



NLS
FINNISH GEOSPATIAL
RESEARCH INSTITUTE
FGI

History of NKG

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20th NKG General Assembly, Vilnius.

14.-17.9.2026

Why NKG?

Recognizing the importance of international cooperation, as no one country can do this alone, ...

Resolution adopted by the UN General Assembly on 26.02.2015. A global geodetic reference frame for sustainable development

The scientific tasks of higher geodesy are by their nature international, since they aim at the exploration of and knowledge of the size and shape of the earth, etc. The measurements and calculations necessary for these purposes would, if no other considerations were taken, be planned and carried out without regard to national borders.

Lars Asplund, 1950

Baltic Geodetic Commission 1924–1948

- Established as a co-operation organisation around the Baltic Sea
- Member countries: 1924/25: *Finland, Sweden, Estonia, Latvia, Lithuania, Germany, Poland*. 1926: *Denmark, Danzig free city*. 1929: *Soviet Union*.
- First President *Karl Rosén* (S), Vice President *Tadeusz Banachiewicz* (PL), permanent Secretary General *Ilmari Bonsdorff* (FI)
- Baltic Ring triangulation, baselines, , astronomical positioning, gravity
- Discontinued after the WW2

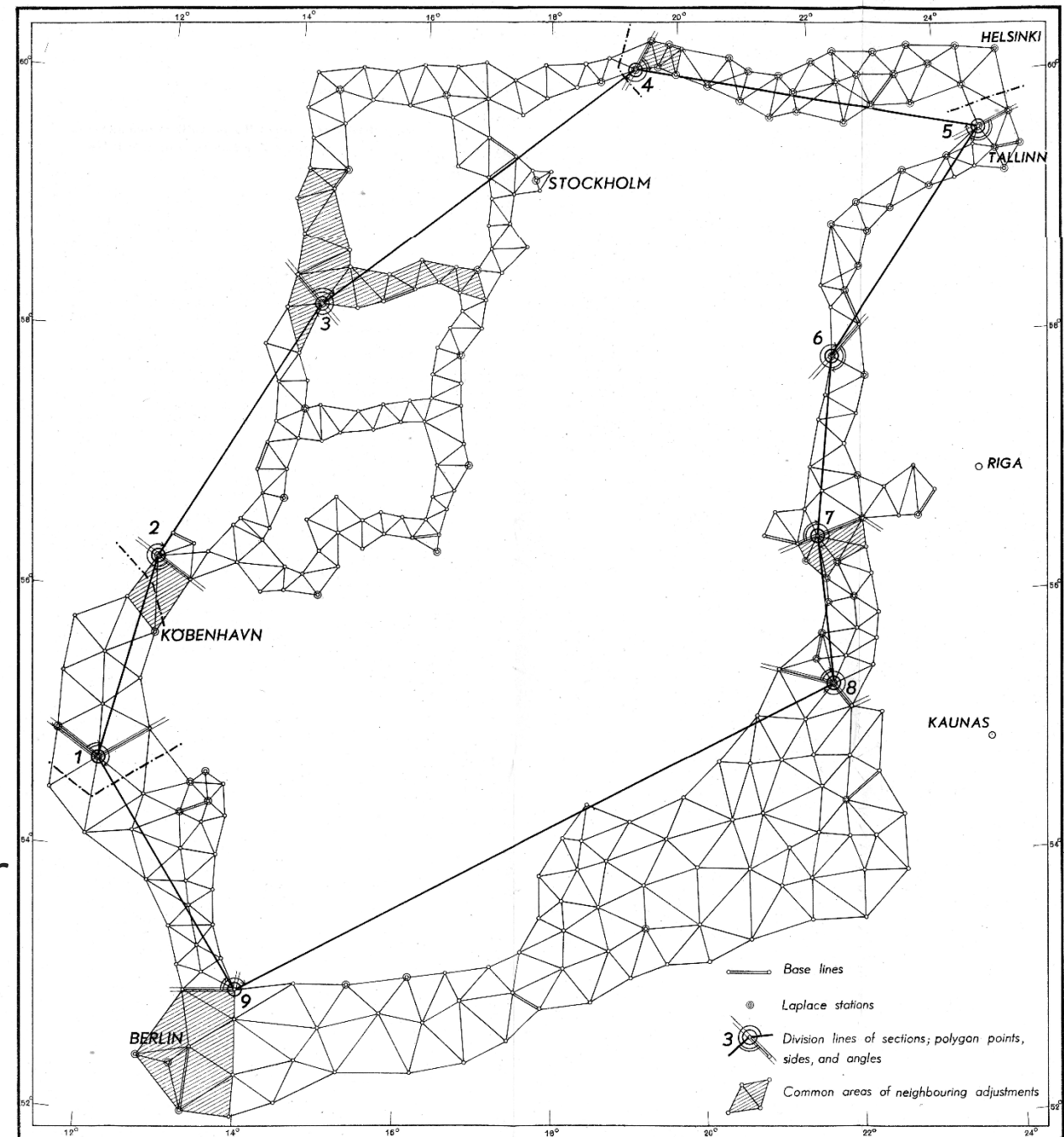


1948–1953

Baltic Ring adjustment (Ölander 1949)

Triangulation points: 317
 Total length: 2500 km
 Uncertainty of points: $\pm 0.37''$
 Baseline uncertainty: 3.85 ppm

- Changed political situation after the WW2
- No co-operation forum for geodetic measurements and research
- 1950 *Lars Asplund* proposed establishment of a Nordic Commission for geodetic co-operation, observations and analysis



Lars Asplund (1914–1987)

