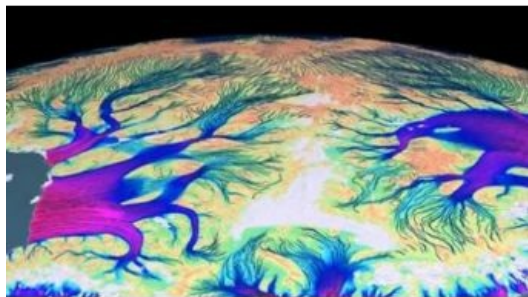


First Complete Map Of Antarctic Ice Flow



NASA-funded researchers have created the first complete map of the speed and direction of ice flow in Antarctica. The map, which shows glaciers flowing thousands of miles from the continent's deep interior to its coast, will be critical for tracking future sea-level increases from climate change. The team created the map using integrated radar observations from a consortium of international satellites.

"This is like seeing a map of all the oceans' currents for the first time. It's a game-changer for glaciology," said Eric Rignot of NASA's Jet Propulsion Laboratory in Pasadena, California, and the University of California (UC), Irvine. He is lead author of a paper about

the ice flow published online on Thursday in *Science Express*.

Rignot and UC Irvine scientists Jeremie Mouginot and Bernd Scheuchl used billions of data points captured by European, Japanese and Canadian satellites to weed out cloud cover, solar glare and land features masking the glaciers. With the aid of NASA technology, the team painstakingly pieced together the shape and velocity of glacial formations, including the previously uncharted East Antarctica, which comprises 77% of the continent.

Like viewing a completed jigsaw puzzle, the scientists were surprised when they stood back and took in the full picture. They discovered a new ridge splitting the 5.4 million-square-mile landmass from east to west.

The team also found unnamed formations moving up to 800 feet annually across immense plains sloping towards the Antarctic Ocean and in a different manner than past models of ice migration.

"The map points out something fundamentally new: that ice moves by slipping along the ground it rests on," said Thomas Wagner, NASA's cryospheric program scientist in Washington. "That's critical knowledge for predicting future sea level rise. It means that if we lose ice at the coasts from the warming ocean, we open the tap to massive amounts of ice in the interior."

The work was conducted in conjunction with the International Polar Year (IPY) (2007-2008). Collaborators worked under the IPY Space Task Group, which included NASA, the European Space Agency (ESA), Canadian Space Agency (CSA), Japan Aerospace Exploration Agency, the Alaska Satellite Facility in Fairbanks, and MacDonald, Dettwiler and Associates of Richmond, British Columbia, Canada. The map builds on partial charts of Antarctic ice flow created by NASA, CSA and ESA using different techniques.