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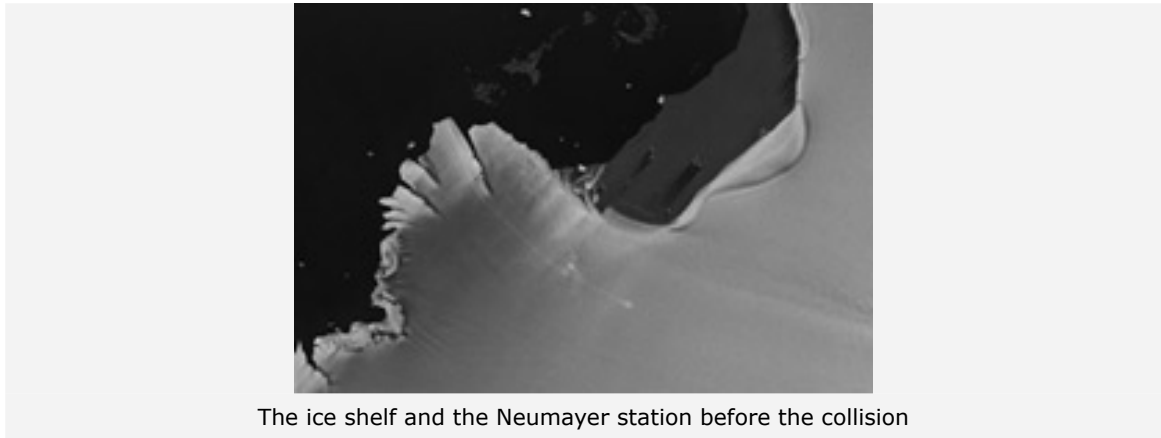
**Iceberg collides with the edge of an ice shelf in the Antarctic**

*23 February 2010*

Looking like a needle of ice and snow, iceberg B-15K was caught in the act by the German Aerospace Center's (Deutsches Zentrum für Luft- und Raumfahrt; DLR) TerraSAR-X satellite as it collided with an ice shelf in Atka Bay, Antarctica. Scientists had long been observing as the 54-kilometre long and 5-kilometre wide iceberg was driven around Antarctica by ocean currents. Then, on 11 February 2010, it crashed into the edge of the ice shelf in Atka Bay.



Iceberg B15-K slams into the ice shelf



The ice shelf and the Neumayer station before the collision

A 300 by 700 metre piece broke off from the several-hundred-metre thick Ekstrom Ice Shelf, decreasing its size by 210,000 square metres. Three strong signals were recorded at the acoustic observatory of the Alfred Wegner Institute for Polar and Marine Research (AWI), situated on the surface of the ice. Five kilometres south of the edge of the shelf, a one-kilometre long crack formed straight across the transport routes. For scientists in the acoustic observatory and at the AWI's Neumayer station III, which lies 21 kilometres away, this means that the marked routes, that were accessible even during snowstorms, need to be shifted.

### Searching for cracks

The events that have caused an inconvenience for the scientists on location are of very special interest to glaciologists such as Angelika Humbert from KlimaCampus at the University of Hamburg. "It is so very exciting to see how the cracks develop." Collisions such as this, between an iceberg and the edge of the ice shelf, do not occur very often. "Usually, the icebergs continuously run aground on their way from the Ross Ice Shelf around the Antarctic and become smaller in the process." The solid ice cover in front of the edge of the ice shelf also usually acts as a buffer and the icebergs pass by. However, B15-K arrived in front of the German station in Atka Bay with an imposing size and a weight of around 400 million tons. The supply ship SA Agulhas left the bay after receiving a timely warning. Two weeks before this incident, the MV Mary Arctica was stationed at the edge of the ice shelf, beside an ice finger known as the 'North Pier', delivering fuel to the Neumayer station.

Using the high-resolution images from TerraSAR-X, Angelika Humbert wants to investigate several details, including what actually happens within the ice during a collision of this size. "It is interesting why only a relatively small piece broke off. How did the compression waves spread out within the ice? What type of energy was transferred from the ice?" This well-documented collision can shed light on the dynamics and stability of the ice for this 'ice scientist'. "The pictures from TerraSAR-X always show a lot of detail." The satellite maps the data with a resolution down to one metre. Even when the sky is cloudy, it records X-band radar data from the entire surface of Earth during its flight. For Angelika Humbert, observing Antarctica continues to be fascinating – there are currently two more large icebergs in the Circumpolar Current around the ice shelf.

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