

Greenland Melting Ice Contributes More to Sea-level Rise



Information from ESA's CryoSat satellite reveals how melting ice in Greenland has recently contributed twice as much to sea-level rise as the prior two decades. Between 2011 and 2014, Greenland lost around one trillion tonnes of ice. This corresponds to a 0.75mm contribution to global sea-level rise each year – about twice the average of the preceding two decades.

The study, published in *Geophysical Research Letters*, combines data from the CryoSat mission with a regional climate model to map changes in Greenland ice sheet mass. It is the most detailed recent picture of ice loss from Greenland.

Height Variation in Fine Detail

CryoSat carries a radar altimeter that can measure the surface height variation of ice in fine detail, allowing scientists to record changes in its volume with unprecedented accuracy. The study demonstrates how the satellite has allowed researchers to map the complex regional pattern of imbalance.

The study also shows large variations in the amount of ice loss from year to year, with the highest losses occurring in 2012 when summer temperatures hit record highs. This demonstrates Greenland's sensitivity to sudden changes in the surrounding environment.

CryoSat's measurement of Greenland ice losses are in close agreement with those computed from NASA's GRACE mission, which carries sensors that are specially designed to weigh changes at the scale of the entire ice sheet.