Doctoral degree, KTH 1945, Adjusted a part of the Baltic Ring
Rikets allmänna kartverk, Head of geodesy department 1949
Vice Director of the new Swedish National Land Survey 1974
Many positions of trust, and Docent at KTH



Kartografiska sällskapet och Svenska geofysiska före-
ningen hade gemensamt tagit initiativ till det nordiska
geodetmöte, som den 16 - 19 april 1953 ägde rum i Stock -
holm. Inbjudan till detta möte hade utfärdats till geode-
ter och andra intresserade i Danmark, Norge och Finland.

Nordic Geodetic Commission NKG 1953

- Meeting of 38 geodesists from Sweden, Finland, Norway and one from Denmark in Stockholm 16.–19.4.1953.
- 19.4.1953: Birthday of the *Nordiska Kommissionen för Geodesi, NKG*
- Resolutions of the meeting pointed out importance of improved adjustment of triangulation networks, co-operation in levelling, and need of improved gravity network and observations on land and sea.

Prof.	Asplund	1954 års solförmörkelse.
Prof.	Lindblad	
Prof.	Ölander v	De nordiska triangelnätens behandling i den stora europeiska utjämnningen. Riktlinjer för framtida utbyggnad och bearbetning av dessa nät. Diskussion.
Prof.	Asplund	Rapporter rörande fältarbetets anordnande vid precisionsavvägning.
Avdeln. chef	Trovaag	
Mag.	Kääviäinen	
Statsg.	Burrau	

First 50 Years

- Before 1982 the Presidium was from the country organising the General Assembly.
- New structure, bylaws of NKG 1982, 1986: Steering Committee with two members from each country -> permanent Presidium
- General Assemblies: First every three years, after 1962 quadrennial
- Summer (Autumn) Schools since 1984, except Covid time 2020
- Co-operation in first years in small groups which were not formally organised. First “official” Working Group in 1974 on Geodynamics.

