Transition into the Anthropocene: learning about the climate system from the 19th and early 20th century

Fact Sheet

Project Information

TITAN

Grant agreement ID: 320691

Project closed

Start date
1 February 2013

End date
31 January 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
€ 2 445 547,03

EU contribution
€ 2 445 546,00

Coordinated by
THE UNIVERSITY OF EDINBURGH
United Kingdom

Objective

The research proposed here will use a novel and fully-integrated data-modelling approach to provide a step-change in our understanding of the nature and drivers of climate variability and change on the societally-relevant timescales of decades to

centuries. Identifying the causes of observed changes in climate requires an understanding of the natural, internally generated variability of the climate system, and of the response of climate to external influences. Our present knowledge is heavily weighted towards changes observed over the recent few decades. This proposal focuses on the early Anthropocene, namely the 19th through to the early 20th century. This period covers the emergence from an anomalously cold period, the so-called 'Little Ice Age', and shows periods of warming including the still enigmatic early 20th century warming. Newly available observational data now make it possible to analyze this period in detail. 'Fingerprints' for climate changes in response to external drivers, such as changes in atmospheric composition, solar radiation, and volcanism will be used to estimate the contribution by these factors to observed changes over the 19th and early 20th century. These fingerprints will be based on a large, multi-model ensemble of climate model simulations that is presently becoming available. Changes in observed temperature, sea ice variations, and precipitation will be linked to the state of the atmospheric circulation. Targeted model simulations will help to determine the role of sea surface temperature patterns and atmospheric and oceanic circulation in setting temperature records in the 1930s and 1940s. The result will be a synthesis of the causes of climate change over the early Anthropocene, an improved estimate of the natural variability of climate, probabilistic estimates of the climate's transient sensitivity to greenhouse gas increases, and improved understanding of the response of sea ice, precipitation, and temperature extremes.

Fields of science (EuroSciVoc)

natural sciences > earth and related environmental sciences > geology > **volcanology**

natural sciences > earth and related environmental sciences > atmospheric sciences > meteorology > **solar radiation**

natural sciences > earth and related environmental sciences > atmospheric sciences > meteorology > **atmospheric circulation**

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

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

THE UNIVERSITY OF EDINBURGH

EU contribution

€ 2 012 245,00

Total cost

No data

Address

OLD COLLEGE, SOUTH BRIDGE
EH8 9YL Edinburgh
United Kingdom

Region

Scotland > Eastern Scotland > Edinburgh

Activity type

Higher or Secondary Education Establishments

Links

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

Beneficiaries (2)

THE UNIVERSITY OF EDINBURGH

United Kingdom

EU contribution

€ 2 012 245,00

Address

OLD COLLEGE, SOUTH BRIDGE
EH8 9YL Edinburgh

Region

Scotland > Eastern Scotland > Edinburgh

Activity type

Higher or Secondary Education Establishments

Links

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

Total cost

No data

THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

United Kingdom

EU contribution

€ 433 301,00

Address

WELLINGTON SQUARE UNIVERSITY OFFICES
OX1 2JD Oxford

Region

South East (England) > Berkshire, Buckinghamshire and Oxfordshire > Oxfordshire

Activity type

Higher or Secondary Education Establishments

Links

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

Total cost

No data

Last update: 2 August 2019

Permalink: https://cordis.europa.eu/project/id/320691