



A new Canadian research initiative funded by Canada First Research Excellence Fund









Todays Menu



SWAYZE

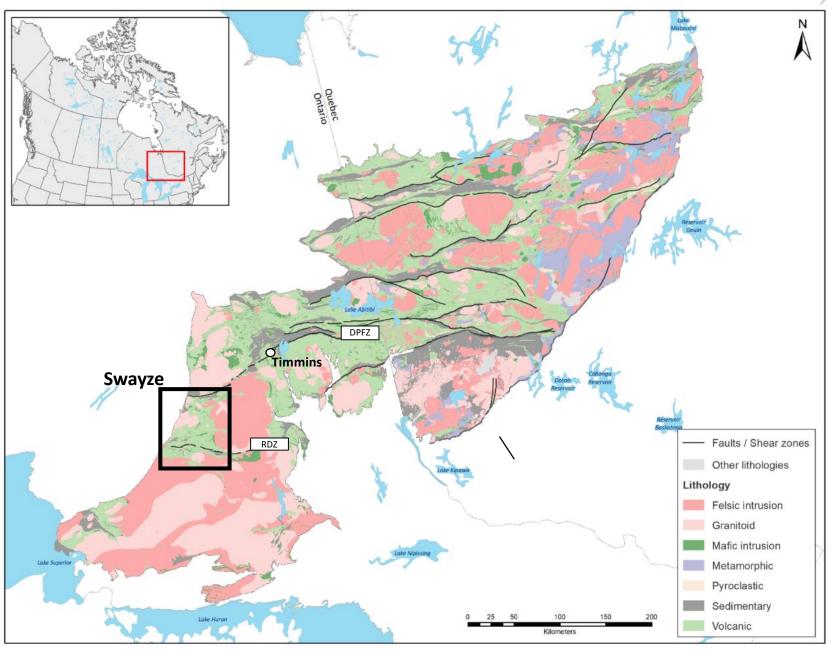
- Overall goals
- The Swayze Team and the main focus areas
- The Swayze Team Metal Earth and OGS
- The Swayze Transect Sedimentary Assemblages
- The Swayze Transect BIF as a stratigraphic marker
- The Swayze Transect Jefferson BIF and base metal mineralization
- The Swayze transect Metamorphism of the Jefferson BIF
- The Swayze transect Volcanic Stratigraphy and Architecture
- The Swayze transect Integrating geological and geophysical Data
- Main Conclusions and Future Work

MATHESON

- Map with the 2018 field activities and important industry collaborators
- Gravity
- Surface Geology and Seismic R1 interpretations
- Surface Geology and Seismic R2 interpretations
- Future work

The Swayze Greenstone Belt



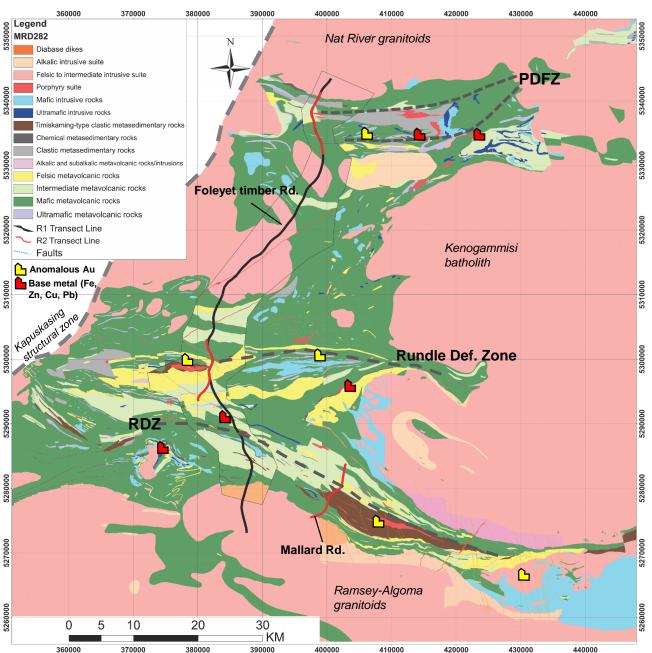


The Swayze Greenstone Belt – new updated map



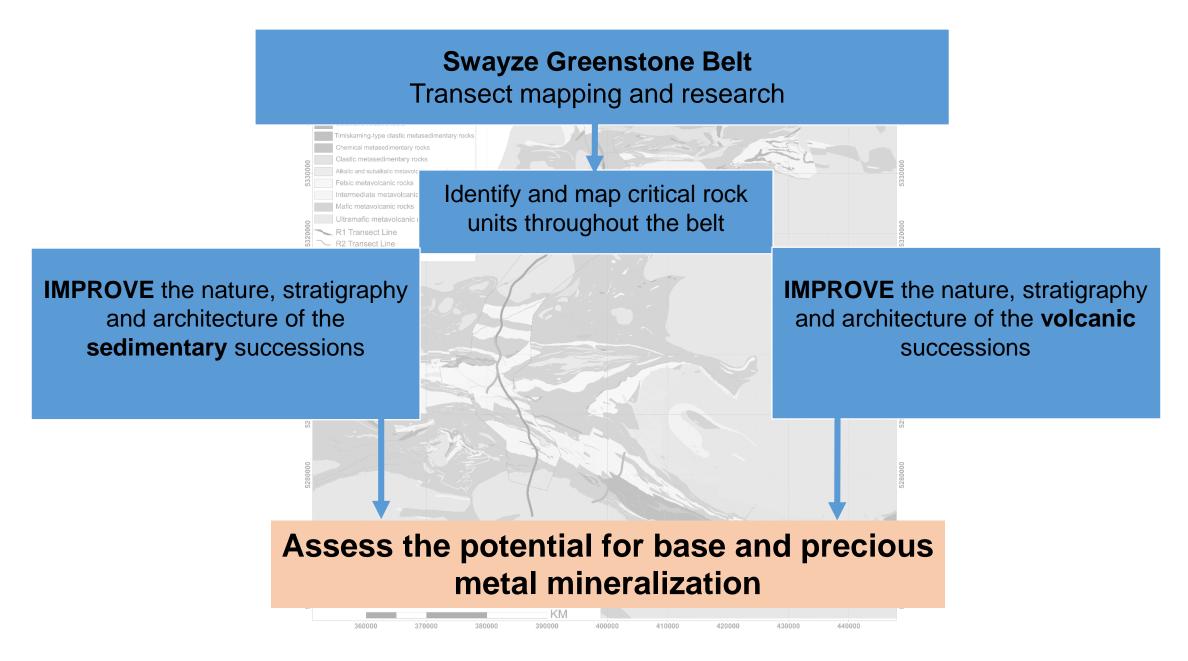
Swayze: 106.000 oz Au (Abitibi greenstone belt: 180

