



September 16, 2000



November 4, 2001



November 12, 2001



This image sequence shows the break-off of a large tabular iceberg from the Pine Island Glacier in West Antarctica. This event occurred between November 4th and 12th, 2001, and provides powerful evidence of rapid changes underway in this area of Antarctica. The three images were acquired by the vertical-viewing (nadir) camera of the Multi-angle Imaging SpectroRadiometer (MISR) instrument aboard NASA's Terra spacecraft. The dimensions of the iceberg are approximately 42 kilometers by 17 kilometers (26 miles by 11 miles).

Pine Island Glacier is the largest discharger of ice in Antarctica and the continent's fastest moving glacier. It is located in an area of the West Antarctic ice sheet that is believed to be the most susceptible to collapse, making the evolution of this glacier of great interest to the scientific community.

In mid-2000, a large crack formed across the glacier. The crack took the glaciological community by surprise, particularly the rapidity of its growth, which was not expected to reach the other side of the glacier until sometime in 2002. Data gathered from other imaging instruments indicated the crack in the shelf ice was growing at a rate averaging 15 meters (16 yards) a day and was rotating about 1 percent per year at the seaward margin of the rift. The images show that the last 10-kilometer (7-mile) segment that was still attached to the ice shelf snapped off in a matter of days.

The first image in this set was captured in late 2000, early in the development of the crack. The second and third views were acquired in November 2001, before and after the formation of the new iceberg.

The newly hatched berg, the largest such event ever witnessed in this region, represents nearly seven years of ice outflow from Pine Island Glacier released to the ocean in a single event. This event is of interest to NASA's Earth Science Enterprise which seeks to characterize, understand, and predict how the Earth is changing and what the consequences are. While the climatic extent of this calving event is not yet clear, previous measurements from MISR, the accelerated ice flow, and the steady decrease in the sea ice cover in front of the glacier provides scientists with additional evidence of rapid change in the region.

Credit: NASA/GSFC/LaRC/JPL MISR Team. Penguin photo courtesy of NOAA.