General Assemblies

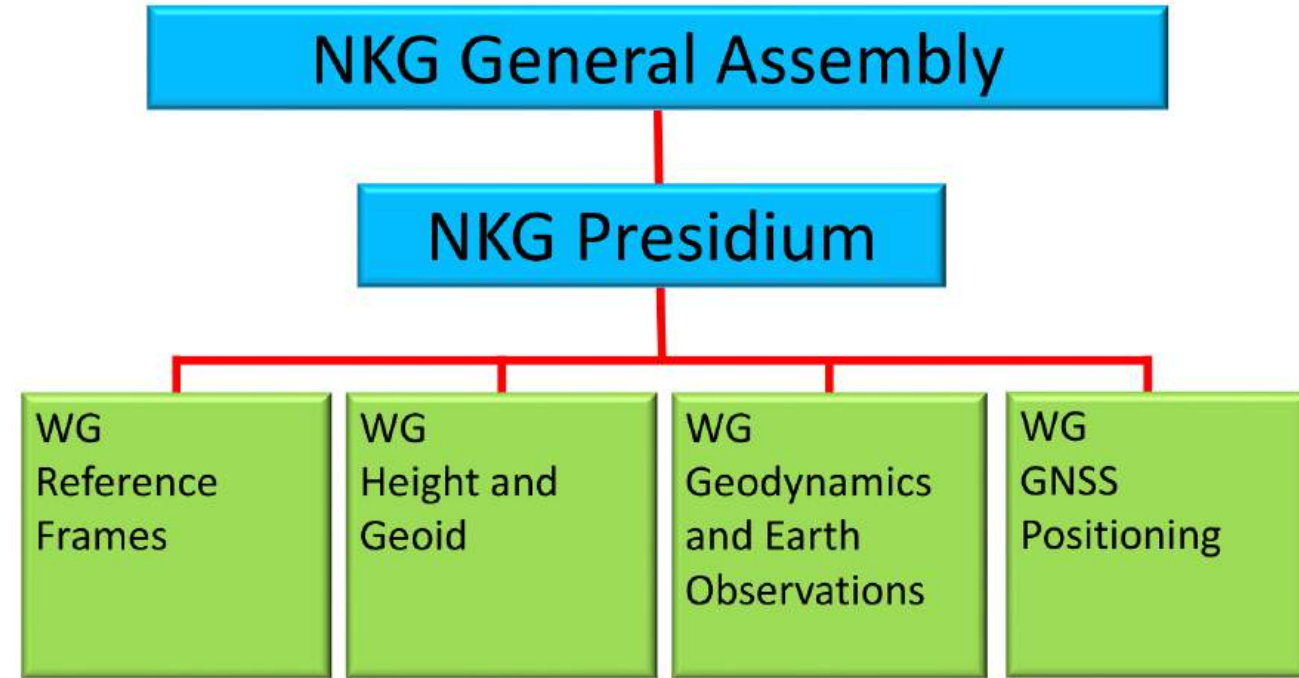
1953 Stockholm
1956 Helsinki
1959 Copenhagen
1962 Oslo
1966 Stockholm
1970 Helsinki
1974 Copenhagen
1978 Oslo
1982 Gävle
1986 Helsinki
1990 Copenhagen
1994 Ullensvang
1998 Gävle
2002 Espoo
2006 Copenhagen
2010 Sundvollen
2014 Gothenburg
2018 Helsinki
2022 Copenhagen
2026 Vilnius

Summer } Schools Autumn }

1984 Røros
1988 Ebetoft
1992 Korpilampi
1996 Båstad
2000 Fevik
2004 Bornholm
2008 Nesjavellir
2012 Lammi
2016 Båstad
2021 On-line/N (Covid)
2025 Tartu

NKG 2022 – 2026

- New bylaws in force at the 2022 GA
- Estonia, Latvia and Lithuania now formally members of the NKG
- Clarification and update of several paragraphs
- *Membership:* Anyone who is either by education or by function connected to geodetic activities and based in the NKG region can join the Commission as a member.
- *The vision of the NKG* is to advance geodetic cooperation, education, and research.



