

Geopark Indalsälven – geological heritage presented thematically through geological history, human interference and scientific history

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Introduction

The UNESCO definition of a geopark is *a single, unified geographical area with sites and landscapes of international geological significance managed in a holistic concept of protection, education and sustainable development*. A growing interest in geopark context is the bottom-up approach and involving local communities (UNESCO, 2023). The first steps to develop the Geopark Indalsälven (Geopark Indalsälven, 2023), Ragunda municipality, started in 2020 and it was recognized as Swedish Geopark 2022 by Swedish geological survey (SGU), according to SGU applications for Swedish geoparks following the UNESCO definition (SGU, 2023). Important part in the work of Geopark Indalsälven has been efforts to involve the local society in engagement in managing and developing the geopark. People have been engaged locally in project work and practical outdoor work (“naturnära jobb”) in developing the geopark, visiting sites, and making the geology available and visible.

Describing the Geopark thematically

The geopark presents a long geological story within the geographical frames of the park, from around 2000 million years ago until today. To manage this, the geopark is working with five thematics: landscape, ice ages and glaciations, continental drift, the “dead falls” and scientific breakthrough.

The story is starting from the development of the supercontinent Columbia 2000 to 1700 million years ago, going through the development of magma chamber around 1500 million years back in time, clearly visible at several sites. This thematic part of the geopark describes continental drift and bedrock formation of the landscape. The story continues through times of landscape weathering and erosion, moving on to Quaternary times with glaciations and collapsing ice-dammed lakes. Finally, the story gets to human interference on the geology and landscape, ending with thematic on the “catastrophic” experiment with river Indalsälven, resulting in the total drain of lake Ragundasjön and the creation of the famous “Dead falls”. From the last glaciation, there is active physical processes visible at sites. River Indalsälven and its tributaries are central nerve and guidance through the whole geopark. All the thematics are pedagogically visualized in the geopark. There is also a geological scientific story in the geopark. This is the area where Gerard De Geer (*e.g.* De Geer, 1940) developed his clay varve chronology. At one visiting site this is visualized with exposed varves in the sediments to help visitors understand the central ideas of varve chronology, as well as geological stratigraphy. The clay varves in Ragunda, described by De Geer and clay varve chronology, was 2022 designated and included in the list “*The first 100 IUGS Geological Heritage Sites*”. The history of science is incorporated in the geopark thematics as “scientific breakthrough”.

“Living document”

The geopark is a “living document” with discussions for progress: pedagogical, the geopark, scientific and education development etc. The ambition is to stretch out the geopark to east and the west in county Jämtland, with river Indalsälven as the central nerve. In first place to the east to reach town Sundsvall and the Baltic Sea. Geology is always developing, therefore the geopark is developing.

References (format style Heading)

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SGU, 2023: Svensk geopark. URL: <https://www.sgu.se/samhallsplanering/naturvarden/geoparker/svensk-geopark/>

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