

# Image: Laguna San Rafael National Park, Chile

October 9 2020

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Credit: contains modified Copernicus Sentinel data (2018), processed by ESA,  
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Part of the Laguna San Rafael National Park, located on the Pacific coast of southern Chile, is pictured in this image captured by the Copernicus Sentinel-2 mission.

Covering an area of around 17000 sq km, the park includes the Northern Patagonian Ice Field—a remnant of the Patagonian Ice Sheet that once covered the region. Today, despite the ice field being just a small fraction of its previous size, it is still the second largest continuous mass of ice outside of the polar regions.

The image depicts the west part of the Northern Patagonian Ice Field which has 28 exit glaciers, with the largest two, San Rafael and San Quintín, visible here. San Rafael Glacier, which can be seen in the upper-right of the image, is one of the most actively calving glaciers in the world and the fastest-moving glacier in Patagonia – 'flowing' at a speed of around 7.6 km per year.

The glacier calves west towards the Pacific Ocean and into the Laguna San Rafael (Lake San Rafael), visible directly to the left of the glacier. The lake was formed due to the retreat of the glacier after the last ice age, and today is a popular tourist destination, with ships sailing to the lagoon to see ice falling from the glacier.

Directly below lies the San Quintín glacier, the second-largest glacier in the northern ice field. The glacier drains to the west, where hundreds of icebergs can be seen dotted in the lake. Until 1991, the glacier terminated on land, but with its retreat, the basin filled with water and formed the proglacial lake we see today.

Together with its twin, San Rafael, the glaciers have been receding dramatically under the influence of global warming. Satellite data show

that some of the glaciers in Patagonia are retreating faster than anywhere in the world. As temperatures rise and glaciers and ice sheets melt, the water eventually runs into the ocean, causing sea level to rise.

According to a report last year, [glaciers](#) worldwide have lost over 9000 gigatonnes of ice since 1961—raising sea level by 27 mm. Rising seas are one of the most distinctive and potentially devastating effects of Earth's warming climate.

For the last 30 years, a series of satellites have collected global sea level measurements to keep an eye on its rising trend. Scheduled for launch in November 2020, the Copernicus Sentinel-6 Michael Freilich [satellite](#) will be the next spacecraft to continue the long-term record of sea-surface height measurements started in 1992.

The satellite will collect the most accurate data on sea level and monitor how it changes over time. The satellite carries a [radar altimeter](#), which works by measuring the time it takes for radar pulses to travel to Earth's surface and back again to the satellite.

The spacecraft also carries five instruments to help monitor [atmospheric conditions](#) that affect the radar signal and to determine the precise position and velocity of the satellite in orbit. Other instruments measure atmospheric temperature and humidity profiles for weather forecasting and the radiation environment around the satellite.

Provided by European Space Agency

Citation: Image: Laguna San Rafael National Park, Chile (2020, October 9) retrieved 25 June 2024 from <https://phys.org/news/2020-10-image-laguna-san-rafael-national.html>

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