Moz Au)



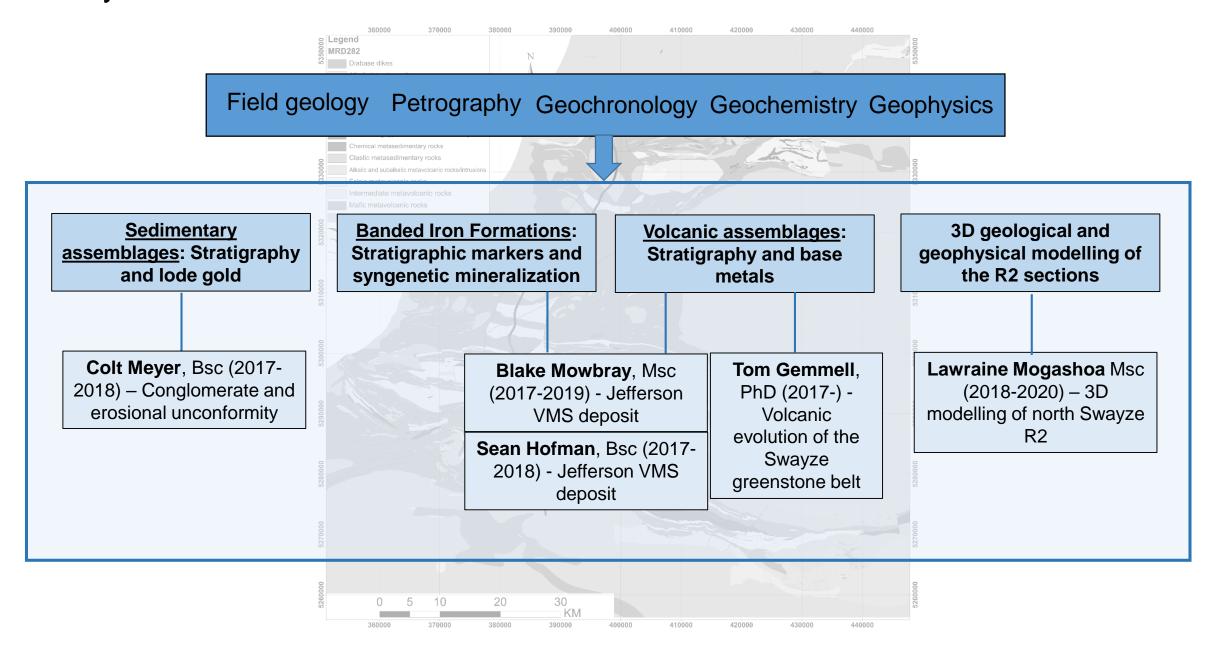
The Swayze Greenstone Belt – Overall Goals





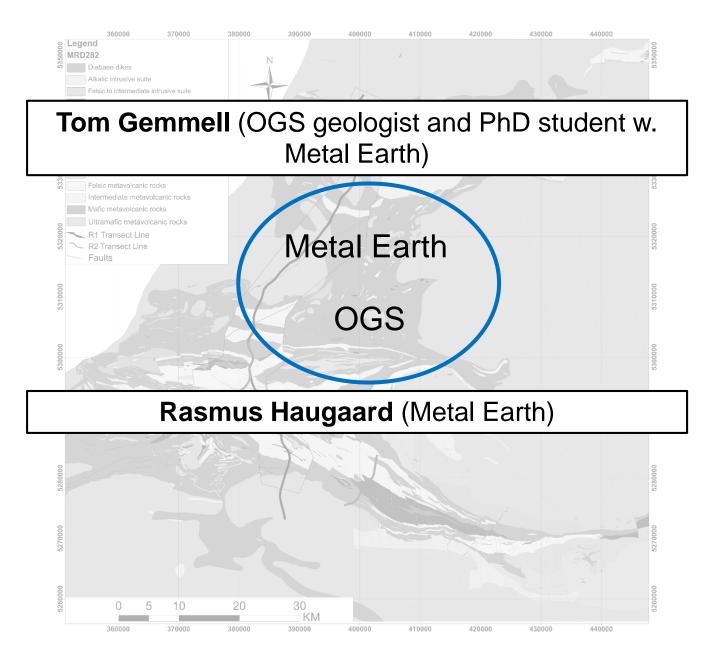
The Swayze Team and the main focus areas



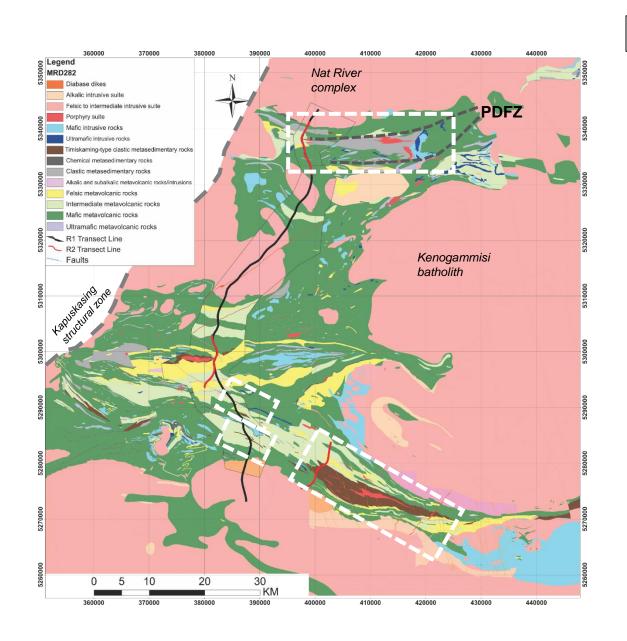


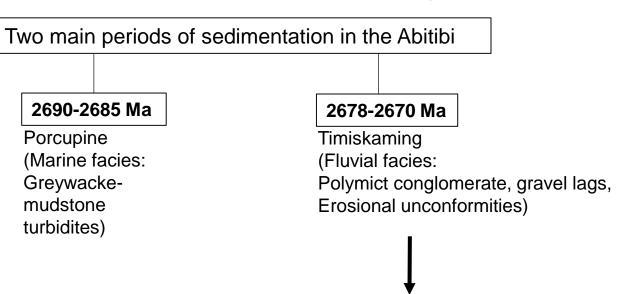
The Swayze Team – Metal Earth and OGS

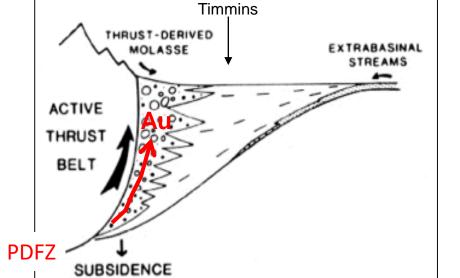










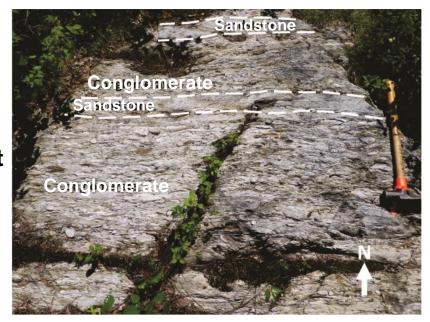


Modified from Helle (1988)

