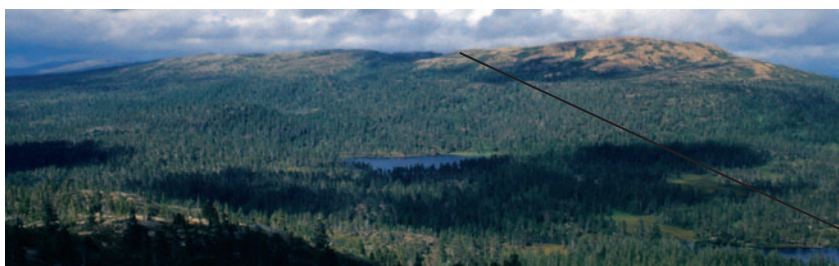




## Focus on Mineral Resources

# Raudfjellet Talc and Magnesite Deposit



Overview photograph of the Raudfjellet ophiolite, viewed from the SW (above), and a photo of soapstone in the Raudfjellet hydrothermal zone (right).

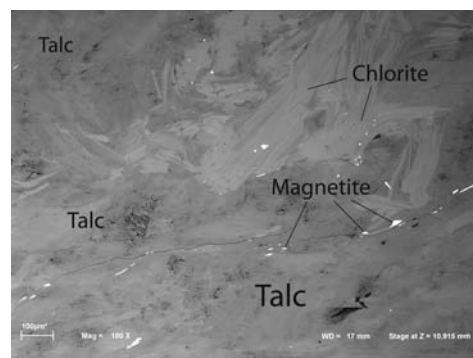


### Raudfjellet

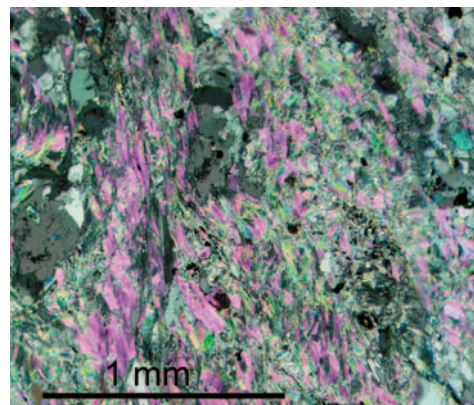
is a 9 km<sup>2</sup> Caledonian ophiolite fragment, comprising two main units with an ultramafic block (mainly serpentinite and dunite) at the bottom. That block is discordantly overlain by gabbro composed of mafic and ultramafic cumulates at the base, followed upwards by massive gabbro. Both blocks are dipping gently towards the NW (see geological map overleaf). The transition zone between the two blocks has experienced deformation and infiltration of CO<sub>2</sub>-rich fluids at an early, oceanic stage that has caused extensive hydrothermal alteration of the adjacent rocks. The serpentinite in the lower part of the zone is altered to soapstone (talc-magnesite-dolomite-chlorite) and listwaenite (magnesite-dolomite-quartz), while the gabbro in the upper part of the zone is altered to a Mg-rich rock of smaragdite (a bright emerald green, Cr-rich actinolite) and hornblende.

### Mineral resource

The hydrothermal alteration zone (ore zone) is mapped over a distance of 4.5 km with a thickness that varies between < 5 - 50 m. The continuation at depth has been documented by core drilling to 100 m depth (8 bore-holes). The mineral resource to 100 m depth is estimated to be more than 10 Mt of soapstone + listwaenite. However, the potential resource is much larger based on geological mapping and interpretation of ground and airborne magnetics. The value minerals are primarily talc (40-60 % of the soapstone), breunneritic magnesite and dolomite, which is included both in soapstone (30-50 %) and in listwaenite (40-80 %). Talc is primarily used as filler in paper, plastics, paints etc., while magnesite is raw material for production of magnesia (MgO) that has a large variety of industrial mineral applications, and magnesium metal.



Microphotograph (below) and SEM back-scattered electron image (above) of talc-rich soapstone.



## Legend

### Meråker Nappe (Köli)

- 1 Phyllite, greenstone, tuff, etc.
- 2 Mafic basal conglomerate

### Ophiolite

#### Mafic block

- 3 Metagabbro with mafic dykes (very poor outcrop)
- 4 Metagabbro
- 5 Nodular olivine websterite
- 6 Layered sequence: metagabbro and metapyroxenite with subordinate metaperidotite
- 7 Dunite and dunite with subordinate peridotite, strongly serpentinised

#### Hydrothermal Zone

- 8 Listwaenite (quartz-carbonate rock) and soapstone

#### Ultramafic block

- 9 Metapyroxenite
- 10 Dunite, harzburgite and clinopyroxenite, strongly altered
- 11 Dunite, strongly to totally serpentinised
- 12 Dunite, weakly to moderately serpentinised
- Chromitite-dunite cumulate / chromitite pod or vein
- 13 Ultramafic mylonite

