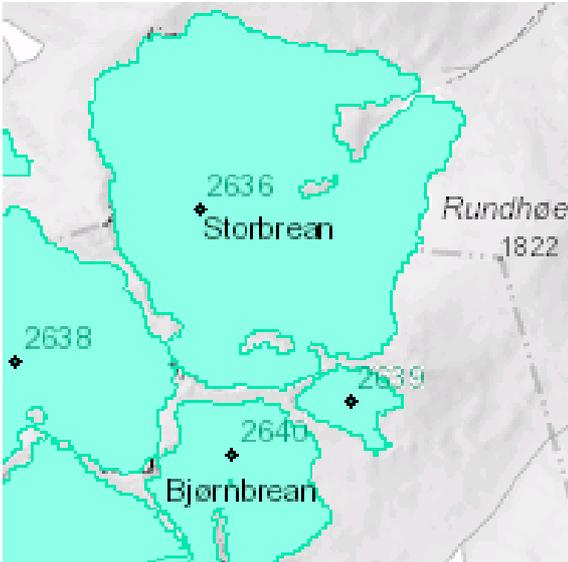


Produktark: Glacier Area Outline 1999-2006 (GAO)

BESKRIVELSE



Glacier Area Outline (GAO) for mainland Norway from the period 1999-2006, using 12 Landsat TM/ETM+ satellite images. For all scenes the horizontal positional accuracy (rmse) was less than one pixel (better than 30 m).

FORMÅL/BRUKSOMRÅDE

The dataset shows glaciated areas and extent of glaciers in Norway for the time period 1999 - 2006. The glacier extent in Norway corresponds to 0,7 % of the total land area.

EIER/KONTAKTPERSON

Norges vassdrags- og energidirektorat

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DATASETTOPPLØSNING

Målestokktall: 50

UTSTREKNINGSINFORMASJON

[Dekningsoversikt](#)

KILDER OG METODE

Glacier Area Outline (GAO) for mainland Norway from the period 1999-2006, using Landsat TM/ETM+ satellite images. A semi-automatic band ratio method was

applied. Totally 12 satellite Landsat scenes from the period 1999-2006 were analysed. The orthorectification processing and quality check was carried out with the OrthoEngineTM software (©PCI Geomatica). Five of the 12 scenes were ordered raw from the United States Geological Survey (USGS) and were orthorectified by NVE using ground-control points. Typical control points used were lake edges or islands in lakes. The other scenes were already orthorectified and provided by Norsk Satellittdataarkiv at the center for GIS and Earth Observation (Arendal) or from the USGS. The quality of the orthorectification was tested against 5-14 check points. For all scenes the horizontal positional accuracy (rmse) was less than one pixel (better than 30 m). After the orthorectification or quality control the individual channels band1, band3, band4 and band5 used in the band ratio method were exported to an ArcGIS (© ESRI) readable format (GeoTIFF) where further GIS-based processing was carried out. The suitability of a semi-automatic band-ratio method was applied to map glaciers in a test region in Jotunheimen, before the method was applied to map all glaciers in Norway. All automatically mapped snow and ice polygons were visually inspected using composites of satellite image bands, digital topographic maps and orthophotos where available. The polygons were manually classified as 'glaciers', 'possible snowfields' or 'snow'. Manual corrections for debris cover, glacier lake interfaces, clouds or cast shadow were made where necessary. Glacier complexes were divided into glacier units using drainage divides. Many smaller polygons which had been classified as possible snowfields due to size, shape or due to uncertainty regarding ice content were not assigned IDs and were therefore not included. References:
Andreassen, L.M., and Winsvold, S.H. (eds.), 2012: Inventory of Norwegian glaciers. NVE Rapport 38, Norges Vassdrags- og energidirektorat, 236 s.
Andreassen, L.M., F. Paul, A. Käab and J.E. Hausberg. 2008. Landsat-derived glacier inventory for Jotunheimen, Norway, and deduced glacier changes since the 1930s. The Cryosphere, 2, 131-145.
Paul, F. and L.M. Andreassen. 2009. A new glacier inventory for the Svartisen region (Norway) from Landsat ETM+ data: Challenges and

change assessment. *Journal of Glaciology*, 55 (192), 607–618.

Paul, F., L.M. Andreassen and S.H. Winsvold. 2011. A new glacier inventory for the Jostedalsgreen region, Norway, from Landsat TM scenes of 2006 and changes since 1966. *Annals of Glaciology*, 52 (59), 153–162.

AJOURFØRING OG OPPDATERING

Daglig

LEVERANSEBESKRIVELSE

Format (versjon)

ESRI Shape

SOSI 4.0

ESRI Filgedatabase (ver 10.1)

Tilgangsrestriksjoner

Åpne data

Tjeneste

<https://gis3.nve.no/map/services/Bre1/MapServer/WMS/Server?request=GetCapabilities&service=WMS>

LENKER

[Link til metadata i Geonorge](#)

[Link til produktside](#)