Je-S form sections

# Objectives (4000 chars)

The overall objective of the project is to cement and strengthen UK leadership in the field of coupled ice-sheet-climate modelling, through the deepening of an existing, unfunded international collaboration, and by the development of an international network of model users and providers. In particular, we will work with the developers of the Community Earth System Model in the US (CESM), and the Hadley Centre (UK). In addition, we will work with a broad spectrum of scientific stakeholders to achieve the most widely-applicable solution, and focus on the impact that the work will have among these parties. There are two broad aims:

1. Development of a generic technical and scientific framework for ISM-GCM coupling, which will define a standard for ice sheet models (ISMs) and global climate models (GCMs) to use in the future. This will first involve the definition of scientific and technical requirements. From these, a specification of ice sheet model internal and external interfaces (API) will be constructed.

2. Implementation of the ISM part of the framework within Glimmer-CISM, and the GCM part within CESM and the Hadley Centre climate models. In addition, we will make improvements to Glimmer-CISM accessibility and usability, including a new graphical user interface. We will create and deliver training materials and courses for the user-community, and establish a longer-term community network to provide a forum for future developments.

Specific aims, in order of priority are:

1. Development of comprehensive ISM/GCM coupling API, based on experiences of Hadley Centre and CESM partners.

2. Implementation of API in Glimmer-CISM/CESM coupled model

3. Implementation of API in Glimmer-CISM/HadGEM3 coupled model

4. Widespread engagement of ISM/GCM communities in these issues

5. Successful training events drawing in modellers from across the international ISM/GCM communities

6. Improved Glimmer-CISM website incorporating training materials

7. New graphical user interface for Glimmer-CISM

# Summary (4000 chars)

The impact of climate change on the Greenland and Antarctic ice sheets is a problem of great importance to society. At the moment, we do not have very good estimates for the amount that these ice sheets will shrink during the coming century, and consequently it is difficult to predict how much sea level will change. Sea level rise is a concern because of the difficulties it would cause to the millions of people worldwide who live in low-lying areas.

# Academic Beneficiaries (4000 chars)

# Impact Summary (4000 chars)