GEOLOGICAL MAP

PRE-QUATERNARY ROCKS

NORTHERN FENNOSCANDIA

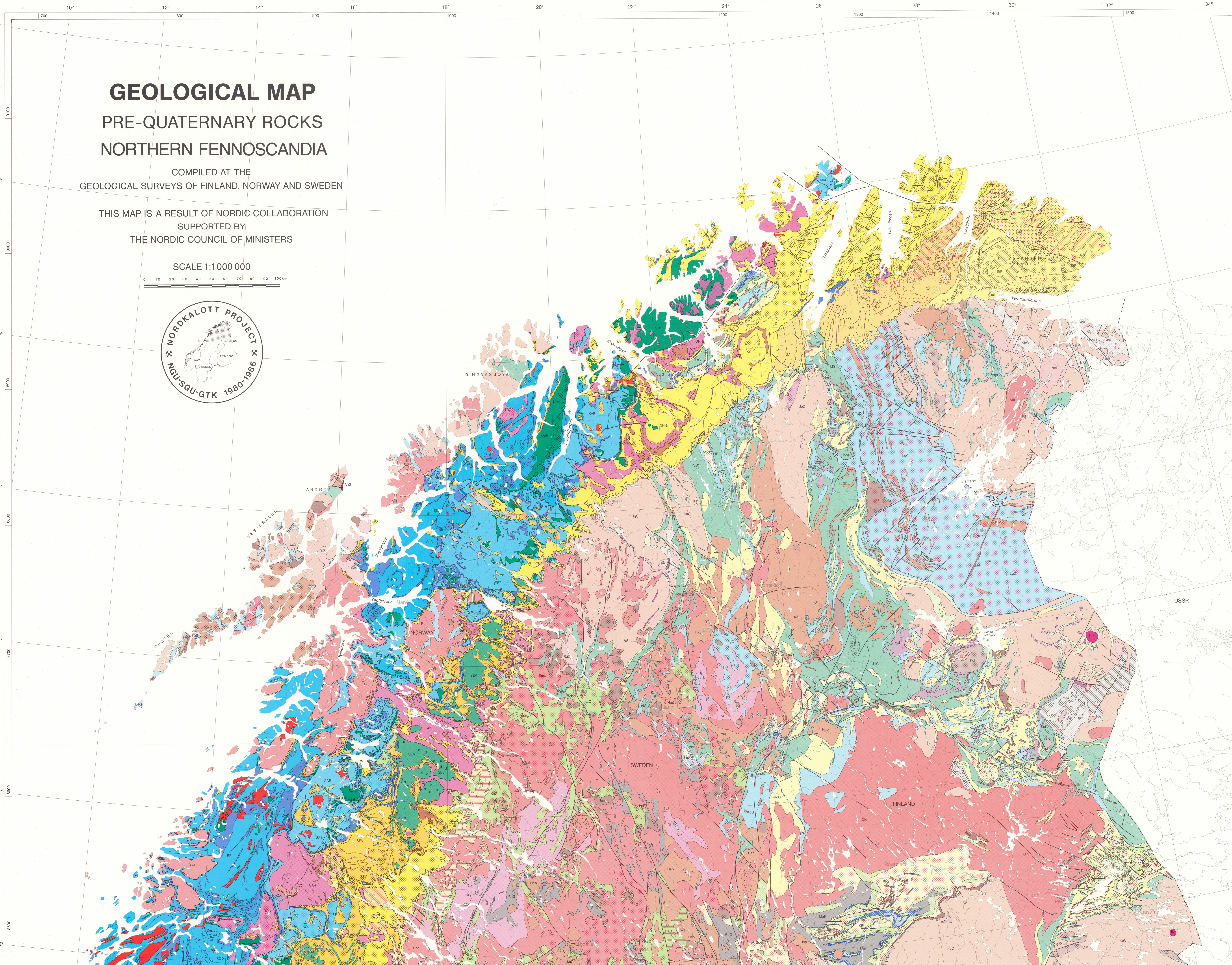
COMPILED AT THE
GEOLOGICAL SURVEYS OF FINLAND, NORWAY AND SWEDEN

THIS MAP IS A RESULT OF NORDIC COLLABORATION
SUPPORTED BY
THE NORDIC COUNCIL OF MINISTERS

SCALE 1:1 000 000

0 10 20 30 40 50 60 70 80 90 100km

NORDKALOTT PROJECT
NGU-SGU-GTK 1980-1986



LEGEND

DOMINANT LITHOLOGY — LITHOSTRATIGRAPHIC AND TECTONOSTRATIGRAPHIC UNITS, INTRUSIONS

MESOZOIC SEDIMENTARY ROCKS

- Sandstone and shale, coal beds — Andøya Group (AnG)

