

- **Title:** Fuel transport and storage in preparation for expedition *CASE 19* (2017)
- **Principal Investigator:** Karsten Piepjohn, Federal Institute for Geosciences and Natural Resources (BGR), Germany.
- **Location:** depot Tanquary Fiord Camp (Quttinirpaaq National Park) or Eureka.
- **Timing:** 01.06.2016 – 31.05.2017
- **Description:**

Fuel transport and set-up of a fuel depot at Tanquary Fiord or Eureka in 2016 in preparation for planned expedition *CASE 19 – Kulutingwak Fiord* in 2017.

Field work of *CASE 19* is scheduled for summer 2017 with a base camp at Kulutingwak Fiord (depending on condition of existing airstrip). Study area is N-Ellesmere Island between Ward Hunt Island, Tanquary Fiord, Greely Fiord, and Nansen Sound (eventually N-Axel Heiberg Island). Transportation will be achieved by helicopter for 1 month and two helicopters for another month.

Field work in 2017 will require about 350 fuel drums. Consultations with PCSP and Parks Canada resulted in the approach to purchase fuel in 2016 and ensure its shipping the same season.

The 2017 expedition base camp will be supplied by fixed wing flights, allowing to keep the cache there small. Use of existing fuel cache at Tanquary Fiord reduces overall impact of field operations.

This application is only for the fuel logistics in 2016. In 2017 a full project description of *CASE 19* will be submitted.

- **Project objectives / methodology:**

No field work takes place in 2016, only fuel logistics need to be arranged one season ahead.

Multidisciplinary geoscientific research in 2017 will concentrate on the northernmost North American continental margin to better understand its geologic development including the Arctic Ocean. Previous CASE-expeditions to the Canadian Arctic identified margin parallel fault zones indicative for a sheared margin. This finding is significant for better understanding the evolution of the Arctic Ocean. Moreover, the age and deformational history of basement rocks there (the so-called Pearya crustal block) will be compared with rocks on Svalbard (Norway), to test the hypothesis that the Pearya crustal block was attached to Svalbard some 400 million years ago and collided with N-Ellesmere Island and N-Greenland some 350 million years ago. Most disciplines involved rely on collection of rock samples that will be analyzed in specialized laboratories later.

- **Transportation:**

Transport of 350 fuel drums by ship.

- **Structures (permanent / temporary):**

Temporary fuel depot with appropriate berms. Should *CASE 19* be canceled, removal of the depot is assured in 2017.

- **Restoration:**

After field work in 2017 all equipment, garbage, and empty fuel drums will be returned to Resolute Bay.

- **Benefits:**

Basic geoscientific research to improve understanding of the geologic development of the Arctic to learn how and when it developed as we know it today. Scientific outcomes will be published in geoscientific journals. Written reports will be provided including additional arrangements like registration of palaeontological samples with the Nunavut collection at the Canadian Museum. Individuals from Resolute Bay took repeatedly part in former CASE-expeditions. We like to maintain existing personal contacts and engage wildlife monitors and camp assistants again in 2017.