and one of England’s oldest and most prestigious universities. With an outstanding reputation for world-class teaching and cutting-edge research, King’s maintained its sixth position for ‘research power’ in the UK (2021 Research Excellence Framework). King’s has more than 33,000 students (including more than 12,800 postgraduates) from some 150 countries worldwide, and 8,500 staff. For more information, visit <https://www.kcl.ac.uk/>.

About Instituto Argentino de Nivología, Glaciología y Ciencias

The Instituto Argentino de Nivología, Glaciología y Ciencias is an Executing Unit with triple dependence shared by CONICET, the National University of Cuyo and the government of the Province of Mendoza. It seeks to advance knowledge of the present and past environmental dynamics of western Argentina, with an emphasis on the study of water and natural resources of the regions that comprise it, as well as their interactions with biological components and the human activities they sustain. Members of IANIGLA work from the Puna to Southern Patagonia to address important topics, such as mountain building movements of the Andes mountain range, the evolution of the organisms that inhabit the range, astronomical and climatic processes to the current fluctuation of glaciers, the Andean hydrological cycle to the

sustainable management of associated ecosystems and updating the National Glacier Inventory. For more information, visit <https://ianigla.conicet.gov.ar/>.

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