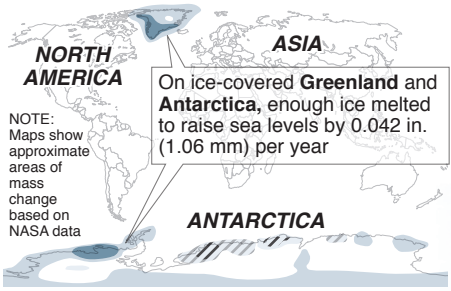
# Huge ice pack loss detected

*Using NASA satellite data, researchers comprehensively studied loss in mass from all of Earth's land and pack ice between 2003 and 2010. The results show a global sea level rise of about 0.5 in. (12 mm) during the study period, a huge amount of water gain.*

## Glaciers, ice caps in Antarctica and Greenland

*Average yearly mass change, in centimeters*

-8 to -15 | -1 to -7 | 0 to +1 | +2 to +3

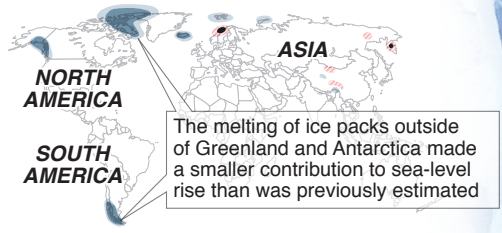



Edge of Ross Ice Shelf, in Antarctica

## Ice change outside of those two regions

*Average yearly change in ice thickness, in centimeters*

-3 to -4 | -1 to -2 | 0 to +0.5 | +0.6 to +1

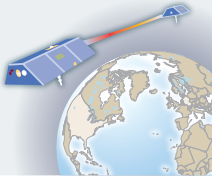



## Some key numbers from the new study

- Total global ice mass lost from 2003 through 2010 was about **4.3 trillion tons**
- That's enough to cover the entire United States with a layer **1.5 ft. (0.5 m) deep**
- Until this effort, only a few hundred of the roughly **200,000 glaciers worldwide** had been monitored for multiple years in a row

## The GRACE mission

- Pair of satellites launched in 2002, orbiting at 301 miles (485 km), about 137 miles (220 km) apart
- Can track minute changes in the Earth's variable gravity fields and changes in mass



Graphic: Robert Dorrell
Source: NASA Jet Propulsion Laboratory, University of Colorado, NOAA