

Comparison of Paleoproterozoic orogenic gold deposits: Nalunaq & Vagar (South Greenland) and Svartliden (Northern Sweden)

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Gold deposits of the Swedish Gold Line and the Nanortalik Gold Belt (NGB) in South Greenland are of **orogenic type** and share intriguing similarities with respect to their ages, dimensions, variety of host rocks and their alteration styles, and tectonic setting. In both provinces, the Au mineralization is **structurally controlled**, and related to second-order shear zone structures. The Gold Line is a NW-SE trending belt defined by elevated Au values in a glacial till and host several Au deposits, whereas the NGB is defined by in situ Au in the host rocks. The most common alteration minerals in both provinces are **K-feldspar/biotite/sericite**, while the ore includes **arsenopyrite and pyrrhotite/löllingite**, reflecting addition of K, As, and S at the time of the gold mineralization. Both provinces are characterized by **intrusions of regional calc-alkaline granitoids**, sericite-altered in places. Here we attempt to compare their geology, geochemistry, time of formation, and to draw an attention to a potential geotectonic link - amalgamation of the Columbia/Nuna supercontinent and correlation of the Gold Line and the NGB.

References

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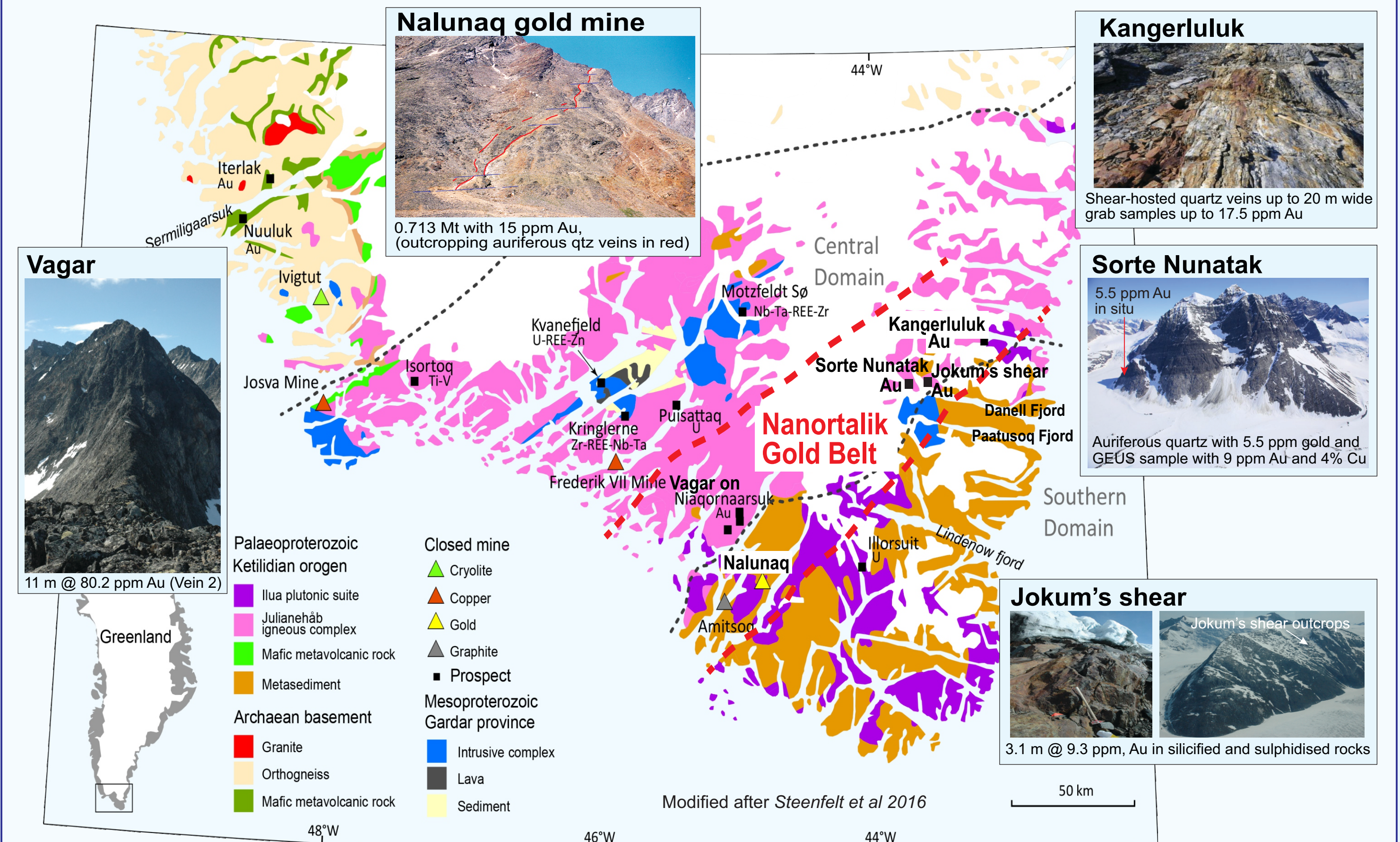
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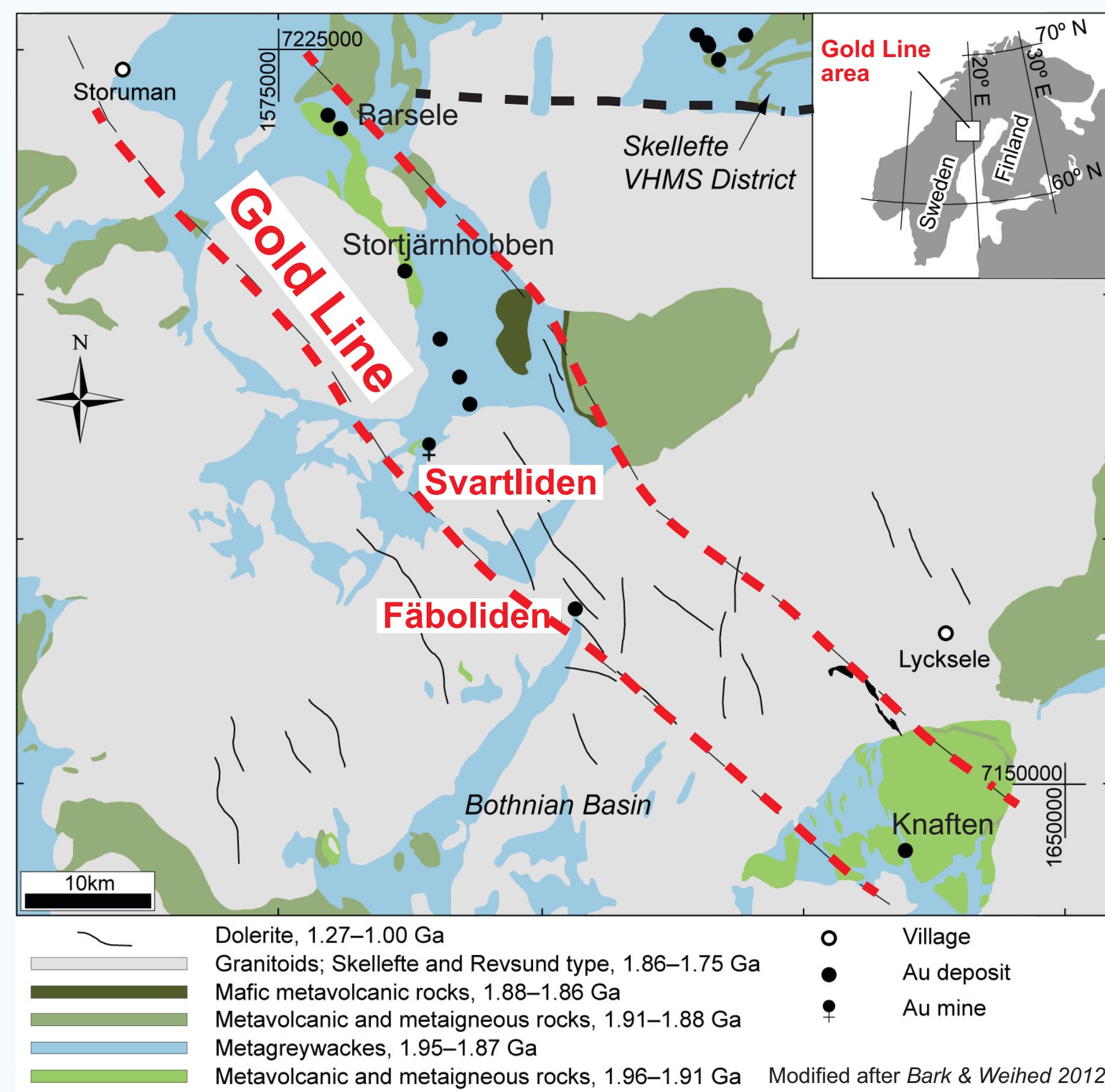
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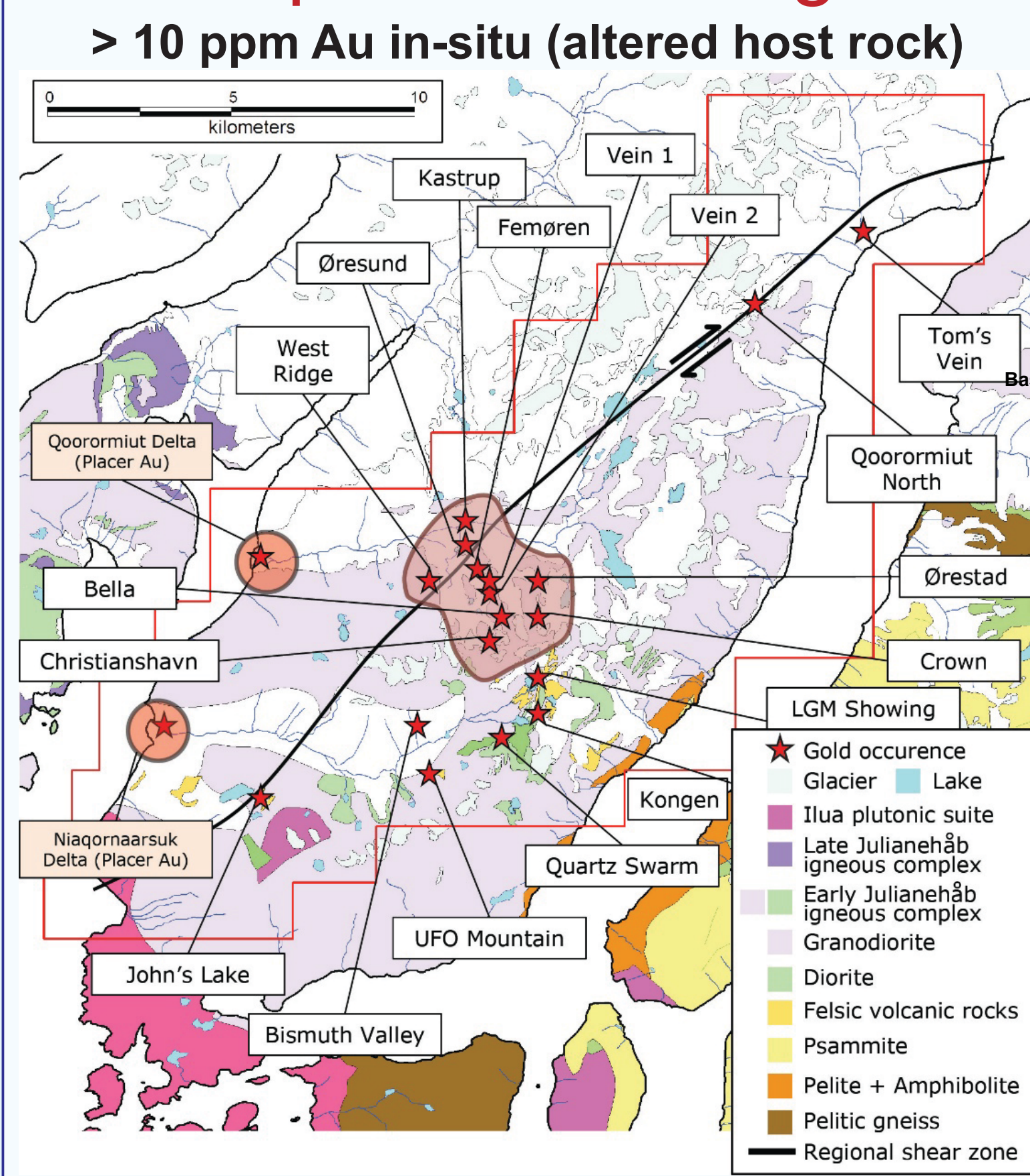
