NGU
Norges geologiske undersøkelse
Geological Survey of Norway

MAPPING TECHNOLOGY

BEDROCK GEOLOGY

Future – Adding depth to geological maps

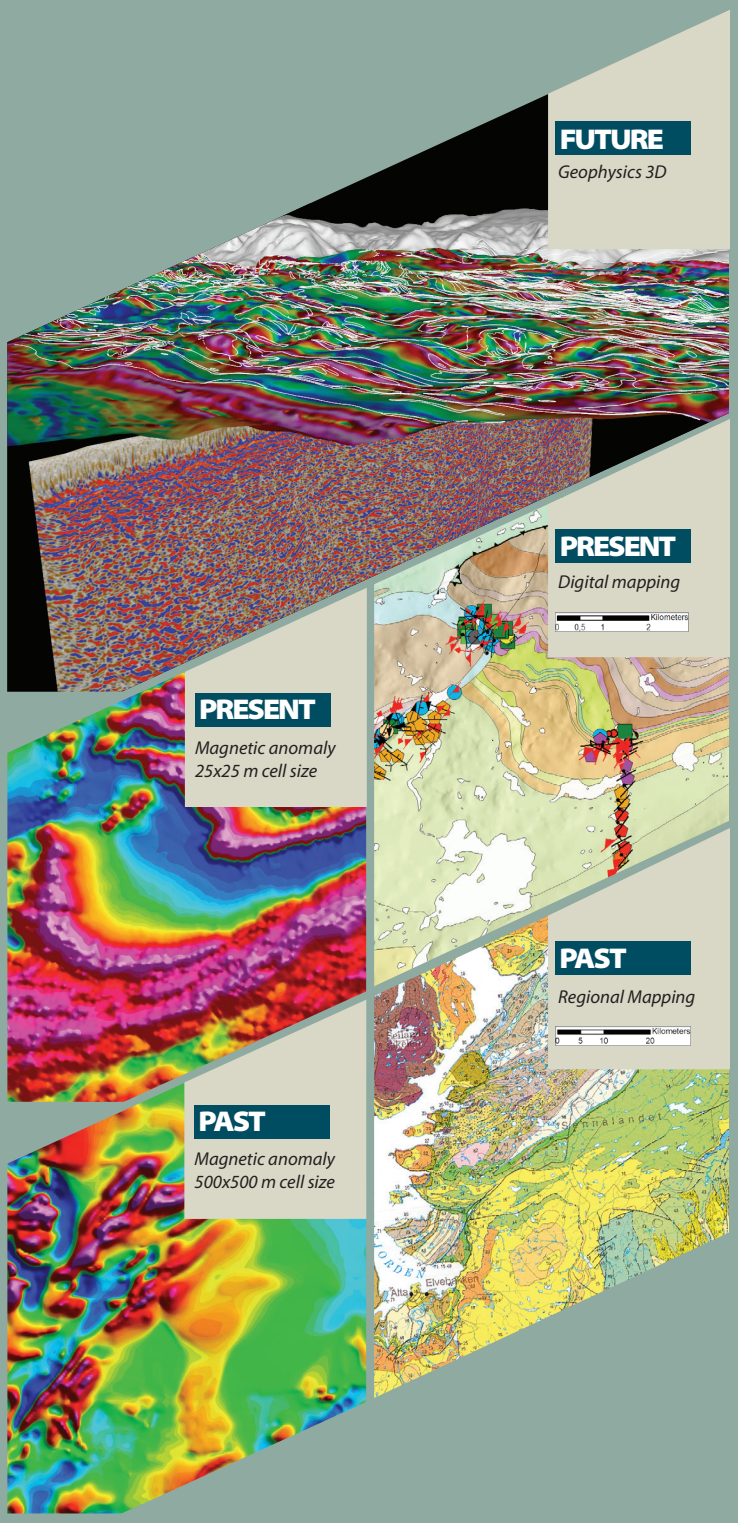
Adding the third dimension, depth, to geological maps is a key part of the future for bedrock geology. In order to so, the understanding of the geology "under-the-hood" must be improved through new constraints, including drill cores, geophysical modeling and seismic surveys. The included figure shows part of a seismic profile recently acquired in Finnmark. The interpretation of this seismic line supports a re-evaluation of the tectonostratigraphy in this area, and illustrates the importance of such data. The ability to integrate and display all available geological and geophysical constraints in a single 3D view is a key for understanding the subsurface geology better. 3D maps are also excellent visualization products, making it possible to communicate even complex geology in a simple way, not only to professionals, but also to the general public.

Present – Digital mapping and high-resolution geophysics

Geological mapping has up on till now been carried out manually using paper maps. The use of ruggedized laptops and tablets for recording observations digitally in-field marks the start of a revolution within geological field mapping. Of particular value is the ability to use available background data in the field and the GPS-integration to map at higher details. It also opens for a more efficient production line from field observations to compiled map. Digital mapping is extensively used during the current mapping project in Northern Norway, "MINN". The project also involves the acquisition of new improved airborne magnetic, radiometric and electromagnetic data. The obtained high-resolution geophysical maps (ex. left figure) provides important constrains both during field work and when compiling new, more detailed geological maps (ex. right figure).

Past – Regional geophysics and geology

Extensive mapping was carried out during "Finnmarksprosjektet" in the 1970`s and 80`s. This was a regional mapping project in the northernmost part of Norway and resulted in, among other, the 1:500 000 map of the Finnmark County (right). Accompanying the mapping was some of the first regional-scale airborne magnetic surveys in Norway (left). Combining the interpretation of magnetic and gravimetric anomaly maps with field observations and petrophysical knowledge have helped to understand important regional tectonostratigraphic relationships, for example how the Paleoproterozoic Raipas Supergroup continues underneath the Caledonian Nappes in western Finnmark.



Contact:
Espen Torgersen
E-mail: espen.torgersen@ngu.no
Tel: +47 73 90 44 61

Jan Sverre Sandstad
E-Mail: jan.sandstad@ngu.no
Tel: +47 73 90 42 08

NGU
Geological Survey of Norway
NO-7491 Trondheim
Norway

Tel: +47 73 90 40 00
www.ngu.no
NGU at Facebook