

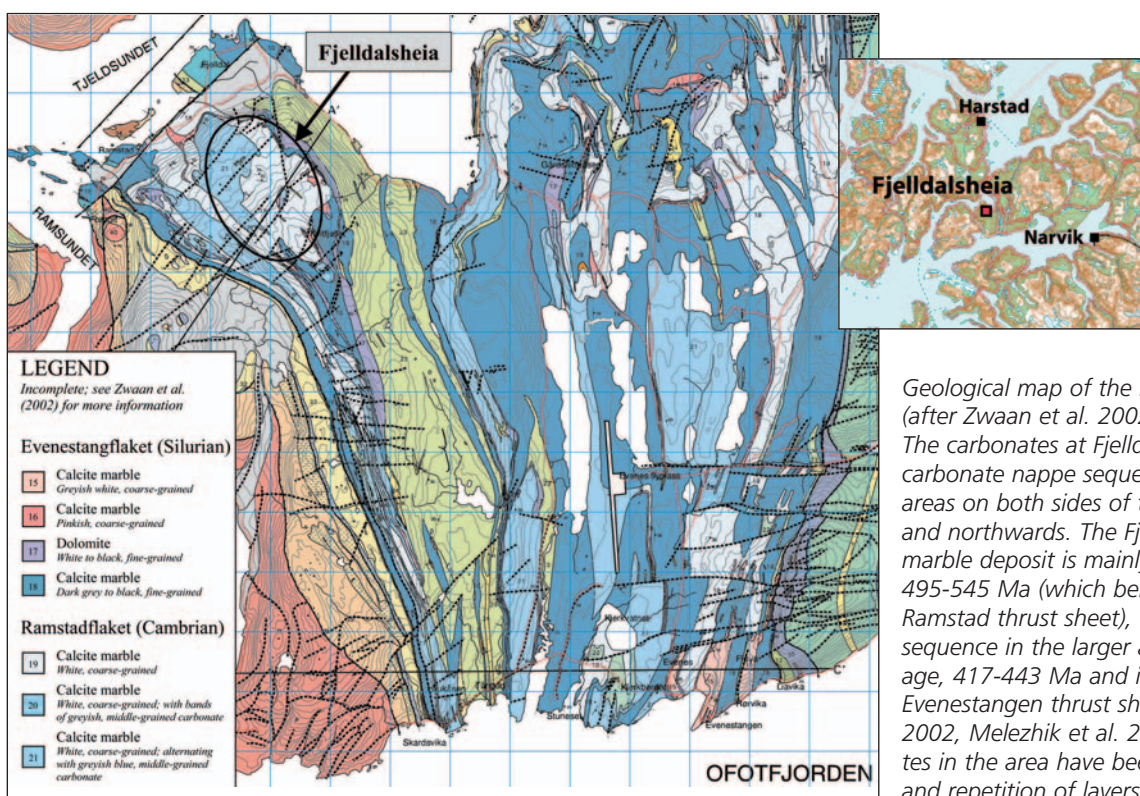


Focus on Mineral Resources

Fjeldalsheia Carbonate Deposit



The Fjeldalsheia carbonate mountain viewed from the north; the inset photo is of the white, coarse-grained marble from the upper part of mountain.



Geological map of the Fjeldalsheia area (after Zwaan et al. 2002).

The carbonates at Fjeldalsheia belong to a carbonate nappe sequence covering large areas on both sides of the Ofoten fjord and northwards. The Fjeldalsheia calcite marble deposit is mainly of Cambrian age, 495-545 Ma (which belongs to the Ramstad thrust sheet), though part of the sequence in the larger area is Silurian in age, 417-443 Ma and is a part of the Evenestangen thrust sheet (Zwaan et al. 2002, Melezhik et al. 2004). The carbonates in the area have been tightly folded and repetition of layers are frequent.

