

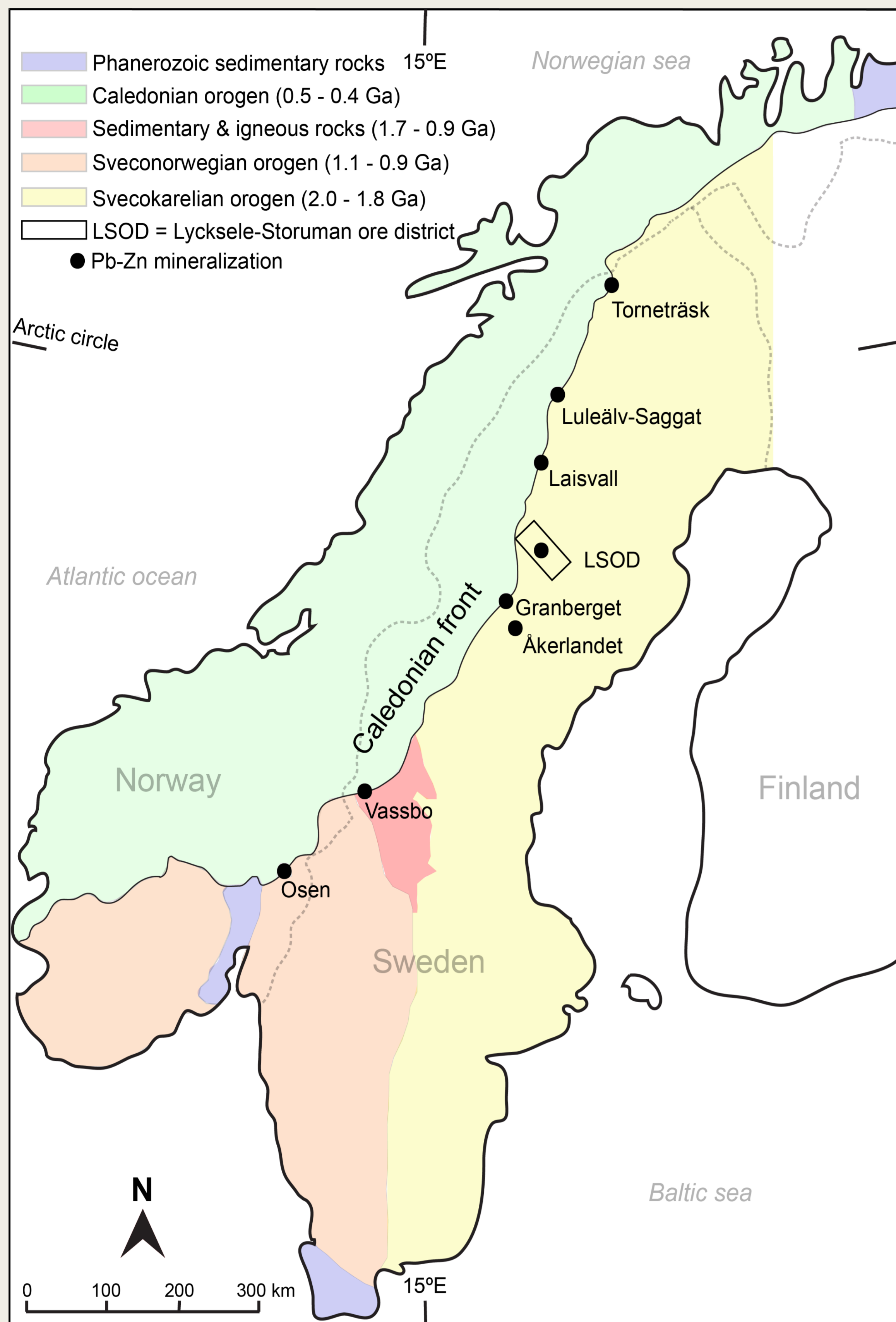


# Rb-Sr sphalerite data and implications for the source and timing of Pb-Zn deposits at the Caledonian margin in Sweden

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Master's thesis in bedrock geology by Alfred Larsson, 2018

The eastern Caledonian erosional front hosts the world-class Pb-Zn deposit at Laisvall (64 Mt mined) and Granberget mineralization, northern Sweden, along with several other smaller, related types of deposits consisting of impregnation mineralization of galena and sphalerite in clastic host rocks.