PALAEOZOIC INTRUSIONS IN THE FENNOSCANDIAN SHIELD

- Nepheline syenite, carbonatite — Sokli Carbonatite (Sok), Iivaara Nepheline Syenite (Iiv)

CALEDONIDES

ALLOCHTHONOUS COVER ROCKS AND ALLOCHTHONOUS PRECAMBRIAN BASEMENT — CALEDONIAN INTRUSIONS

Allochthonous Upper Proterozoic to Silurian metasedimentary/metavolcanic cover rocks and intrusions, and Archaean to Middle Proterozoic allochthonous basement complexes

UPPERMOST ALLOCHTHON

- Granitoid
- Gabbro, metagabbro, diorite; Oph = part of ophiolite/amphibolite, in part volcanic
- Ultramafic rocks
- Limestone, marble
- Quartzite, meta-arkose
- Phyllite, metagreywacke, turbidite / conglomerate; Mica schist, calc-silicate schist, gneiss / conglomerate; d = mafic dykes
- Gneiss (probably Proterozoic)

Tromsø (TRO), Lyngen (LYN), Nordmannvik (NOR) and Dyrøy (DYR) Nappes;
Niingen (NiG), Salangen (SaG) and Narvik (NaG) Groups;
Beiarn (BEI) and Fauske (FAU) Nappes;
Helgeland (HEL) and Rödingsfjället (RÖD) Nappe Complexes

UPPER ALLOCHTHON

- Granitoid
- Gabbro, metagabbro, diorite
- Amphibolite, in part volcanic; d = mafic multiple intrusive complex
- Ultramafic rocks
- Limestone, marble
- Quartzite, quartz schist / quartzite conglomerate
- Phyllite, metagreywacke, turbidite / conglomerate } d = mafic dykes
- Mica schist, calcareous mica schist
- Metavolcanite and tuffite (mafic and felsic)

Magerøy (MAG), Vaddas (VAD), Kåfjord (KAF) and Senja (SEN) Nappes;
Upper and Middle Köli Nappes including Gasak (GAS), Storfjället (STO),
Salo (SAL) and Vasten (VAS) Nappes;
Lower Köli Nappes (LKÖ)

- Amphibolite, in part volcanic (Caledonian or older); d = mafic multiple intrusive complex, e = eclogite
- Ultramafic rocks (Caledonian or older)
- Marble
- Quartzite, feldspathic quartzite } d = mafic dykes, e = eclogite
- Mica schist, gneiss
- Anorthosite-gabbro-ultramafite complex (probably Proterozoic)

Seve Nappes (SEV)

MIDDLE ALLOCHTHON

- Granitoid
- Nepheline syenite, carbonatite
- Gabbro, metagabbro; d = mafic dykes
- Ultramafic rocks
- Limestone, dolomite
- Quartzite, meta-arkose, 'hardschist' / conglomerate } d = mafic dykes
- Phyllite, metagreywacke, mica schist / conglomerate
- Hornblende gneiss (metamorphosed tuff)
- Mafic rocks (Archaean and Proterozoic)
- Granitoid, granite mylonite (Archaean and Proterozoic)

Sørøy – Seiland (SSE), Gildetun – Navitdalen – Nabar (GNN), Nalganas (NAL), Skillefjord (SKI), Gargia – Kviby (GKV) Nappes, } All within Kalak Nappe Complex
Laksefjord (LAK) and Abisko (ABI) Nappes;
Akkajaure (AKK) and Kaskajaure (KAS) Complexes

LOWER ALLOCHTHON

- Lower Allochthon, undifferentiated
- Dolomite
- Quartzite, meta-arkose / tillite
- Phyllite
- Gabbro, mafic volcanite (Lower Proterozoic)
- Granitoid, felsic volcanite (Lower Proterozoic)

