



Technical Program Call for Abstracts

The 43rd Annual Yellowknife Geoscience Forum

November 24 – 26, 2015

The Yellowknife Geoscience Forum provides an intimate setting for delegates from industry, academia, and government to exchange information on Mineral and Petroleum Exploration, Mining Activities, and Geoscience Research in Canada's North. The Forum consists of a trade show and a technical program. The 2015 Yellowknife Geoscience Forum is seeking presentations on Geoscience & Environmental Science Research and Geoscience-Related Presentations for its technical program.

The technical program sessions for 2015 are described on the [website](#) and include:

Geoscience & Environmental Science Research (Abstract – 500 word limit)

- ❖ Geoscience & Exploration
- ❖ Slave Province Surficial Materials and Permafrost Study (SPSMPS)
- ❖ Petroleum in Canada's North
- ❖ Environmental Monitoring and Research
- ❖ Impacted Environments: Understanding the status and fate of impacted environments in areas of new development

Geoscience-Related Presentations (Summary – up to 150 words)

- ❖ Infrastructure & Innovation
- ❖ Community Engagement & Education
- ❖ Regulatory & Policy Updates
- ❖ Mining: Building our Future

Abstract/Summaries Submission

- Abstracts/Summaries are required for both oral and poster presentations.
- Abstracts for the Geoscience & Environmental Science Research sessions are required and have a maximum limit of 500 words (See Page 2 for an example).
- Talk summaries for the Geoscience-Related Presentation sessions are required and will describe the presentation in up to 150 words (See Page 3 for examples).
- Presentations (oral and poster) from all relevant disciplines are welcome.
- All abstracts and talk summaries must be submitted **before 11:59pm MT Sunday October 25th** using the online submission page. Formatting is not required.

Contact

- [Kumari Karunaratne](#) with questions about the Technical Program
- [Doug Irwin](#) with questions about the online submission of abstracts/presentation summaries

Forum Registration

- [Registration](#) for the Geoscience Forum is through the NWT & Nunavut Chamber of Mines
- Badges will be checked at every venue.
- Both full and single day registration passes are available.
- **ALL SPEAKERS, POSTER PRESENTERS, AND SESSION CHAIRS MUST REGISTER.**

ABSTRACT EXAMPLE

The Giant Crest Iron Deposit – Yukon and Northwest Territories

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The Crest iron deposit (Crest IF) is located in the northern Mackenzie Mountains of the Yukon and Northwest Territories and is estimated to contain 5.6 billion tonnes @ 47.2% iron (drill-indicated historical resource estimate) with a regional reserve estimated at 18.6 billion tonnes¹. This is interpreted to be the third largest iron resource in North America, yet remains undeveloped due to total lack of infrastructure in the region. We completed a four-day reconnaissance study of Crest focusing on the Iron Creek area in the Yukon Territory and the farthest east occurrence in the Northwest Territories. Along with a brief review of the iron formation we will provide a geologic compilation, detailed measured sections, and dazzling outcrop photographs.

The Crest iron deposit formed syngenetically as iron formation within the Neoproterozoic, glacial-marine Rapitan Group. A granitic dropstone or ‘stranger stone’ in the Rapitan Group has been dated at 755 ± 14 Ma, providing a maximum age of deposition; a minimum age is only provided by the overlying Cambrian unconformity, however it has been speculated that the iron formation was deposited between 730-750 m.y. ago. The iron formation outcrops in three fault bounded blocks over 50 km along strike and thicknesses range up to 150 m. Where we investigated the iron formation, it is composed predominantly of rhythmically layered specular hematite with jasper nodules (previously termed pisolitic) with local interbedded hematite-jasper (i.e. banded). Sporadically interbedded with the iron-formation are tillites and intermittent 2-10 cm thick hematitic sandstones and carbonates.

The iron formation and hence the iron deposit have been interpreted to have formed during glacial retreat or during an interglacial period in a rifted-margin setting. In the glacial setting, iron was sequestered in the poorly oxygenated seawater, and once glacial retreat occurred and oxygen was carried into the basin, iron oxide precipitation occurred. We observed dropstones near the top of the iron formation, suggesting it was still overlain by glaciers late in its deposition history. This provides some conflicting evidence to the interglacial interpretation and future research could focus on this. Similarly, the glacial-marine rocks and the iron formation have been correlated globally as part of the Neoproterozoic ‘Snowball’ Earth hypothesis; however, precise geochronological constraints on the Crest iron-formation are not currently available (nor the Rapitan Group, nor overlying units) and dating targets remain cryptic and therefore correlations remain speculative. New U-Pb methods of dating (i.e. Laser-ablation ICP-MS) and dating of non-traditional minerals (e.g., diagenetic monazite, xenotime, and apatite) may be applicable and provide evidence for the precise timing of iron formation deposition.

SUMMARY EXAMPLES

Traditional Ecological Knowledge (TEK)/Inuit Qaujimajatuqangit (IQ) & the Resource Sector

English, C.¹ & Thorpe, N.²

(1) *Diavik Diamond Mines Inc, PO Box 2818, Yellowknife, NT*

(2) *Thorpe Consulting Services, 1627 Dogwood Drive, Revelstoke, BC, V0E 2S1*

A literature review was undertaken in an effort to demonstrate where TEK/IQ has been meaningfully incorporated into industrial development, specifically focusing on mineral development in the circumpolar Arctic, in the areas of baseline data collection, monitoring and closure planning.

The review resulted in 160 references that were compiled into a database and categorized as baseline, monitoring, closure, recommendations, science or other. This review helped to identify some of the reasons why TEK is not systematically and frequently integrated into mining and resource operations in a meaningful way. Eight key challenges to the integration of TEK into northern resource developments discussed in the literature and experienced as practitioners were identified and will be discussed in more detail.

Aboriginal mining companies helping create community benefits

Mackenzie, G.¹

(1) *President, Tli Cho Investment Corporation, Yellowknife, NT*

Aboriginal companies created as a result of mine development in the Tli Cho region today are reducing the need for social assistance for Tli Cho peoples. The Tli Cho Investment Corporation with its diversity of companies has become effective in helping local communities in large part due to their ability to offer and support training and to develop community capacity.