Geology and gold occurrences of South Greenland



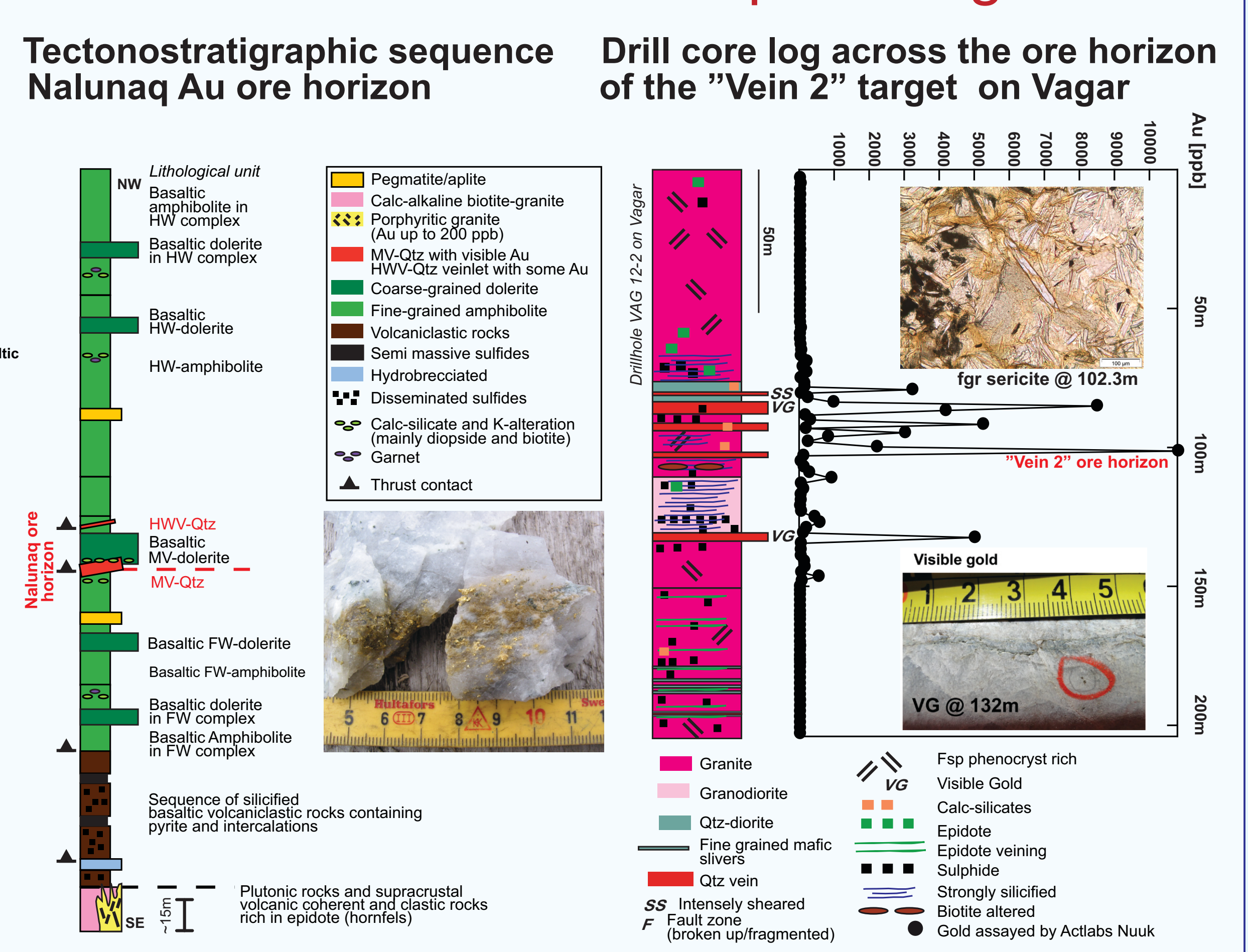
Geology of the Gold Line, Sweden



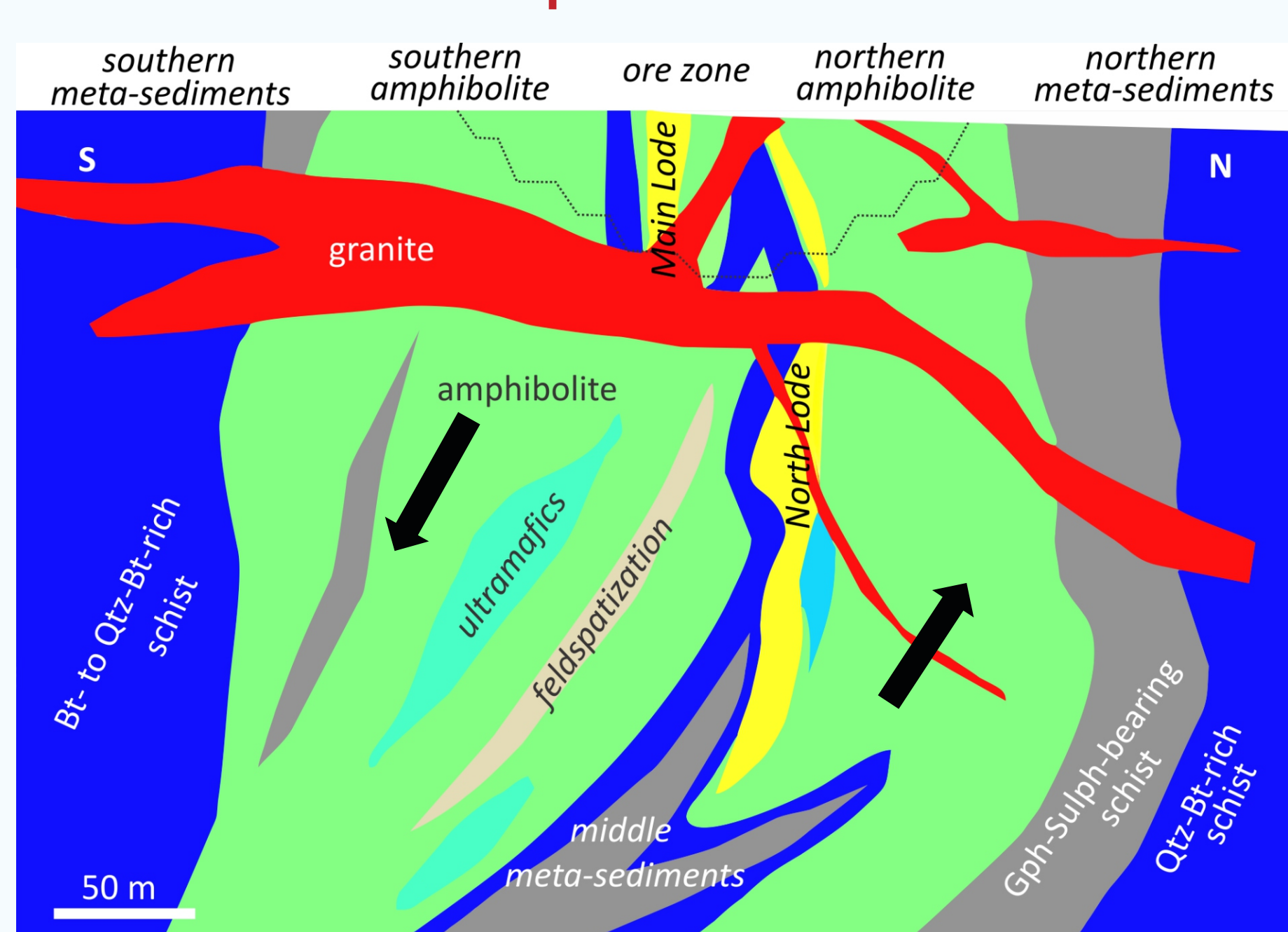
Geology of the Nuaqornaarsuk-Vagar



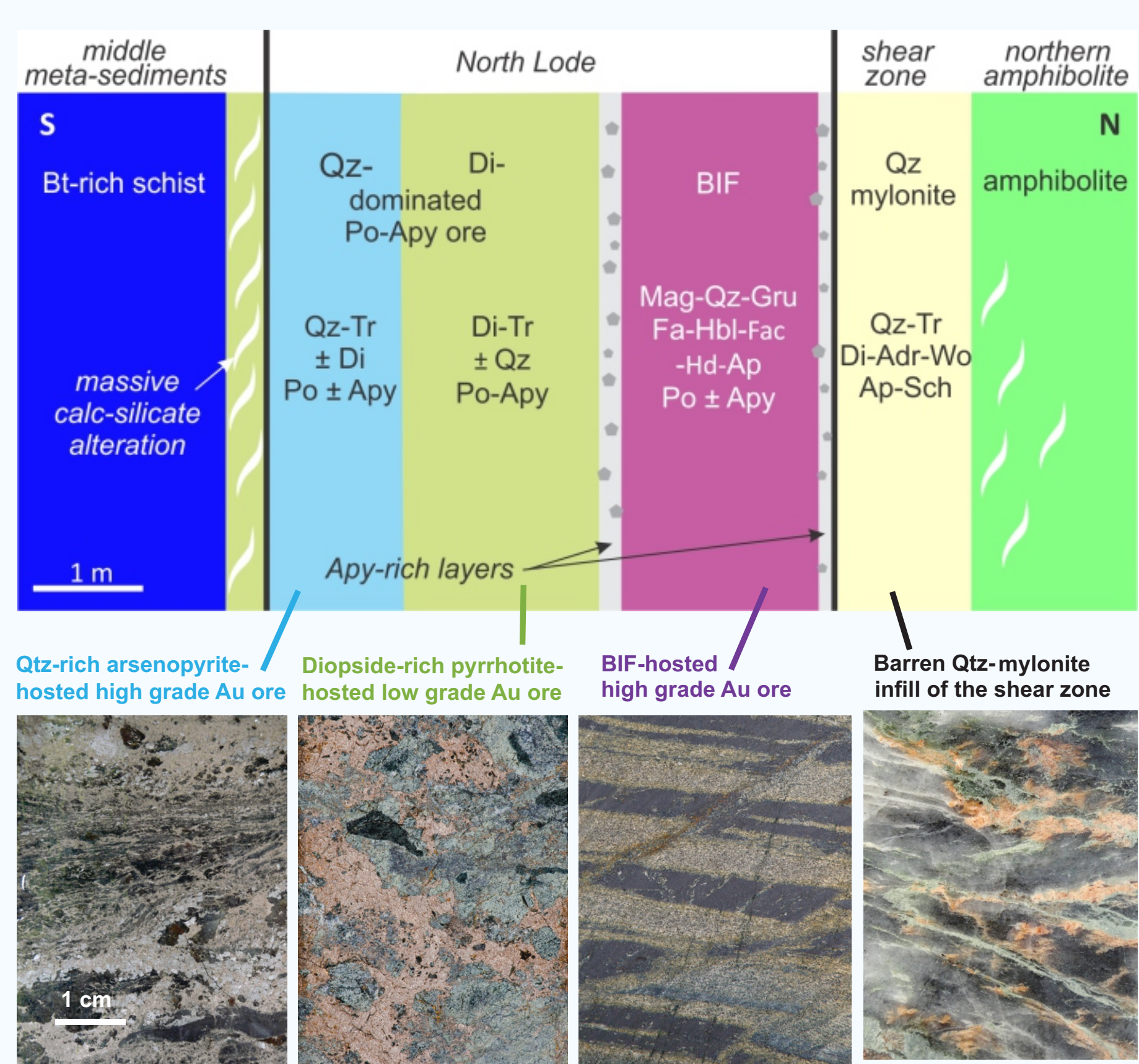
Cross section of the Nalunaq and Vagar ores