Syn-orogenic sediment



North Swayze sediment

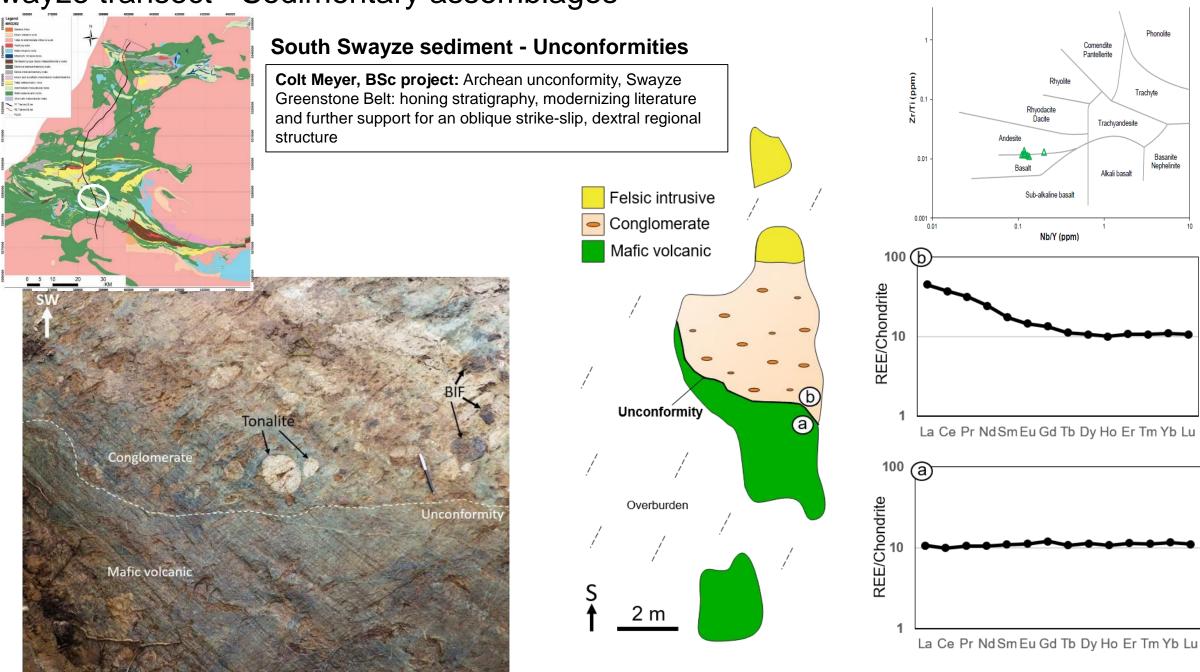




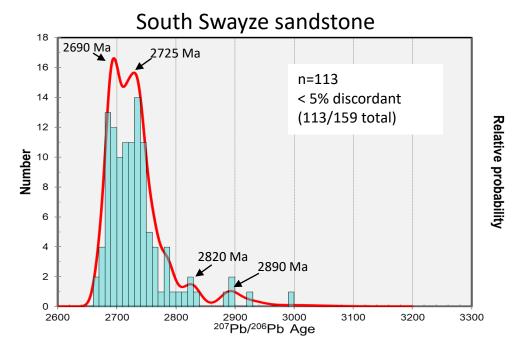
South Swayze sediment

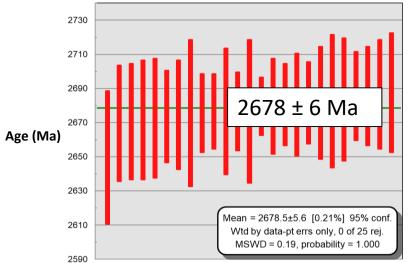


