Project Title: The Haughton Impact Structure, Devon Island, Nunavut: Geological, biological and environmental effects.

Researcher's name and affiliation:
The project is led by Dr. Gordon Osinski from the University of Western Ontario, collaborating with Dr. Jerome Gattacceca and Dr. Pierre Rochon from the Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE).

Location: Haughton Impact Structure on Devon Island, Nunavut (75° 22' 18.30" N, 89° 32' 6.10" W).

Time Frame: From July 14, 2013, to July 31, 2013.

Project Description:
The Haughton impact structure is one of the best-preserved and best-exposed meteorite craters on Earth. Geological investigations at this crater over the past several years have revolutionized our understanding of various aspects of the impact cratering process. The research of this project focuses on understanding the geological, biological, and environmental effects of the impact event. The objectives of this year's field work are: 1) Investigate magnetic/gravity anomaly in the centre of the crater. 2) Map and investigate hydrothermal alteration. 3) Examine endolithic habitats within shocked rocks. 4) Detailed study of the intra-crater sedimentary deposits. 5) Continuation of long-term environmental monitoring via several weather stations installed around the crater.

Transportation to the site will be by Twin Otter to a landing strip within the Haughton Impact Structure. While on site, access to scientific sites will be accomplished using All Terrain Vehicles (ATV) and by walking. One day a helicopter will be used to travel to locations not accessible by ATV.

A temporary camp will be erected consisting of a Longhouse tent and several small personal tents. Water for camp use (approx. 0.04 m^3 per day) and drilling purposes (approx. 0.01 m^3 per day) will be collected from the nearby Haughton River. All combustible waste will be incinerated while all non-combustible waste will be returned to Polar Continental Shelf facilities for disposal.

At the conclusion of the field campaign, the camp will be dismantled and the terrain restored to its original state.

Methodology:
Objective 1: Geophysical instruments will be used to further define the magnetic anomaly. We then plan to drill on the top of the body to ~13 m depth to retrieve the lithology responsible for the anomaly.
Objective 2: Mapping will be conducted in the field and samples returned to perform laboratory analyses in order to determine fluid composition and temperature.
Objective 3: Samples of impact-shocked gneiss will be collected for analysis of endolithic microorganisms.
Objective 4: Stratigraphic sections, Ground Penetrating Radar, and samples will be collected in order to reconstruct the depositional history of the Haughton Formation and to identify possible fossil layers.
Objective 5: Access to the the Campbell Scientific weather stations will enable the weather station data collected to be downloaded.

Data/Reporting:
Data collected during this project will form the basis of several students' undergraduate honours research, Masters, and PhD projects. This will likely result in publications and presentations to be presented at various scientific and technical conferences around the world.