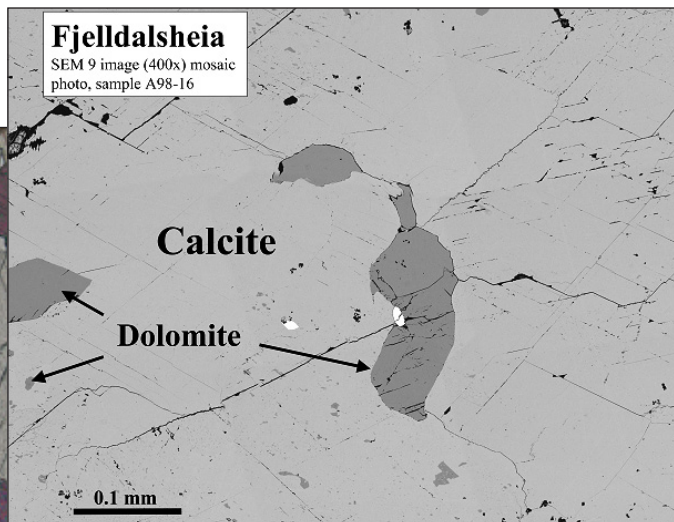
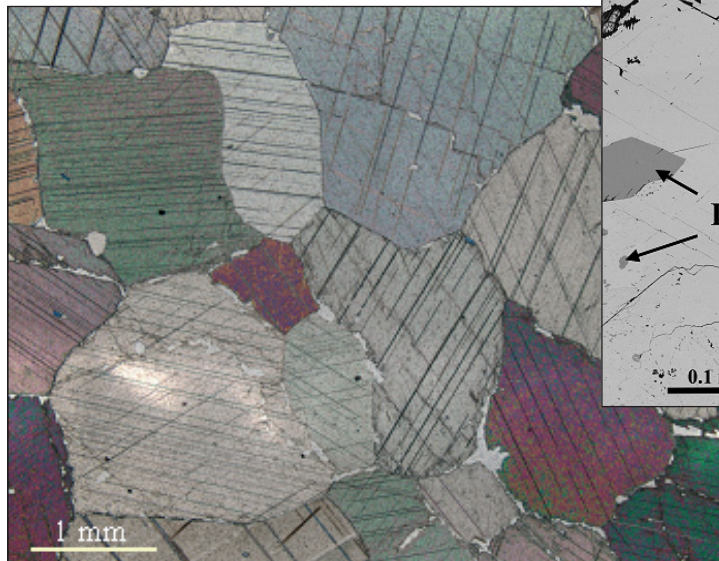
The Fjeldalsheia carbonate deposit is situated in the Tjeldsund (Nordland county) and Skånland (Troms county) municipalities. It is a coarse-grained calcite marble with complex and intense folding.

The deposit is one of a large number of significant carbonate deposits in the Ofoten region (Øvereng 2003). In contrast, Fjeldalsheia is well exposed on a mountain, providing easy access for geological investigations, whereas the other deposits in the area are thickly overburdened.

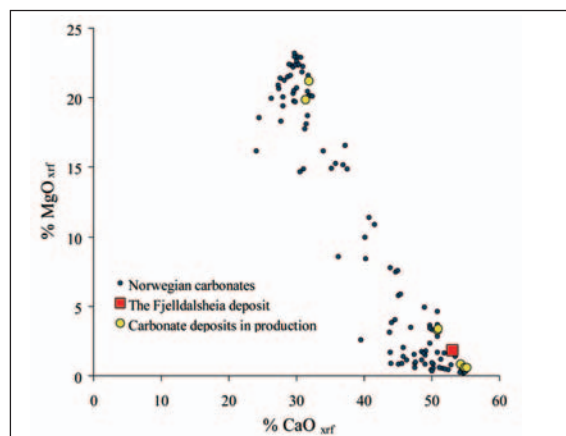
The area of Fjeldalsheia suitable for industrial applications occupies approximately one square kilometer, and is estimated to contain approximately 270 Mt when operated to a depth of 100 m. Thus, the Fjeldalsheia deposit classifies as a major mineral resource.

Other carbonate deposits in the region (see Øvereng 2003) have been accessed in less detail due to much overburden. Nevertheless, these deposits may contain a multiple of this amount. Altogether the total carbonate resources in the Ofoten region have been estimated to contain more than 1000 Mt of potential resources.

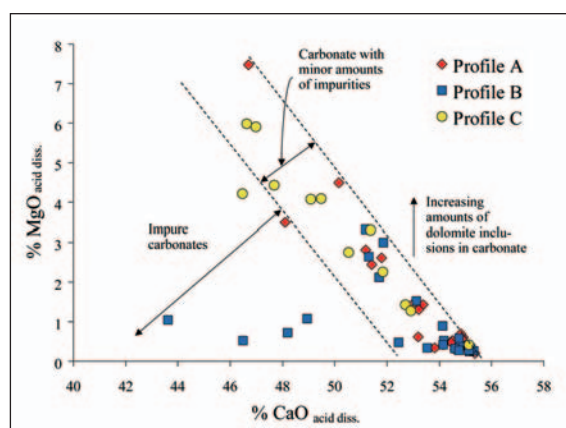
Micrograph of white, coarse-grained marble. Distinct impurities are quartz, muscovite, graphite, rutile, titanite and occasionally apatite.



SEM back-scattered electron image of white, coarse-grained calcite marble with dolomite blebs.



Graph showing CaO versus MgO (wt.%) in Norwegian carbonate deposits. Producing deposits are indicated in yellow, Fjeldalsheia in red. The carbonate classifies as high-purity, with typically around 2 % MgO. From Raaness & Korneliussen (2006).



CaO-MgO relationships for whole-rock samples from three intersecting profiles A, B and C over the Fjeldalsheia deposit (see Raaness & Korneliussen, 2006). The majority of the samples categorizes as "good carbonate" with minor amounts of mineral impurities (predominantly silicate minerals). Only a small number of samples contain significant amounts of impurities.

References

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