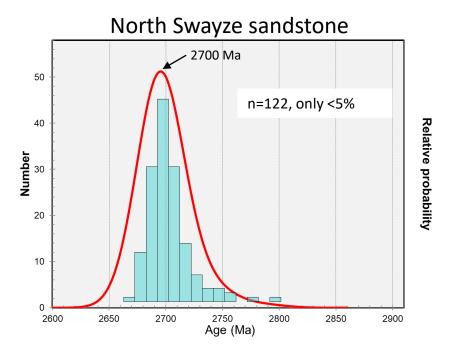




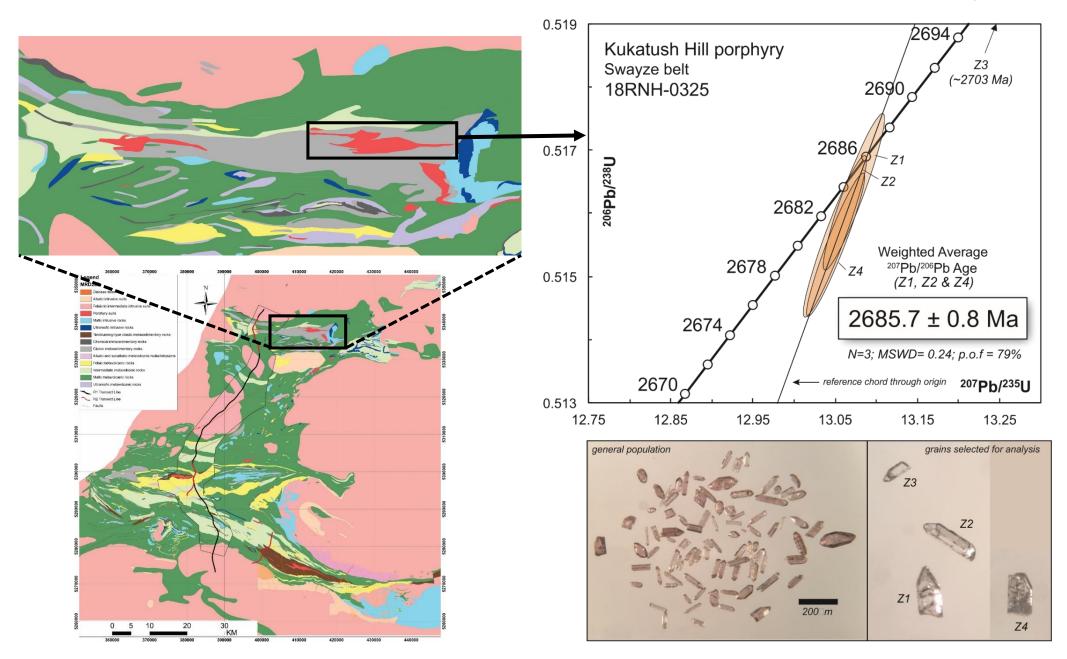






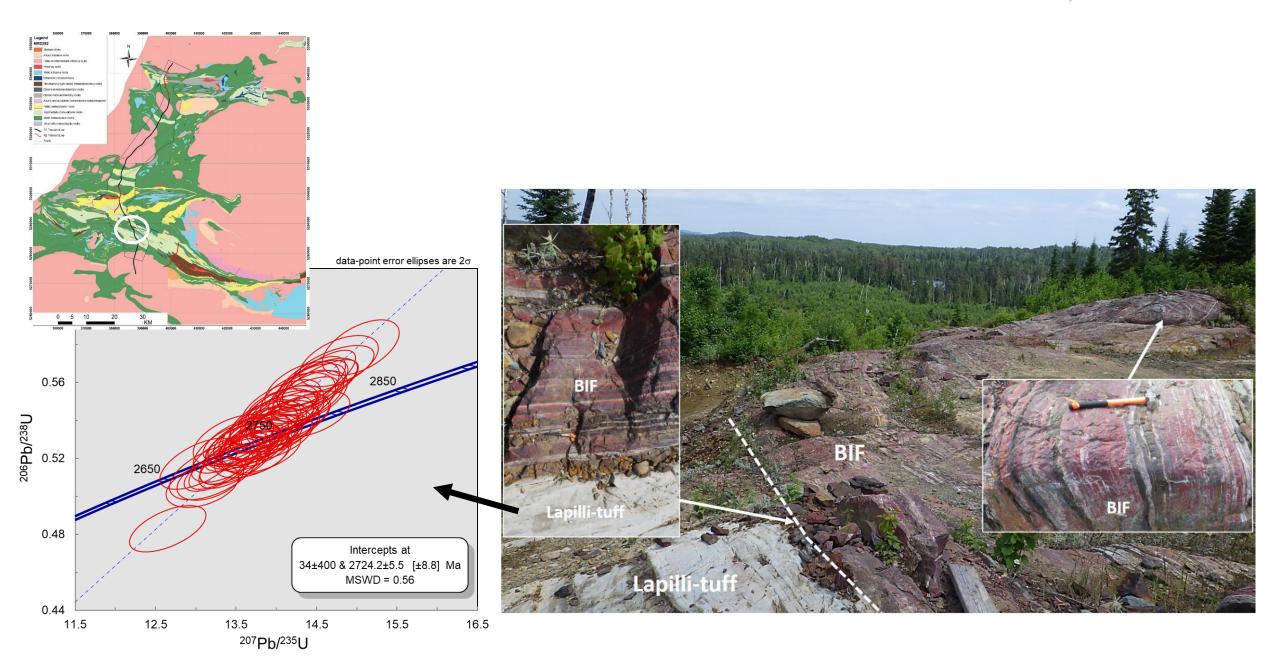






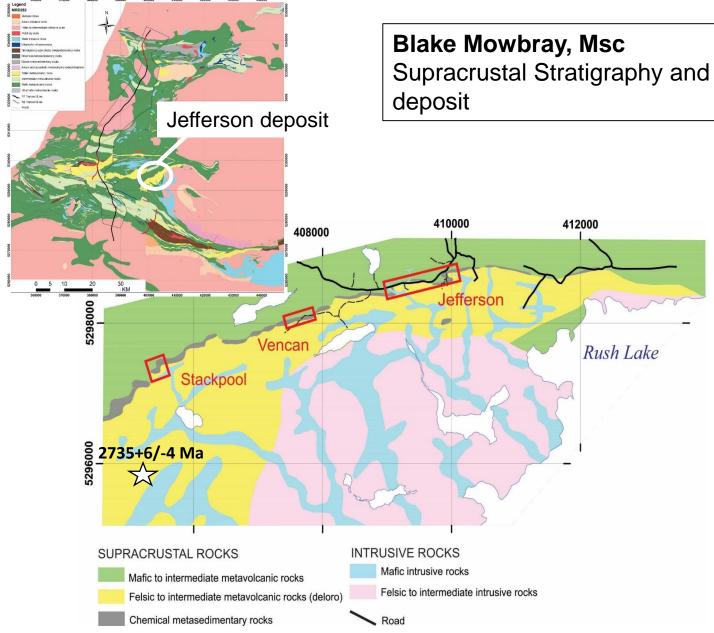
Swayze transect – BIF as stratigraphic marker