NKG General Assembly, quadrennial
NKG Summer School, middle of NKG GA period
NKG Science Week
Working group annual meetings
Projects (e.g. NKG Analysis Centre)

NKG Success Stories

Reference Frames

1950's – 1980's: Co-operation in triangulation; connections across borders, joint adjustment, development of adjustment theories

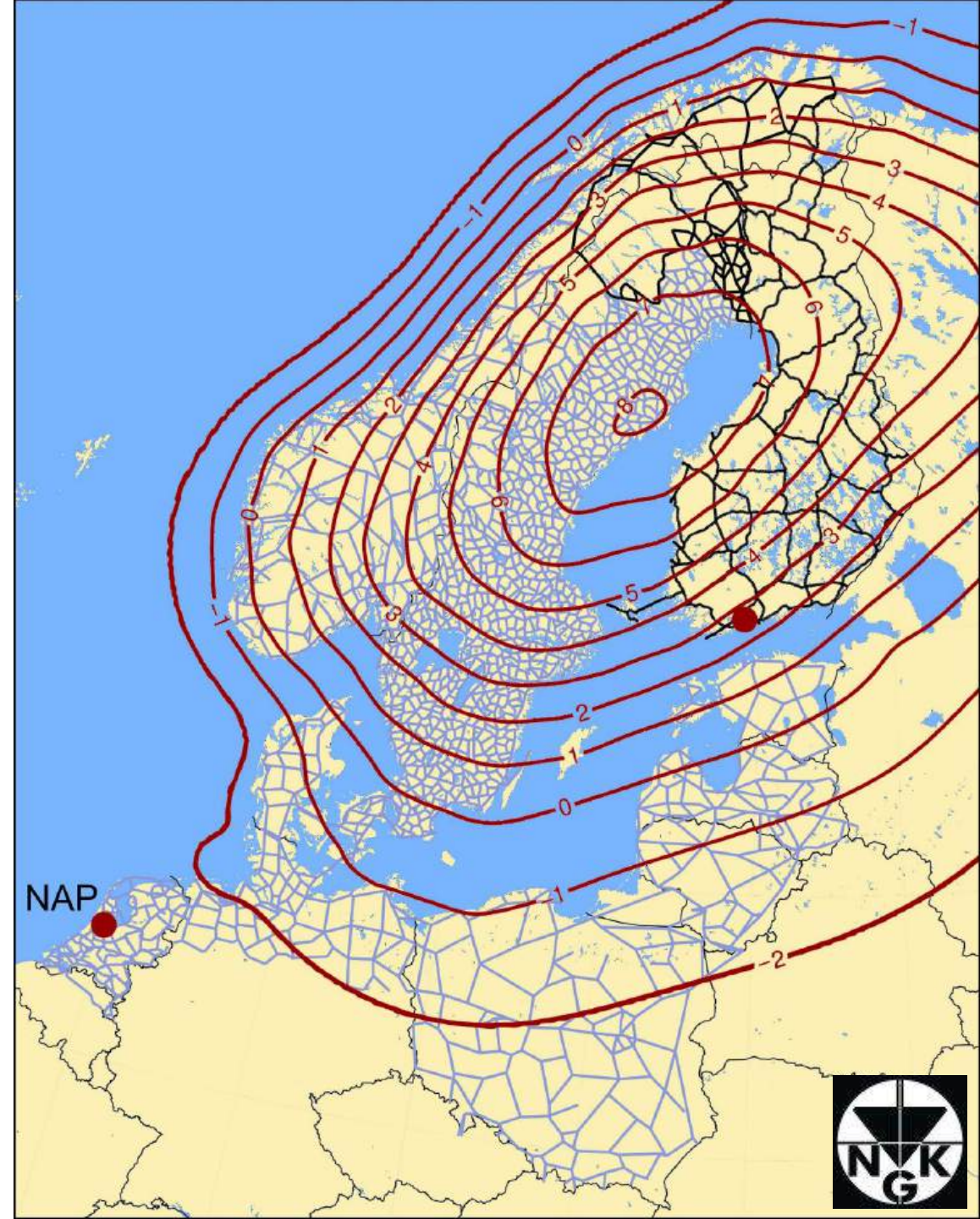
1980's – 2000's: Study of land uplift and geodynamics; Joint GPS-campaigns to establish reference frames; example: *1992 EUREF-BAL*: NKG joint campaign to measure and create the geodetic network in the Baltic States and to tie it in the European Reference System EUREF89

1989: Mutual help by exchanging GPS receivers in EUREF89 campaign; the beginning of the European Reference Frame ETRS89.



