



**American Institute of Aeronautics and Astronautics**  
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## Aerospace News

November 26, 2016  
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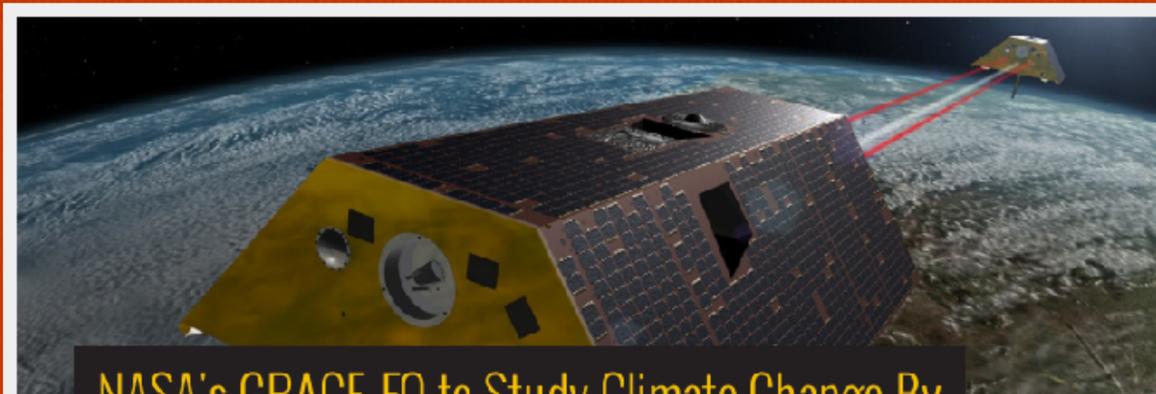
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[Inverse, James Grebey (NASA), November 14, 2016] Though some higher-ups in the American government don't believe in climate change, NASA is dedicated to studying how our planet is reacting to this man-made threat. To that end, the space agency just completed the first of two satellites that will orbit the planet that will use absurdly precise measurements of Earth's gravity to track melting glaciers, underground water reserves, and more.

The mission, Gravity Recovery and Climate Experiment Follow-On (GRACE-FO), consists of two new satellites, which are gunning for a launch in late 2017 or early 2018. The trapezoidal twins will operate in tandem, constantly measuring the distance between them as they orbit the globe. A GPS system and a microwave ranging system will allow them to determine how far apart they are to within one micron.



NASA's GRACE-FO to Study Climate Change By Measuring Gravity

Credit: Inverse ([inverse.com](http://inverse.com))

That distance will change, subtly, as the gravity pull of the Earth changes depending on where they are in orbit. Changes — whether due to seasons, weather, natural disasters and, yes climate change — can alter the positioning of masses of water, ice, air, and solid ground. By studying Earth's mass redistribution, scientists are able to gain new insights into how the planet is changing.

"GRACE data have revolutionized our understanding of Earth's water cycle and how water and ice are distributed on the planet," explained Frank Webb, a GRACE-FO program manager. "From it, we can see clear trends in the ice-mass loss in the Arctic and the Antarctic, and clear trends in droughts in South America, Australia, and Asia."

"These are key indicators of how the planet is responding to changes in our climate," Webb said in a statement.

As the "Follow-On," in the name suggests, GRACE-FO is a successor to an earlier mission from 2002 that's still operating to this day. Once GRACE-FO joins its forebear up in space, it will study the planet for five years, providing scientists with an updated measurement of Earth's gravitational field every 30 days while also studying the atmosphere and ionosphere on a daily basis.

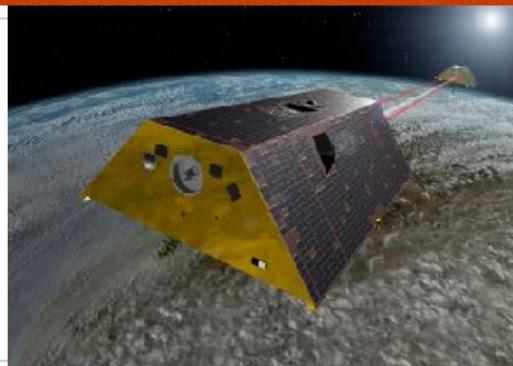
Acronym: GRACE-FO

Type: Orbiter

Status: Future

Launch Date: 2017

Target: Earth



Left: (via Inverse) Airbus DS GmbH-A.Ruttloff 2016.

Additional image credits: NASA.

# GRACE Follow-On

Gravity Recovery and Climate Experiment Follow-On