Swayze transect – Jefferson BIF and base metal mineralization



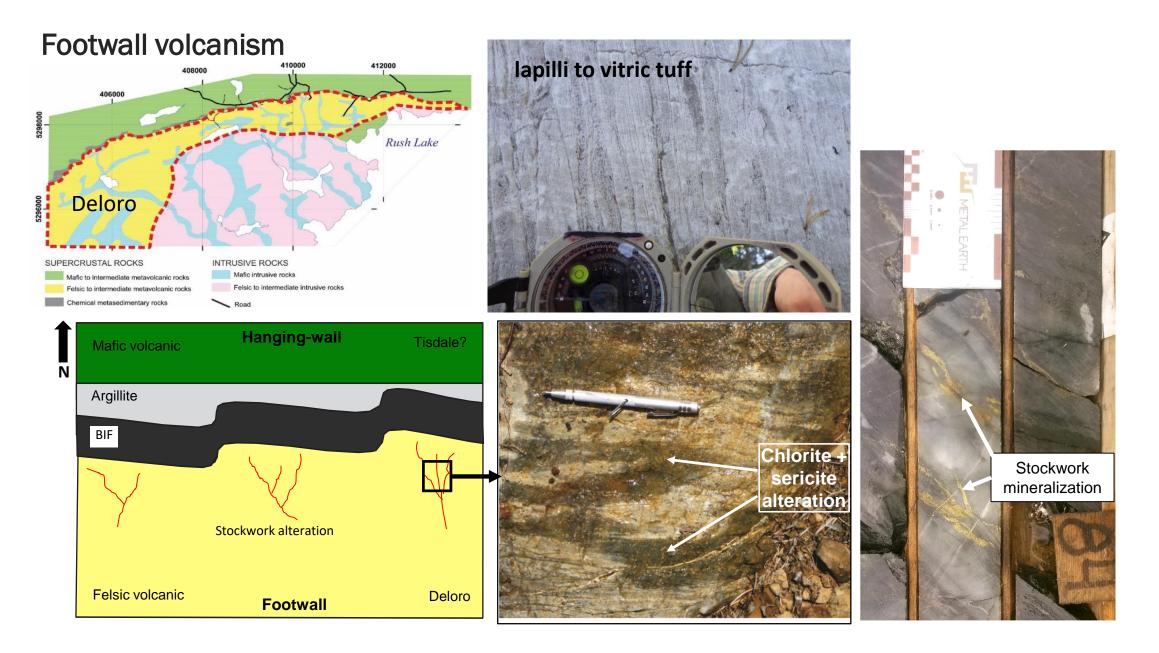


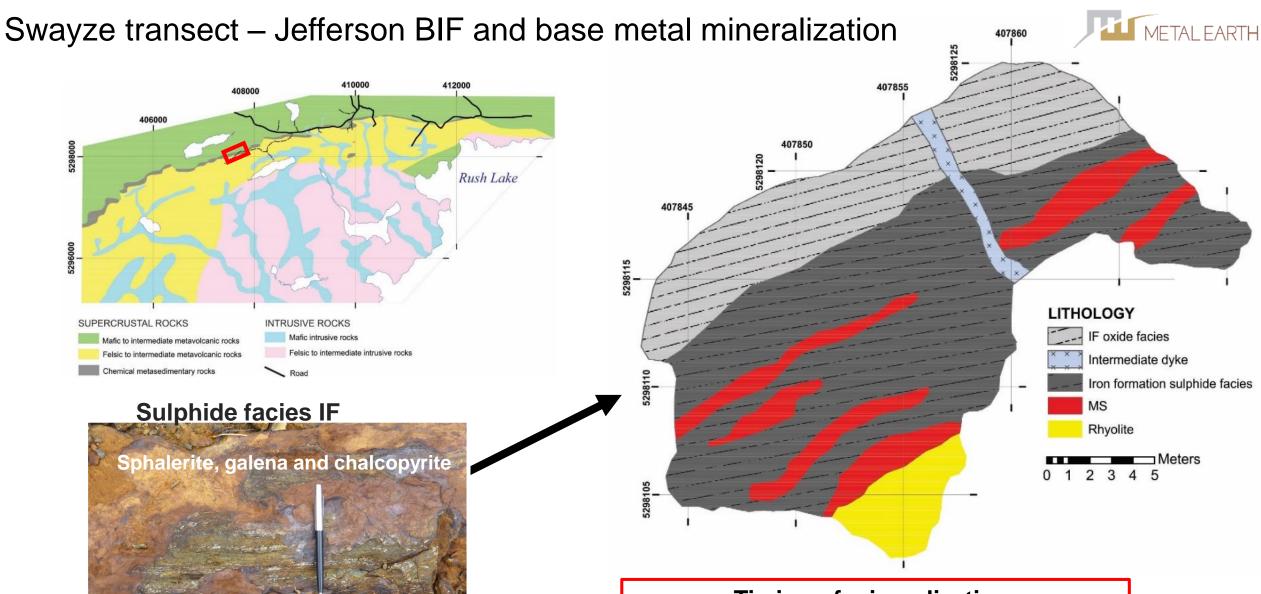
Supracrustal Stratigraphy and Mineralization of the Jefferson



Swayze transect – Jefferson BIF and base metal mineralization







Best intersection: 7.27% Zn over

8.50m

Timing of mineralization:
Syngenetic with BIF or synvolcanic with hanging wall volcanism?

Swayze transect – Metamorphism of the Jefferson BIF



Sean Hoffman, Bsc, (2017-2018)

Petrographic Study of Metamorphic Mineral Assemblages of the Jefferson Prospect

Hanging wall mineral assemblages

Early

Contact metamorphic assemblage: Almandine-rich Garnet + Hornblende + Oligoclase + Biotite + Quartz + Ilmenite

Later

Regional metamorphic assemblage: Fe-Actinolite + Chamosite + Epidote + Quartz

<u>Jefferson BIF mineral assemblages</u>

Early

Contact metamorphic assemblage:

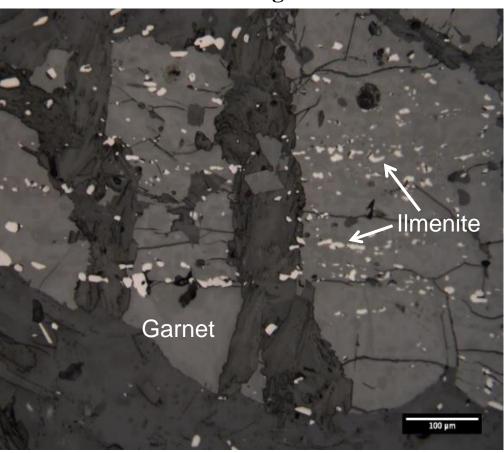
Almandine-rich Garnet + Anthophyllite + Grunerite / Cummingtonite + Quartz + Pyrrhotite

Later

Regional metamorphic assemblage:

Grunerite / Cummingtonite + Stilpnomelane + Chamosite / Clinochlore + Chloritoid + Quartz.

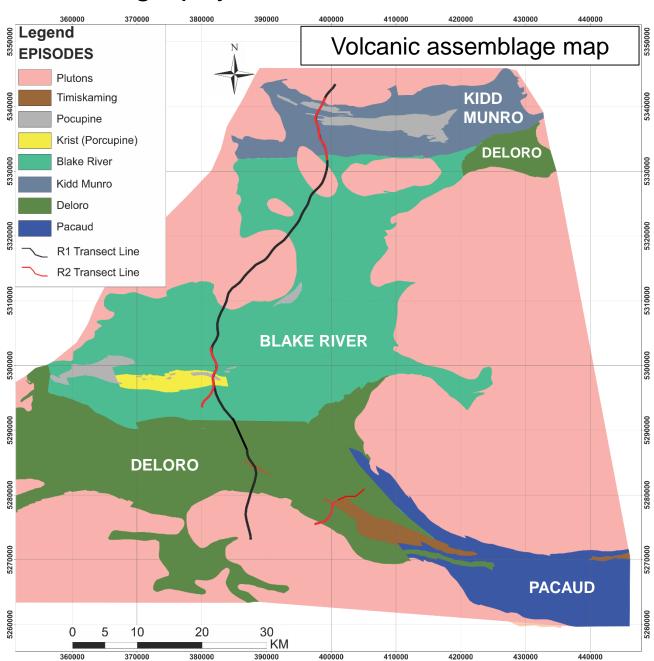
Garnet - ilmenite geothermometer



Swayze transect – Volcanic stratigraphy and architecture METAL EARTH Kidd Munro **2715±1.5** ^{2730±2} Deloro **Geochronology map** 2715±2 2718±2 The emerging of different volcanic terrains 2711±3 2703±1.5 Previous U-Pb TIMS ages 2702±1.5 ▲ Metal Earth TIMS **Blake River** and ICPMS ages 2703±1 ♦ Recent OGS TIMS 2702±2 ages ²2697±4 2705±2 2697±1 Krist? 2691.5±1.3 **△**2693±1 **→** 2695±2 - 2700±2 2735±5 **Deloro** 2724±5.5 2730±2 2724±1 **Pacaud** 2731±2 10 km