NKG Success Stories Levelling

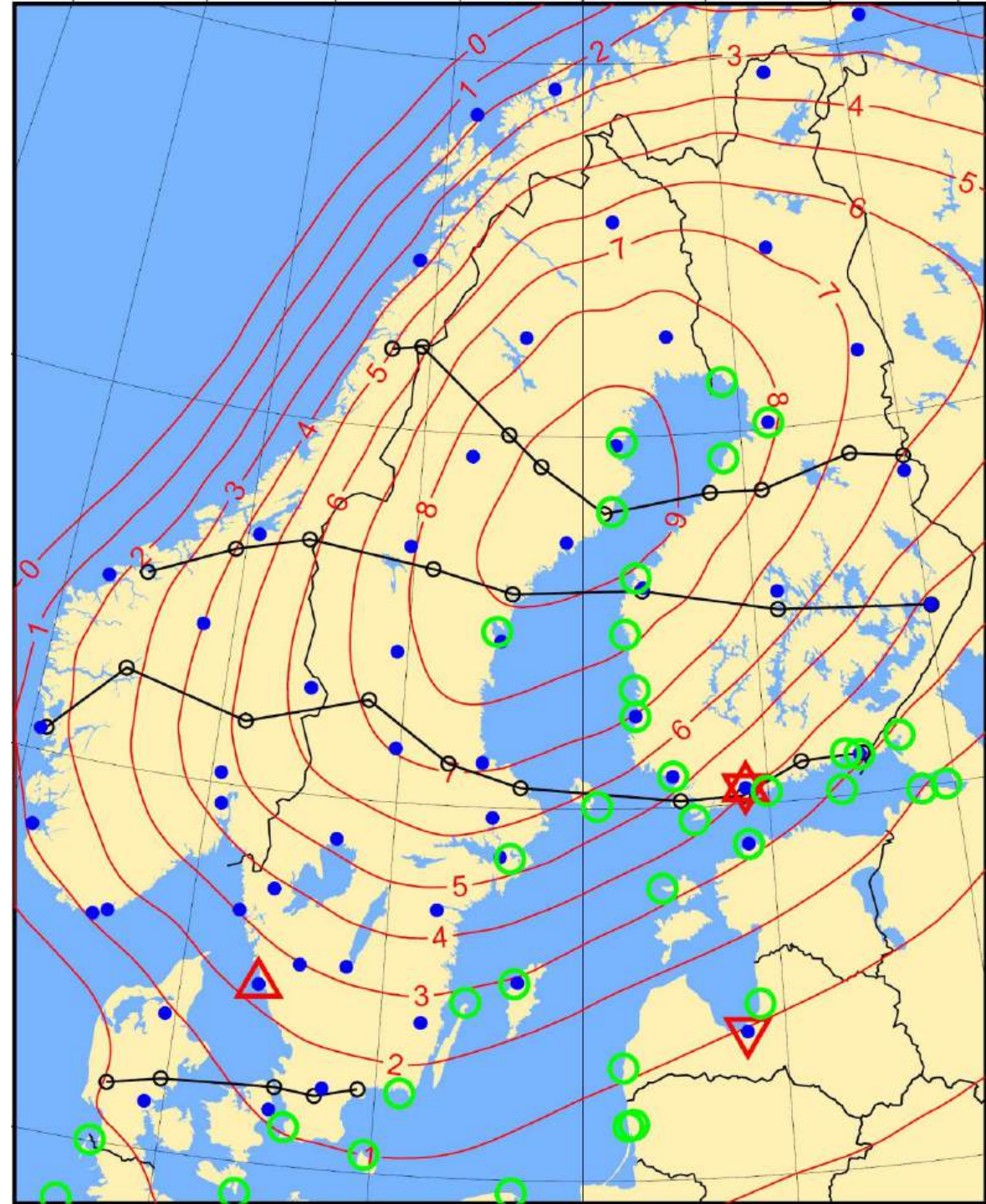
- Co-operation in levelling since 1950's
- Connection of national levelling networks
- Early 2000's readiness for common adjustment of levelling networks around the Baltic Sea
- NKG joint adjustment to create a unified height system based on Amsterdam zero and INSPIRE requirements
- National height systems based on the NKG adjustment; compatible to each other; common epoch for land uplift correction (2000), common treatment of data