Gaissa (GAI), Jerta (JER), Rautas (RAU) and Gargatis (GAR) Nappes

UPPER PROTEROZOIC TO CAMBRIAN SEDIMENTARY COVER ROCKS

EAST FINNMARK, CALEDONIAN FRONT, WINDOWS

- Shale, sandstone, conglomerate — Dividal (DiG) and Borras (BoG) Groups
- Mudstone, shale — Breivik (BrF) and Lower Stappogiedde (StF) Formations } Vestertana Group
- Sandstone, greywacke — Upper Stappogiedde (StF) and Nyborg (NyF) Formations } Vestertana Group
- Tillite — Mortensnes (MoF) and Smalfjord (SmF) Formations } Vestertana Group
- Sandstone, shale, dolomite — Tanafjord (TaG) and Bossekop (BsG) Groups
- Sandstone, shale — Vadsø Group (VaG)

NORTH VARANGERHALVØYA – STRIKE-SLIP DISPLACED

- Sandstone, conglomerate, shale — Løkvikfjell Group (LøG)
- Red sandstone and mudstone — Tyvjofjell Formation (TyF)
- Variegated sandstone, shale, dolomite, limestone — Båtsfjord Formation (BåF)
- Green and red sandstone and shale — Båsnaering Formation (BsF)
- Greywacke and shale, turbidite — Kongsfjord Formation (KoF)

d = mafic dykes; Båtsfjord–Kongsfjord Formations } Barents Sea Group

FENNOSCANDIAN SHIELD

Archaean and Proterozoic sedimentary, volcanic and intrusive rocks

SEDIMENTARY AND VOLCANIC ROCKS — INTRUSIVE ROCKS — ISOTOPIC AGES (Ma)

LOFOTEN – TYSFJORD – RINGVASSØYA AREA AND WINDOWS FROM SJONA TO MÅLSELVA; IN PLACES CALEDONIZED

- Quartzite, mica schist, amphibolite, marble — Leknes Group (LeG)
- Granite, charnockite; Mangerite, monzonite; Anorthosite; Gabbro — Lofoten – Vesterålen Plutonic Complex (Lof) — 1700–1800
- Granite — Nasafjäll Granite (Nas), Svartisen Granitoids (Sva), Rombak (Rom) – Vassijaur Granites (Vis), Tysfjord Granite (Tys) — c.1800
- Quartzite, schist, conglomerate, chert, volcanite (felsic to mafic)
- Amphibolite
- Paragneiss, amphibolite, migmatite
- Granodiorite — Gullesfjord Granite (Gul) — 2600–2800
- Paragneiss (migmatite) — Langøya Gneiss (LaG) — >2700