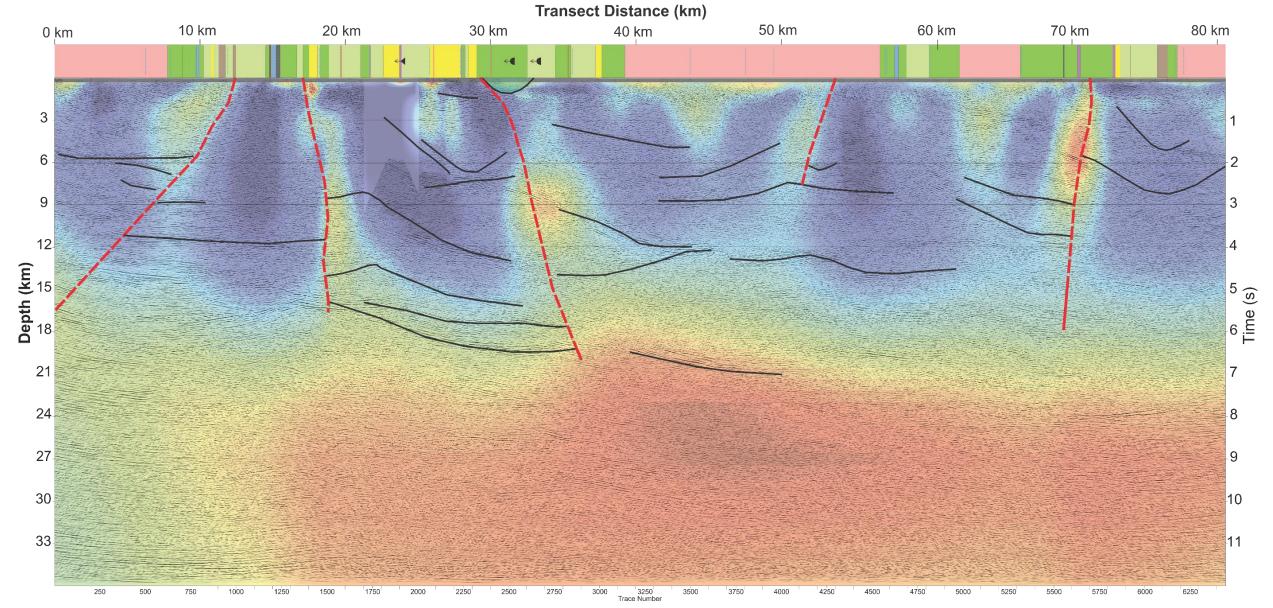
Swayze transect – Volcanic stratigraphy and architecture