NKG Success Stories

Gravity, Geoid, Uplift

- Joint NKG gravity measurement campaigns since beginning of NKG
- Land uplift-gravity line measurements 1960's –1990's to get the connection between gravity change and land uplift
- Absolute gravity measurements at permanent GNSS stations from 1990's as NKG joint projects
- Joint gravity data bank for geoid computation (100 000's of points in Fennoscandian area)
- NKG geoid models computed since 1980's,



NKG Success Stories GNSS

- Mid-1990's establishment of first permanent GPS stations; NKG Working Group. Synergy in planning and construction; share of information and data. Participation on BIFROST
- Joint analysis of data, common data banks
- New national coordinate systems are compatible
- NKG Analysis centre to compute the daily solution of the Baltic Sea area + Iceland; part of EPN, the EUREF Permanent GNSS network
- Precise NKG crustal motion model developed (uplift and 3-D models)



Reinkarnation?

NGOS, Nordic Geodetic Observing System

Task Force established in 2002 to prepare the plan for NGOS

Markku Poutanen, FGI, Chair; *Per Knudsen*, KMS; *Mikael Lilje*, LM;
Hans-Peter Plag (-10/2004), *Torbjørn Nørbech* (10/2004 -) SK;
Hans-Georg Scherneck, Chalmers

Several meetings and publications

Poutanen M, Knudsen P, Lilje M, Nørbech T, Scherneck H-G (2006): *NGOS, the Nordic Geodetic Observing System*. NKG, 15th GA, Copenhagen.

Poutanen M., P. Knudsen, M. Lilje, T. Nørbech, H.- P. Plag, H.-G. Scherneck, (2007): *The Nordic Geodetic Observing System (NGOS)*. In *Dynamic Planet – IAG Geodesy Symposia*, Vol. **130**: 749-756.

Invitation to become a GGOS affiliate member (like today: Japan, D.A.C.H (Germany, Austria, Switzerland), IberAtlantic)

After two periods, the Presidium decided that no action will be taken, and NGOS will not be realised.



Summary

- NKG has been one of the most successful scientific organization in the world
- Joint efforts have produced one of the best geodetic infrastructure in the world
- Long-term co-operation, numerous success stories and joint projects have saved a lot of work and money among the Nordic NMAs
- The most successful projects have been born in the combination of scientific excellence, technological development and practical needs of the NMAs.
- Combination of NMAs and Universities offers unique opportunity
- Strong support of NMAs is needed both in work of the NKG Working Groups and also supporting geodetic curricula in universities
- NKG supports NMAs with results of research, pilot projects and advices.
- Strategy and focus of NKG as defined by the General Assembly
- Funding and organization of projects remain an open question



