

# Torghatten

## Information Sheet



**Location:** TORGHATTEN

**Conservation designations:** Cultural Heritage

**Grid reference:** UTM 33W 0365083 7255985/ 65°23'54.7 "N 12°5'41.3"E

**Address:** 8909 Brønnøysund, Norway

**Parking available:** Yes

**Personnel to be contacted prior to visit:** Per-Kåre Hatten (land owner) 0047-41486112. For information on cultural sites Magnar Solbakk (Brønnøy municipality) 0047-75 01 20 00

**Useful equipment:**

- If visiting the caves: appropriate clothes, helmet and head lamps
- Stationary
- Appropriate outdoor shoes & clothing

**Relevance national curriculum:**

All age groups

**Rock types and geological processes observed:** Granite, land uplift, weathering and slope processes

**Geological structures:** Marine abrasion caves, raised shorelines, residual mountain

**Earth processes: eg.** (active) Land uplift, weathering and slope processes

**Geological periods present:** Young Ordovician, Late Silurian and Quaternary

**Site specific hazards and risks:**

- Falling rocks, especially in spring time
- Slippery path, stairs and stones

**Mitigation measures:**

- Park in a designated area and respect private land
- Please respect the Stone Age Settlements! They are protected as Cultural Heritage. Do not move stones at the raised shorelines.
- Sediments and other loose material in the caves around the mountains might be vulnerable. Do not dig or remove material.

**Did you know:** In Trollfjell Aspiring Geopark sediments that formed on the Iapetus Ocean floor can be seen. These sediments are about 500 million years old! Similar evidence of the Iapetus Ocean floor can be seen at Marble Arch Caves UNESCO Global Geopark in Bruse Hill mudstones.

**Topics to cover before visit:** Plate tectonics, ice age processes (including land uplift), coastal cave development, local human stone age history and Strandflat formation.

**Keywords:** Cave tunnel through the mountain, residual mountain, raised shorelines and cultural heritage.



Pot hole along the path



Granite best viewed in the stairway that unknown workers possibly made prior to King Oscar's visit in 1873.



The beginning of a hole/cave along a fracture in the mountainside to the right of the Torghatten hole (if walking from the east side)



Raised shorelines with Stone Age settlement



Torghatten hole



Svarthola - one of the Torghatten caves

#### Geological history\*:

Torghatten mountain is a residual mountain developed in basement granites and nappe gneisses as a part of the strandflat. The distinctive hole in the mountain is a marine abrasion cave that has broken through, permitting a view through the mountain itself. This hole along with numerous raised shorelines and smaller caves were formed at high seastands during the Pleistocene.

Torghatten is an example of quaternary landscape evolution. The site displays very well the processes that created the strandflat and the numerous residual mountains on it. The effects of glaci-isostatic changes are very well illustrated through bedrock notches and gravel/boulder beach deposits at various levels (and ages). Torghatten hole itself evidence the extreme efficiency of near-sea level frost-action combined with marine abrasion.