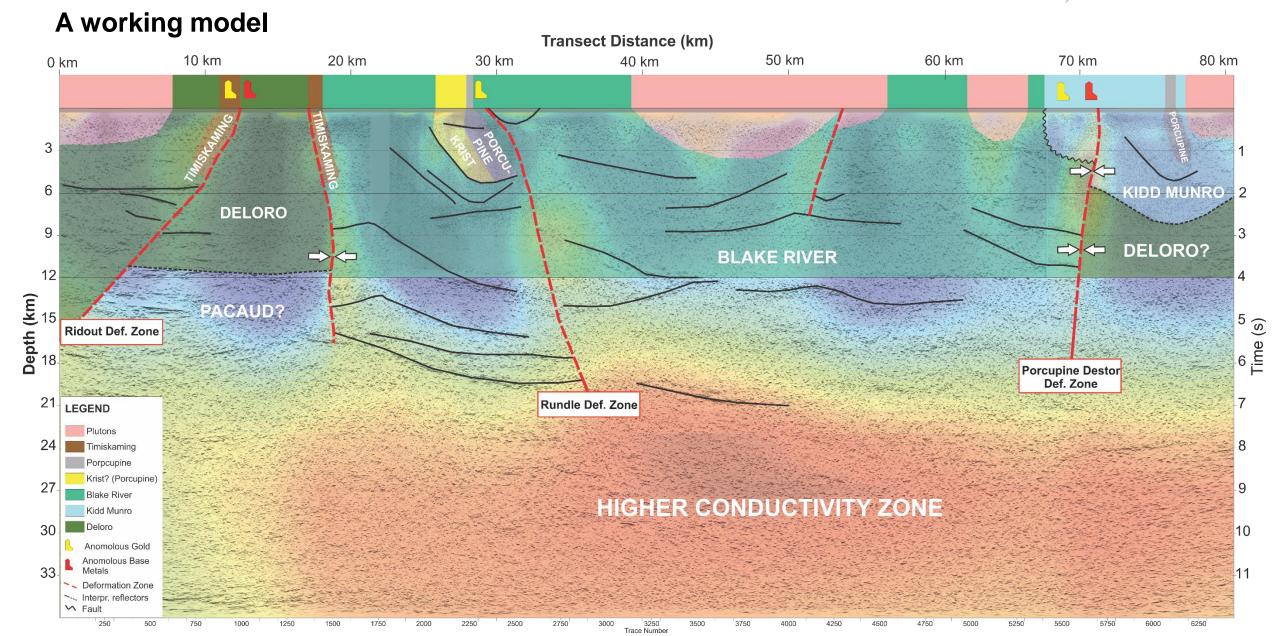


METALEARTH

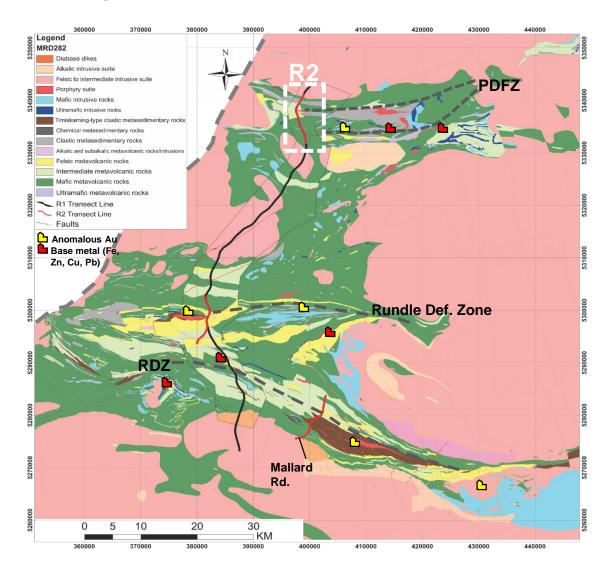
A working model



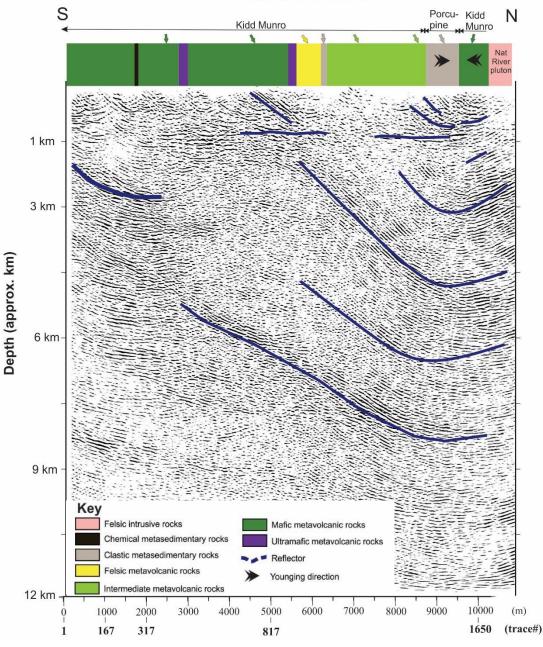




R2 migrated seismic



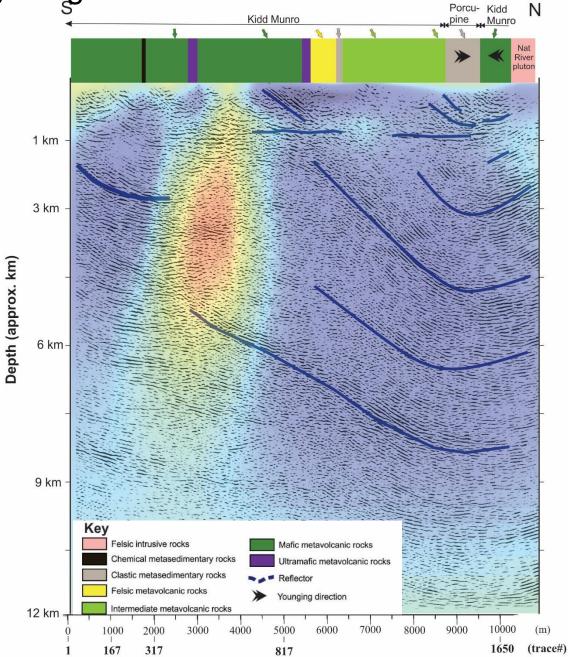




Swayze transect – Integrating the data R2-NORTH SWAYZE

METALEARTH

R2 migrated seismic and MT



R2 - NORTH SWAYZE



R2 migrated seismic, **MT** and interpretations

Key

Felsic intrusive rocks

Chemical metasedimentary rocks

Reflector

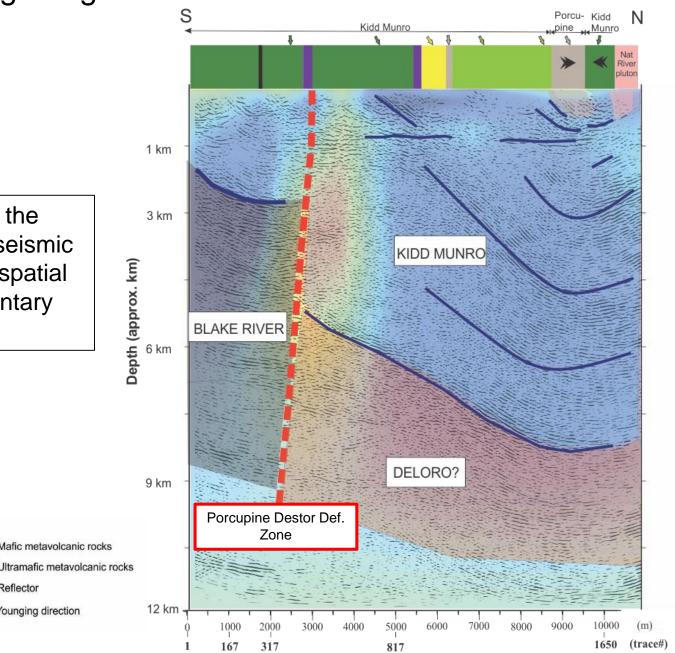
Younging direction

Clastic metasedimentary rocks

Intermediate metavolcanic rocks

Felsic metavolcanic rocks

Porcupine Destor Zone in the north is picked up by the seismic and MT and seems to be spatial unrelated with the sedimentary basin



Main Conclusions Swayze



- Integration of geological and geophysical data produce a work model for the Swayze transect where important volcanic terrain boundaries have been revealed
- New interpretations suggest a regional large block of Blake River in contact with Deloro in south and Kidd Munro in north. No Tisdale has been recovered in Swayze.
- Krist age felsic volcanics have been discovered in the central Swayze
- Two Timiskaming style conglomerate could mark the location of two deformation zones (incl. the Ridout)
 in the south Swayze as seen on the seismic and MT.
- Porcupine Destor Deformation Zone in the north seems to be picked up by the seismic and MT and be spatial unrelated with the sedimentary basin
- Porphyry age of 2685.7±0.8 Ma likely represents the minimum deposition age of the northern sedimentary basin
- Maximum deposition age of the south sedimentary basin is 2678±6 Ma

Important collaborators: Peter MacDonald (OGS); Tod Keast, Ben Berger, Charlie Mortimer; GFG Resources; IAMGOLD



Future work (<1 year) Swayze

Manuscripts

- Working title: Sedimentary basins of the Swayze area, Abitibi Greenstone Belt: provenance, timing and facies association Rasmus Haugaard, Thomas Gemmell, Jeff Marsch, John Ayer, Phil Thurston, Mike A. Hamilton
- Working title: Constraining the stratigraphy and assemblage-scale architecture of the Swayze Greenstone Belt: Assessing the base and precious metal potential

Future work (>1 year) Swayze

 Comparing the metallogeny established for the Swayze Belt to that of the metal endowed Eastern Abitibi Greenstone Belt to determine assemblage-scale differences and the processes responsible for metal endowment



The Matheson Transect

- Map with the 2018 field activities and important industry collaborators
- Gravity
- Surface Geology and Seismic R1 interpretations
- Surface Geology and Seismic R2 interpretations
- Future research work