GA Helsinki 1956





GA Oslo 1962



GA Stockholm 1966





GA Ullensvang 1994





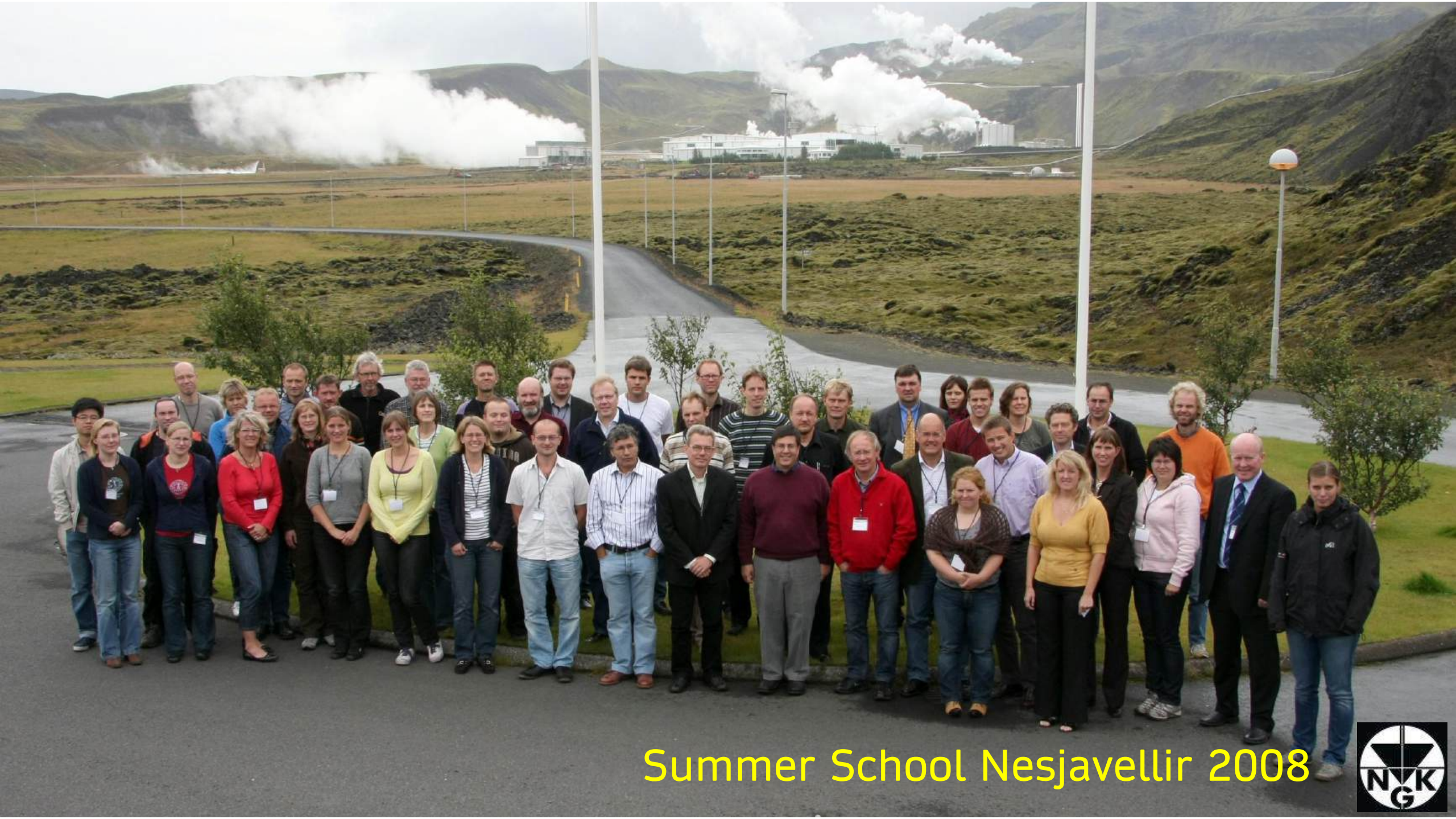
GA Gävle 1998





GA Helsinki 2018





Summer School Nesjavellir 2008





Summer School Lammi 2012



Thank You



Proposal:

NKG will celebrate its 75th anniversary in 2028. We had a history of the first 50 years of NKG published in 2001, edited by *Ole Bedsted Andersen*.

Should we now write a book to celebrate the 75th anniversary of NKG?