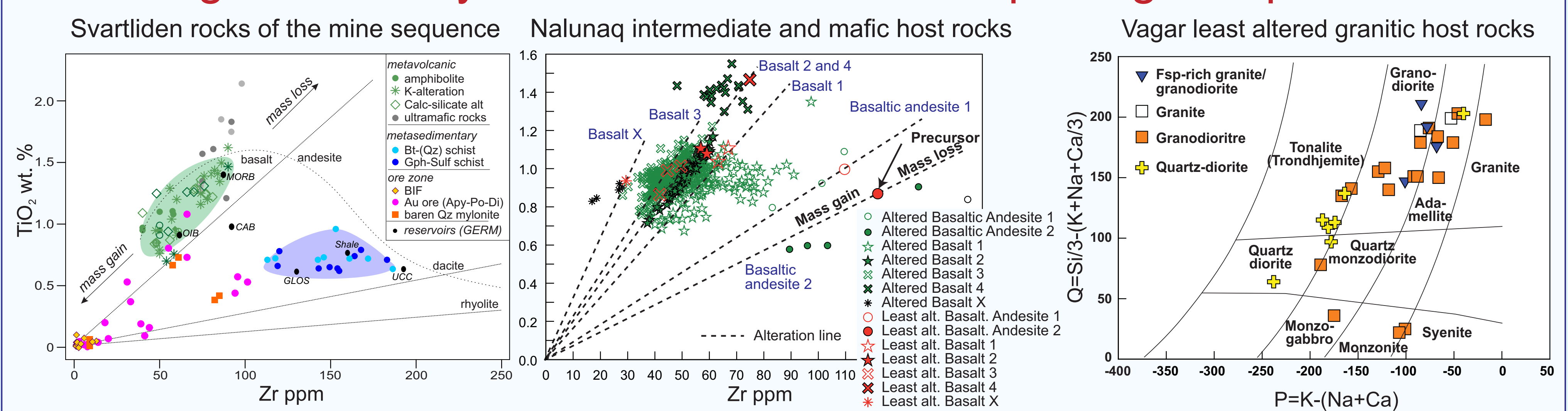
Svartliden deposit cross section



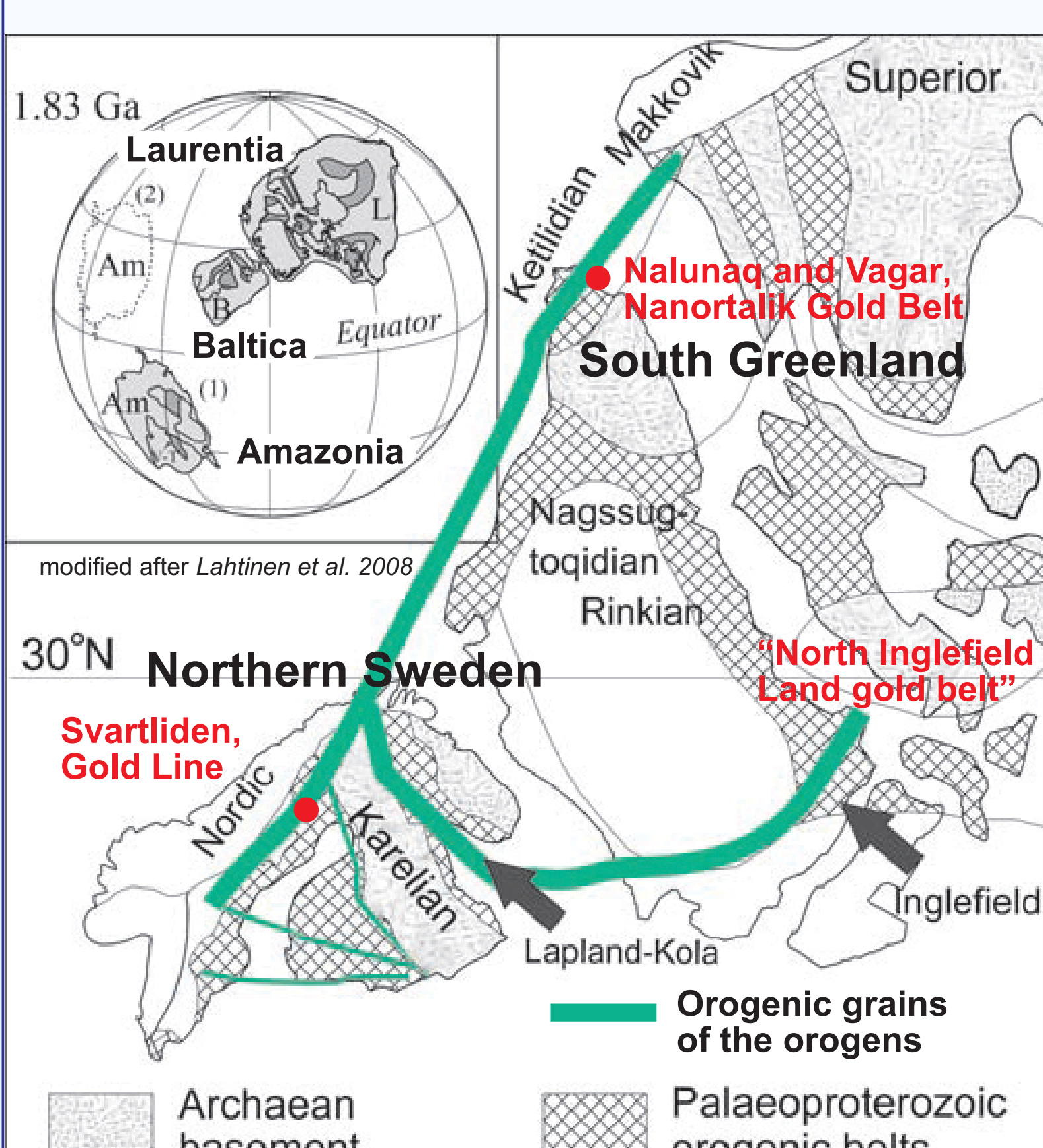
Svartliden ore zone cross section



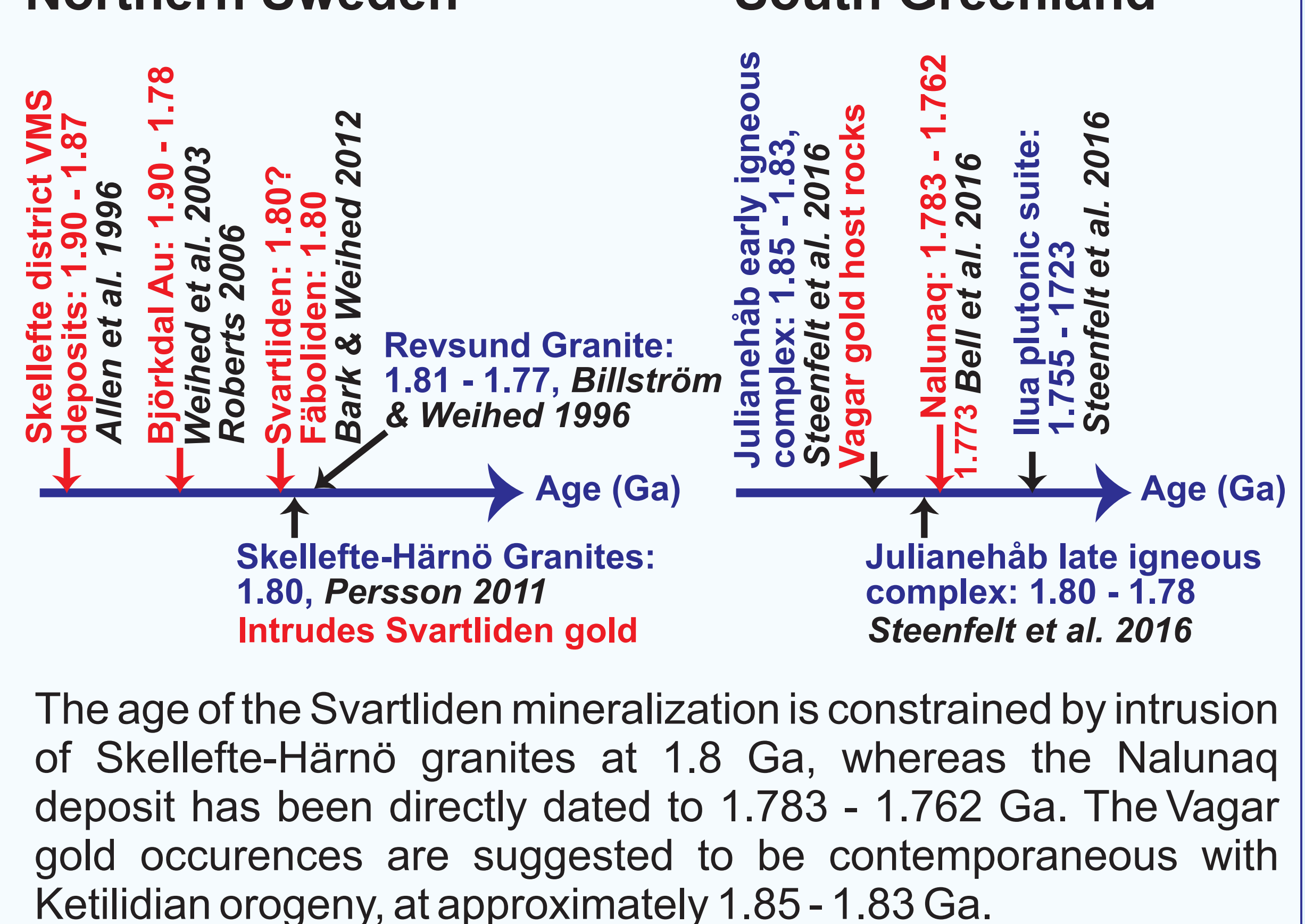
Litho-geochemistry of Svartliden vs. Nalunaq & Vagar deposits



Position of Laurentia and Baltica at ca. 1.8 Ga



Orogenic events and Au introduction



The age of the Svartliden mineralization is constrained by intrusion of Skellefte-Härnö granites at 1.8 Ga, whereas the Nalunaq deposit has been directly dated to 1.783 - 1.762 Ga. The Vagar gold occurrences are suggested to be contemporaneous with Ketilidian orogeny, at approximately 1.85 - 1.83 Ga.