Matheson transect

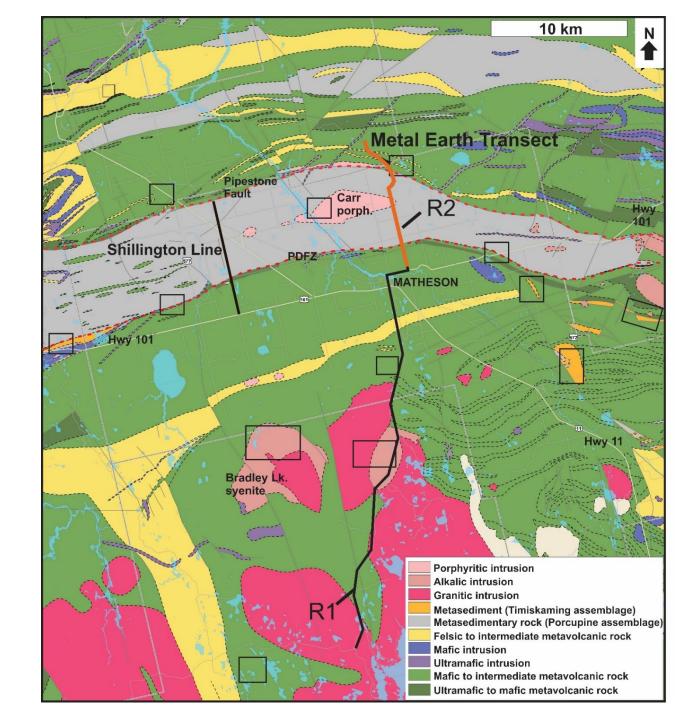
Metal Earth collaborators in Matheson

McEwen Mining

Moneta Porcupine Mines

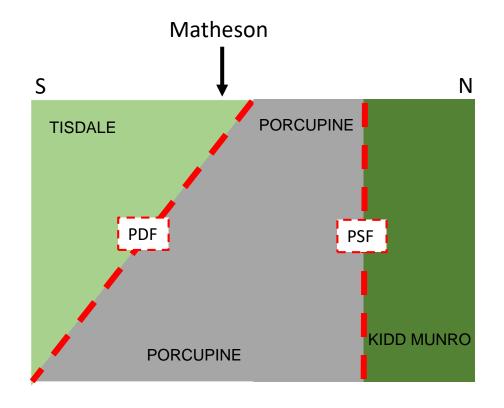
Kirkland Lake Gold

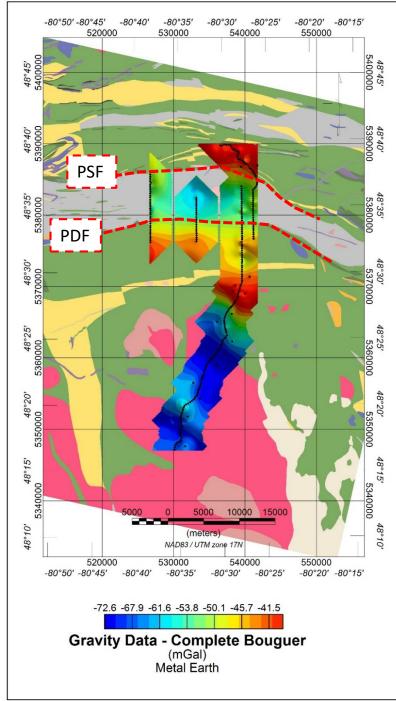
Local Prospectors





Matheson Transect - Gravity

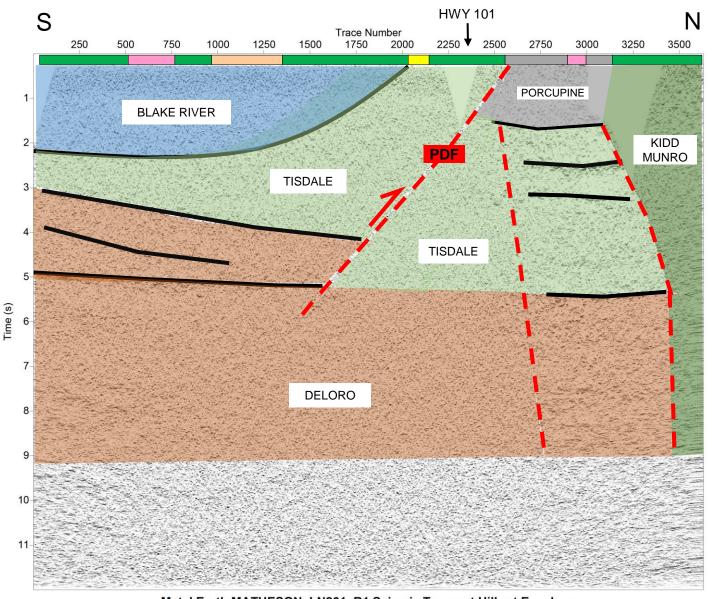






Matheson Transect – R1 Seismic

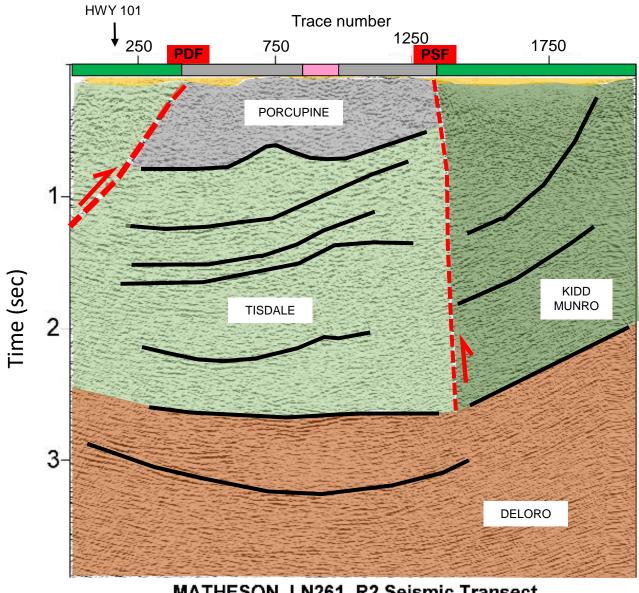




Metal Earth MATHESON_LN261_R1 Seismic Transect Hilbert Envelope

Matheson Transect – R2 Seismic





MATHESON_LN261_R2 Seismic Transect

Matheson Transect - Future research work



Improving the interpretation of geological and geophysical data in the attempt to constrain the metallurgical implications of the transect.

- Make detail comparison with the Discover Abitibi seismic lines further west thereby increasing the knowledge of the architecture in an east-west going direction
- Establish important intrusion ages of syenites and porphyries and characterize the sedimentary rocks south-east of the PDFZ





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