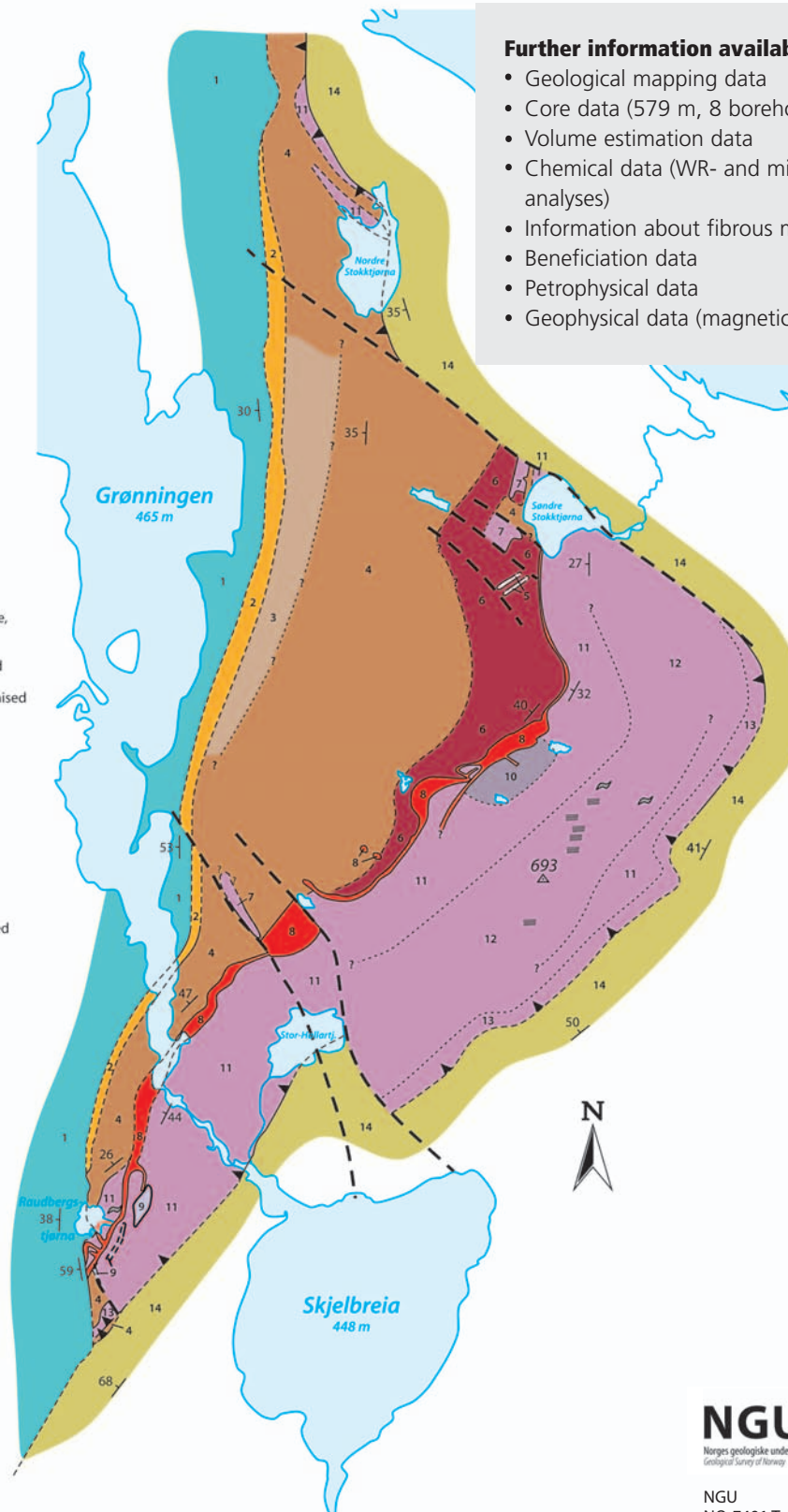
### Skjøtingen Nappe (Seve)

- 14 Garnet-mica schist, amphibolite

- 41/ Dip and strike of foliation
- Lithological boundary, mapped /inferred
- ..... Lithological boundary, transitional
- - - Fault zone
- ▲ Thrust at base of ophiolite

Geological map of the Raudfjellet ophiolite, modified from Nilsson et al. (2002).

0 0.5 1 km



## Further information available

- Geological mapping data
- Core data (579 m, 8 boreholes)
- Volume estimation data
- Chemical data (WR- and mineral analyses)
- Information about fibrous minerals
- Beneficiation data
- Petrophysical data
- Geophysical data (magnetics)



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