

## Geological overview of the Ritland impact structure

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The early/middle Cambrian impact at Ritland, SW Norway, excavated a simple crater, 2.7 km in diameter. The target was basement rocks with a cover of c 20 m thick clay in a shallow sea. There are excellent exposures of the crater walls and the infilling sediments, the rim and ejecta. Fieldwork, laboratory and modelling studies were conducted by the University in Oslo 2009-2012 with support from the Norwegian Research Council (e.g. References 1 to 3) Three zones of ejecta were identified with increasing distance from the crater rim. Zone 1 (to about 900 m) consists of a continuous sheet of brecciated but coherent basement gneiss, 20-30 m thick. Zone 2 (to 1200-1500 m) contains gneiss megablocks. In Zone 3 (up to 5 km) ejecta forms a 1 to 5 m thick layer of ejected gneiss fragments contained in a shale matrix. The ejecta bed rests on a sequence boundary between a silty shale and an organic rich shale. Distribution of ejecta is asymmetric, indicating an impact direction at relatively low angle from the north. The oldest sediments infilling the crater overlie a thin bed of melt rocks. They are interpreted as avalanches and debris flows, which are succeeded by debris flows and density flows. The section is followed by shales deposited in a quiet marine environment after the sea re-entered the crater.

### References:

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