## Aims:

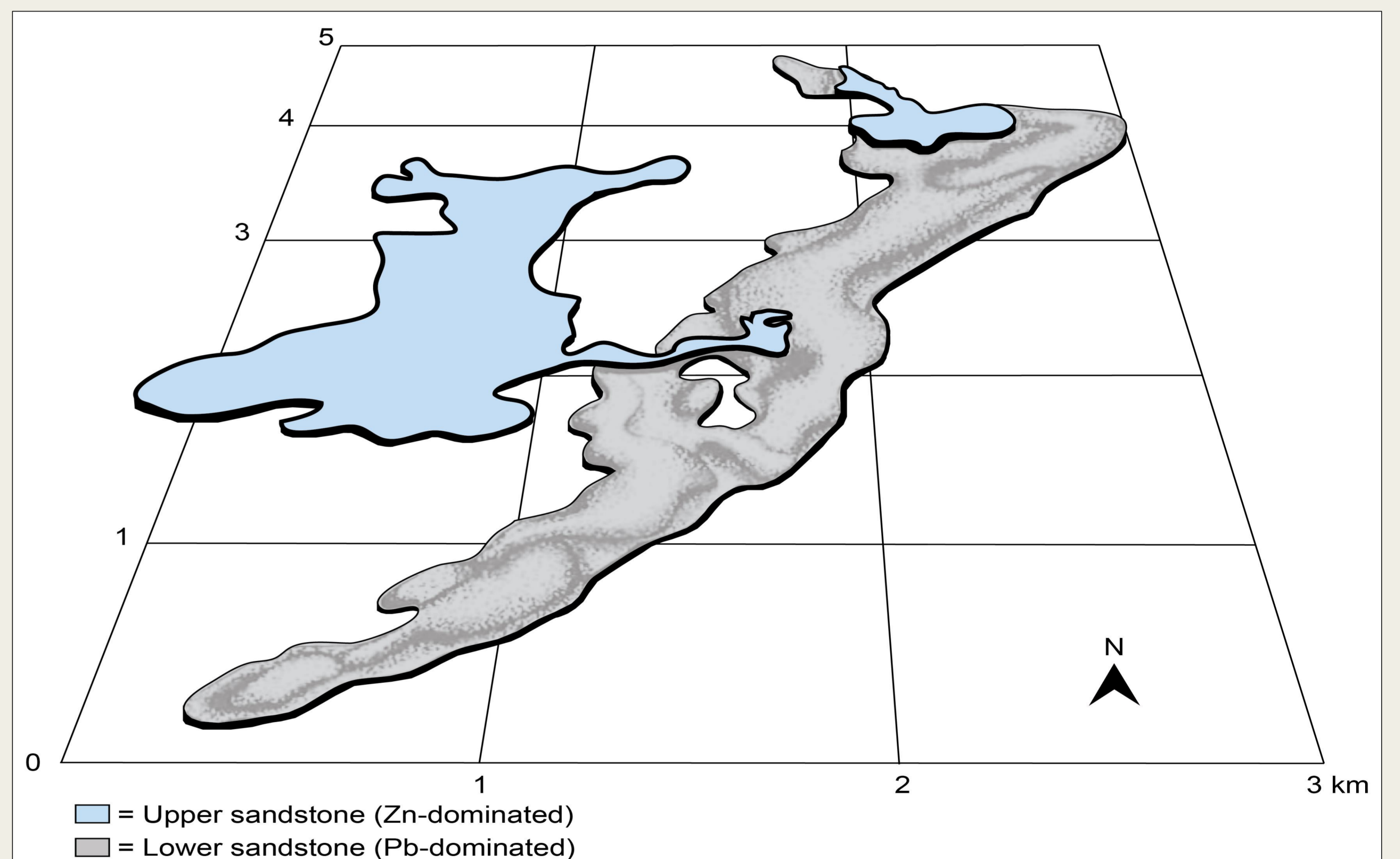
- Improve the understanding for the ore-forming processes in the Laisvall type of deposit
- Obtain age constrains for the mineralizations at Laisvall and Granberget
- Petrographic description of thin sections sampled from drill cores

## Methodology:

- Rb-Sr isotope dating of sphalerite utilizing crush-leach technique

## Problems:

- The main challenge with obtaining reliable ages for the mineralization is the complex nature of the available isotope data.



## Conclusions:

- The isotope data is complex and interpretations are ambiguous
- The data imply that fluids with contrasting isotope compositions mixed during the ore forming stage
- Data support hydrothermal circulation in response to orogenic tectonics at a regional scale, forming Pb-Zn mineralizations at multiple locations during a relatively short time-interval
- Mineralization probably related to an event at ca. 540 Ma (related to the Timian orogeny) or at ca. 467 Ma (related to the Caledonian orogeny).
- These findings implicate that the Pb-Zn deposits in the Caledonian forefront was caused by a single, regional process.