CENTRAL AND EASTERN AREAS, INCLUDING REPPARFJORD AND ALTA – KVÆNANGEN WINDOWS

- Diabase — Laanila (Laa) and Salla (Sal) dykes — c. 1000
- Diabase — Nabrenjarka Diabase (Nab)
- Granite, pegmatite — Lina Granite Suite (Lin), Central Lapland (Clg), Nattanen (Nat) and Vainospää (Vai) Granites, Sorsele Granitoids (Sor) — LATE OROGENIC INTRUSIONS — 1750–1800
- Granite, monzonite — Perthite Monzonite Suite (Pms)
- Gabbro / diorite / ultramafic rocks
- Quartzite / conglomerate; Phyllite, schist / marble; Amphibolite — Snavva-Sjöfallet (SnG) and Mattavaara (MaG) Groups, Vesikkovaara Fm (VeF), Bålinge (BåG), Svartlå (SvG) and Norvijaur (NoG) Groups — UPPER SVECOFENNIAN ASSEMBLAGE
- Granite, granodiorite, diorite / gabbro — Hetta Granite (Het), Haparanda Suite (Hap)
- Granite — Vuolvojaur (Vuo), Porjus (Por), Skröven (Skr) and Jyryjoki (Jyr) Granites — EARLY OROGENIC INTRUSIONS — 1850–1900
- Anorthosite — Vaskojoki Anorthosite (Vas)
- Granite — Granite within the Jergul Gneiss Complex (Gjg) — 2100
- Volcanite (felsic and intermediate) / conglomerate — Kiruna-Arvidsjaur Complex incl. Porphyry Group (KaC) and Latvajärvi Fm (LaF) / Kurravaara (KrF) and Leipovaara (LpF) Congl. — LOWER SVECOFENNIAN ASSEMBLAGE
- Volcanite (mafic)
- Mica schist, gneiss (locally migmatitic) — Råneå Group (RnG), Martimo Fm (MaF) (Kaleva Group)
- Dolomite — c. 2050
- Phyllite, schist
- Albite-diabase, leucodiabase — Persomajärvi (PmG) and Sockberget (SoG) Groups; Jouttiaapa (JuF) and Kivalo (KiF) Fms, Pahakurkio Group (PaG), Kumpu Fm (KmF); Čarravarri Fm (CaF), Upper Raipas (UrG) and Porsa (PoG) Groups — KARELIA SUPERGROUP (JATULI GROUPS)
- Quartzite, feldspathic quartzite / conglomerate
- Volcanite (mafic)
- Carbonate rocks
- Volcanite (felsic)
- Volcanite (mafic)
- Ultramafic rocks, extrusive (komatiite) / intrusive
- Phyllite, schist (locally graphitic), carbonate rocks, volcanite (mafic)
- Quartzite, feldspathic sandstone, conglomerate

Petsamo Group (PeG); Bik'kačákka (BiF), Čas'kajas (CsF), Lik'ča (LiF) and Suoluvuobmi (SuF) Fms, Lower Raipas Group (LrG), Iddjajav'ri (IdG) and Nussir (NuG) Groups, Kiruna (KnG), Vittangi (ViG) and Veikkavaara (VkG) Groups, Kiistala (KiG), Kolari (KlG), Salla (SlG), Sattanen (SeG) Groups and Savukangas Fm (SaF), Tjärro (TjF), Masi (MsF) and Skuvvanvarri (SkF) Fms, Saltvann Group (StG), Korpilombolo Group (KoG) — LAPPONIA SUPERGROUP

- Gabbro (locally layered) — Koitelainen (Koi), Näränkävaara (När) and Penikat (Pen) Gabbros — 2450
- Volcanite (mafic); Ultramafic rocks, extrusive (komatiite)/intrusive; Quartzite, quartzo-feldspathic gneiss — Opukasjärvi (OpF) and Kuorboaivi (KbF) Fms, Gål'denvarri Fm (GåF), Holmvatn Group (HoG)
- Hypersthene diorite
- Granulite (garnet-bearing paragneiss) — Lapland Granulite Complex (LgC)
- Undifferentiated gneiss (hornblende gneiss to quartzo-feldspathic gneiss) — Tanaelv Migmatite Complex (TaC), Parkajoki Gneiss Complex (PgC)
- Granite; Monzonite / gabbro — Neiden Granite Complex (Nei) — LATE ARCHAEAN INTRUSIONS — 2550–2800
- Volcanite (mafic) / volcanite (felsic); Ultramafic rocks, extrusive (komatiite)/intrusive; Quartzite, quartzo-feldspathic gneiss / mica gneiss — TUNTSA SUPERGROUP
- Undifferentiated sedimentary and volcanic gneisses — Bjørnevann (BjG) and Garsjø (GrG) Groups, Jarfjord Gneiss (JoG)
- Granite-gneiss (migmatite), granitic to dioritic gneiss, paragneiss, amphibolite — Råstojaur (RgC), Rai'sædno (RaC), Jergul (JeC), Sevetti (SgC), Baisvarri (BaC), Varanger (VaC), Čappeskaiddi (CaC), Kirkenes (KiC), Kuusamo (KuC), Pudasjärvi (PuC) and Kukkola (KkC) Gneiss Complexes — GRANITE-GNEISS COMPLEX — >2800

STRUCTURAL SYMBOLS

- High angle fault, shear zone
- Thrusts separating major tectonostratigraphic units in the Caledonides
- Thrust within major tectonostratigraphic unit
- Svecokarelian thrust in the Fennoscandian Shield
- Primary contact (sedimentary and intrusive)

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