Global Glacier Mass Continuity

Fact Sheet

Project Information

ICEMASS

Grant agreement ID: 320816

Project closed

Start date
1 March 2013

End date
28 February 2019

Funded under
Specific programme: "Ideas" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 2 395 320,00

EU contribution
€ 2 395 320,00

Coordinated by
UNIVERSITETET I OSLO
Norway

Objective

For the first time in history satellite data and respective archive holdings are now sufficient in terms of their spatial and temporal resolution, and their accuracy, to measure volume changes, velocities and changes in these velocities over time for glaciers and ice caps other than ice sheets on a global scale.
The ICEMASS project will derive and analyse glacier thickness changes using satellite laser and radar altimetry, and satellite-derived and other digital elevation models, and convert these to a global glacier mass budget. Such data set will enable

major steps forward in glacier and Earth science, in particular: constrain current sea-level contribution from glaciers; complete climate change patterns as reflected in glacier mass changes; quantify the contribution of glacier imbalance to river run-off; allow to separate glacier mass loss from other components of gravity changes as detected through satellite gravimetry; and allow improved modelling of the isostatic uplift component due to current changes in glacier load.
These results will be connected to global-scale glacier dynamics, for which a global set of repeat optical and radar satellite images will be processed to measure displacements due to glacier flow and their annual to decadal-scale changes. The analysis of these data will enable several major steps forward in glacier and Earth science, in particular: progress the understanding of glacier response to climate and its changes; provide new insights in processes underlying spatio-temporal variability and instability of glacier flow on decadal scales; improve understanding of dynamic thickness change effects; allow estimating global calving fluxes; progress understanding of transport in glaciers and their role in landscape development; and help to better assess potentially hazardous glacier lakes.

Fields of science (EuroSciVoc)

humanities > history and archaeology > **history**

engineering and technology > mechanical engineering > vehicle engineering > aerospace engineering > **satellite technology**

engineering and technology > electrical engineering, electronic engineering, information engineering > information engineering > telecommunications > radio technology > **radar**

natural sciences > earth and related environmental sciences > atmospheric sciences > climatology > **climatic changes**

natural sciences > physical sciences > optics > **laser physics**

Programme(s)

FP7-IDEAS-ERC - Specific programme: "Ideas" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

ERC-AG-PE10 - ERC Advanced Grant - Earth system science

Call for proposal

ERC-2012-ADG_20120216
See other projects for this call

Funding Scheme

ERC-AG - ERC Advanced Grant

Host institution

UNIVERSITETET I OSLO

EU contribution

€ 2 395 320,00

Total cost

No data

Address

PROBLEMVEIEN 5-7
0313 Oslo
Norway

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Beneficiaries (1)

UNIVERSITETET I OSLO

Norway

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Last update: 1 April 2016

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