

Health & Technology

Chilean Patagonia: An open-air lab to study climate change

Scientists study whales, dolphins to predict climate change

SENO BALLENA, Chile: In one of the most inhospitable places on Earth, the southernmost part of Chile's Patagonia region, scientists are studying whales, dolphins and algae in order to help predict how climate change will affect the world's oceans. For the study, four researchers from the Austral University of Chile embarked from Punta Arenas for the remote Seno Ballena fjord.

The fjord currently produces the kind of conditions that should be seen in other marine systems in the next few decades, when dramatic changes are expected in the environment due to increased carbon dioxide emissions in the atmosphere and the melting of glaciers. "This place is like an actual experiment in nature because it allows us, without needing to conduct experiments in the lab, to know what will happen without imagining it," marine biologist Maximiliano Vergara told AFP.

Reaching the fjord is no easy task—they had to negotiate the treacherous Strait of Magellan that connects the Pacific and Atlantic Oceans for a day and a half aboard a small raft adapted for scientific research, with winds exceeding 100 kilometers per hour and glacial temperatures. On site, they take readings from a system of sensors that provide a constant stream of data from water samples taken every three hours.

The researchers are analyzing the chemical,

physical and biological variables of the waters, which show lower levels of pH, salinity and calcium, especially in the most shallow areas, as a consequence of climate change. "What we're doing at the moment is establishing our information baseline," Vergara said.

Dire consequences

Seno Ballena gets its name from the humpback whales that feed in the area after traveling down from the warmer waters of Central America, where they breed. The chilly fjord waters provide one of the most productive marine habitats in the world, where sardines and krill can be found in huge numbers. But climate change poses a threat to its ecosystem as the melting of a glacier on Santa Ines island and increased rainfall have led to rising levels of freshwater. If that continues, it would have dire consequences for whales as the plankton they feed on could disappear. "A change in the microalgae could generate changes in the secondary structure (of the marine system) or the animals that feed on these," marine biologist Marco Antonio Pinto told AFP. Under normal circumstances, when there is an abundance of microalgae, these provide food for the zooplankton that subsequently nourish the food chain all the way up to whales, said Pinto.

The expedition members are taking samples from eight stations around Seno Ballena to

measure the effects of the melting glacier on Santa Ines, which has accelerated to such an extent that rocks have appeared that weren't visible during their last trip in April. "The waters of high latitudes, both in the northern and southern hemispheres, contain a huge amount of biological and physicochemical information that can be used as a basis to take crucial decisions for environmental preservation projects in developed countries," said biologist Maximo Frangopulos, a professor at the University of Magellanes and leader of the expedition. The scientists are worried about the potential for a red tide—a phenomenon brought on by excessive numbers of microorganisms that absorb a huge amount of oxygen and produce toxins, resulting in the deaths of much marine life.

'It's like a puzzle'

For now, researchers have noted a slight drop in the number of humpback whales but an increase in other species such as sea lions, which previously were not present in that region, and dolphins. They also found a lower concentration of calcium carbonate, something which can affect the shells of marine organisms such as mollusks or krill, a staple of a whale's diet. "It's like a puzzle that we're trying to put together... to see how climate change can affect not just the baseline marine system, but also the large mammals, some-



CHILE: Humpback whales dive into the waters of Seno Ballena fjord at Santa Ines island in Punta Arenas, Magallanes region, southern Chile. — AFP

thing that would have a social and economic impact on the region," said Pinto. The crab, a species vital to the economy of the region around the strait, is another that could be affected as it needs calcium to harden its shell.

The scientists are set to return to the area during the Southern Hemisphere winter to obtain new samples—and to see what other secrets the waters in this area of Chilean Patagonia can reveal. — AFP

Panda celebrates first birthday in Malaysian zoo with ice cake

KUALA LUMPUR: A giant panda born in a Malaysian zoo celebrated her first birthday yesterday with a cake made of ice in front of adoring visitors. The youngster looked around shyly as a zookeeper carried her to a platform in her enclosure where the cake, which had a large number "one" on top, was waiting. After nibbling at some carrots used to decorate the creation, the panda—who has not yet been named—seemed to tire of the celebrations, and fell asleep.

Currently weighing 34 kilos, she is the second cub born to Liang Liang and Xing Xing since they were sent from China to Malaysia in 2014, on a 10-year loan. The first, Nuan Nuan, was born in August 2015 and sent back to China in 2017. Beijing and Kuala Lumpur have agreed that cubs born in captivity must go back to China at the age of two. The pandas are kept at the national zoo's panda centre outside Kuala Lumpur. It's estimated there are some 1,800 giant pandas left in the wild, living mainly in bamboo forest in the mountains of western China, according to environmental group WWF. — AFP



KUALA LUMPUR: A female one-year-old panda cub sits next to her birthday cake during a celebration at Malaysia's national zoo in Kuala Lumpur. — AFP

Iran to launch two satellites in 'coming days'

TEHRAN: Iran's president said yesterday the Islamic republic plans to launch two domestically made satellites into orbit in the "coming days" to gather information on the country's environment, state TV reported. "In the coming days we will launch two satellites into space," President Hassan Rouhani said during a trip to the northeastern Golestan province. "Both the Payam satellite and its carrier rocket are made in our own country and by the youth of this nation," he added.

Payam would orbit the earth at about 600 kilometers above its surface, according to state TV. Rouhani did not name the second

satellite, but said both were manufactured at Tehran's Amirkabir University of Technology. Iran's telecommunications minister Mohammad Javad Azari Jahromi said Wednesday that Payam and a second satellite called Doosti had been successfully tested and that there would be "good news" soon, the conservative Tasnim news agency reported.

Doosti would be tasked with the same purpose as Payam, with a focus on agriculture, and would orbit at an altitude of 250 kilometers, he added. Earlier this month, US Secretary of State Mike Pompeo said Iran's plans for sending satellites into orbit would violate a 2015 UN Security Council resolution which endorsed an international accord on ending Tehran's nuclear program. Resolution 2231 called on Iran to refrain from any activity related to ballistic missiles capable of delivering nuclear weapons. "The United States will not stand by and watch the Iranian regime's destructive policies place international stability and security at risk," Pompeo said in a statement on January 3. — AFP

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