Non-technical Summary CASP Nunavut Research Permit Application

We wish to apply for a multi-area and multi-year research permit to undertake fieldwork on the Canadian Arctic Islands of Ellesmere, Axel Heiberg and Ellef Ringnes.

1. Project title:
The palaeoenvironmental and structural evolution of the Sverdrup Basin, Canadian Arctic Islands

2. Research team members:

Name	Geological Speciality	Affiliation
Dr. Peter Hülse (Project Leader)	Sedimentology & Regional Geology	CASP
Dr. Berta Lopez-Mir	Structural Geology	CASP
Dr. Simon Schneider	Palaeontology	CASP
Timothy Burton	Field Assistant/Field Safety	Independant

3. Project Location:
Fieldwork is planned in the areas listed below. More details can be provided if necessary. These sites will serve as base camps. Work will be done on foot. Final camp locations may change depending on accessibility.

Ellesmere Island:

- Tanquary Fiord area. Potential camp site: N 81˚07', W 78˚50'

Axel Heiberg Island:

- Bukken Fiord area. Potential camp site: N 80˚50', W 94˚46'
- Whitsunday Bay. Potential camp site: N 79˚04', W 86˚48'

Ellef Ringnes Island:

- Central Ellef Ringnes Island. Potential camp site: N 78˚32', W 100˚54'

4. Time frame:
The fieldwork is part of CASP long-term research programme in the Canadian Arctic Islands. Work will be undertaken during summers of 2015 to 2018. CASP field seasons usually last four to six weeks but can last up to eight weeks. Field work will be done between June 20th and August 20th.

5. Project description:
The CASP 2015-2018 field programme aims to study the geological evolution of the Canadian Arctic Islands. This work builds on published information and on previous CASP field work conducted between 2007 and 2014 on Axel Heiberg and Ellesmere islands. The principal aim is to beter understand the evolution of the Canadian Arctic Islands through time. This is recorded in the sedimentary rocks. Analyzing these rocks in terms of composition and age will give us information

about A) the source region from where these rocks originate; B) their transport history (for example in ancient rivers); C) their environment of deposition. With our research we will contribute to a better understanding of the evolution of environmental conditions in the Canadian Arctic over millions of years. Our results will also explain the linkage of the Canadian Arctic to other regions, such as Alaska, Greenland, Svalbard and Russia. This is not only important for the scientific community, but also for political decisions and the economic potential of the region.

6. Methodology

Once dropped off at the camp site by helicopter or Twin Otter, we will set up small field camps. All our work will be done on foot. We will be mapping using notebooks, photographs, compass and handheld GPS. We collect rock samples of about double fist size from the surface or by using a small hammer. This will not leave more trace than natural erosion. Because we require rock exposure for our work, nearly all our work will take place on firm, rocky ground. Samples will be shipped to the UK and analyzed in terms of chemical and physical properties. Fossil samples will help us to date our rock samples and to characterize the palaeoenvironment. They will be returned to the Natural History Museum in Ottawa after analyses are completed.

7. Data storage and access

All collected data will be stored at CASP and can be accessed by contacting the responsible CASP geologist. Results of analyses will initially be documented in internal CASP reports. At a later stage data will be published in scientific journals and will be available to the public. Reprints of these publications can be provided if requested. We can provide non-technical summaries at any time.