GEUS

Uranium potential in Greenland

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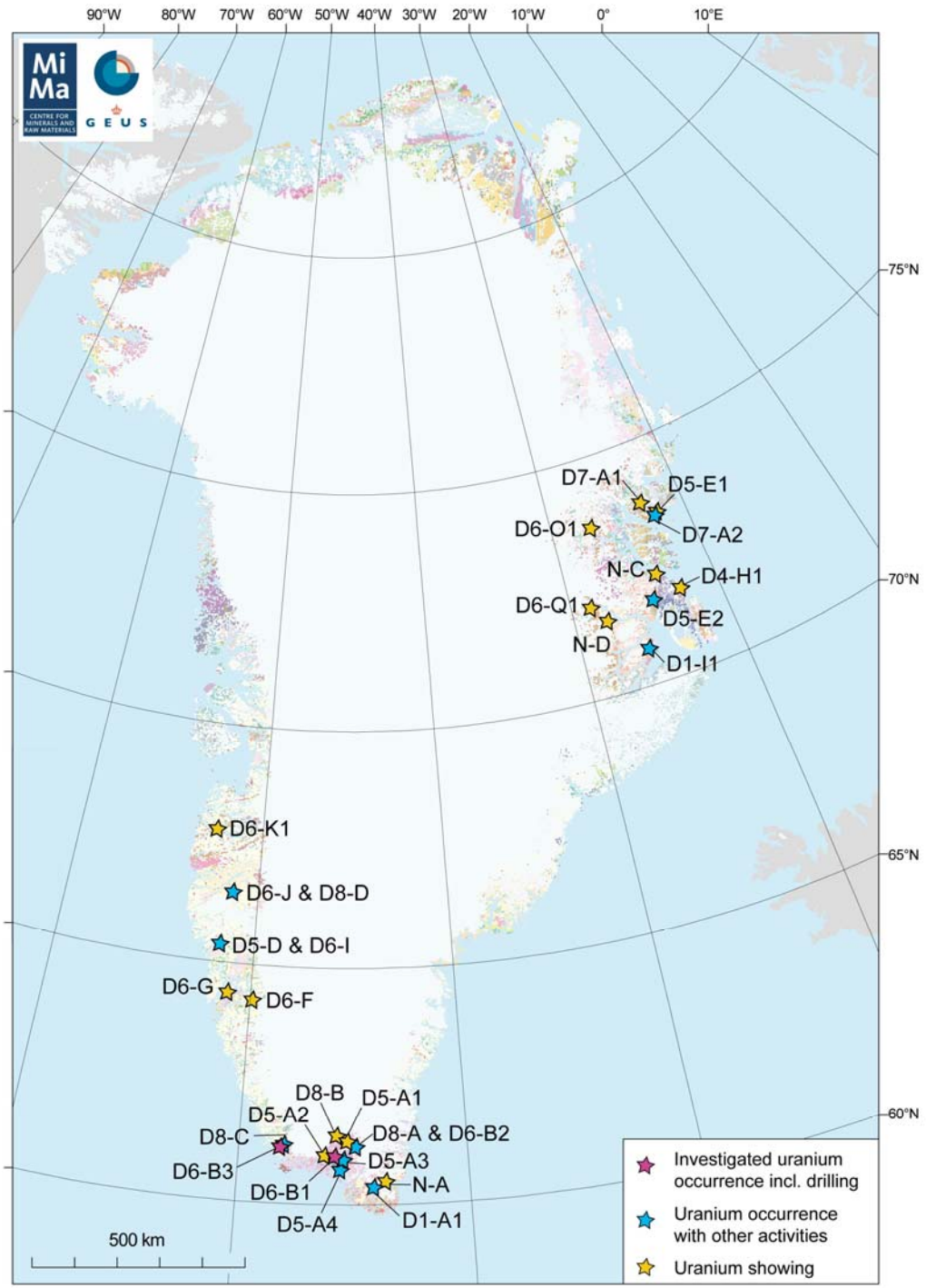
Danish Ministry of Climate, Energy and Building

Greenland

- Greenland is part of the Kingdom of Denmark
- Largest island in the world, >2 mio. km^2
- ~80% covered by an ice sheet
- 56.000 inhabitants
- 18 towns and 60 settlements

Uranium in Greenland

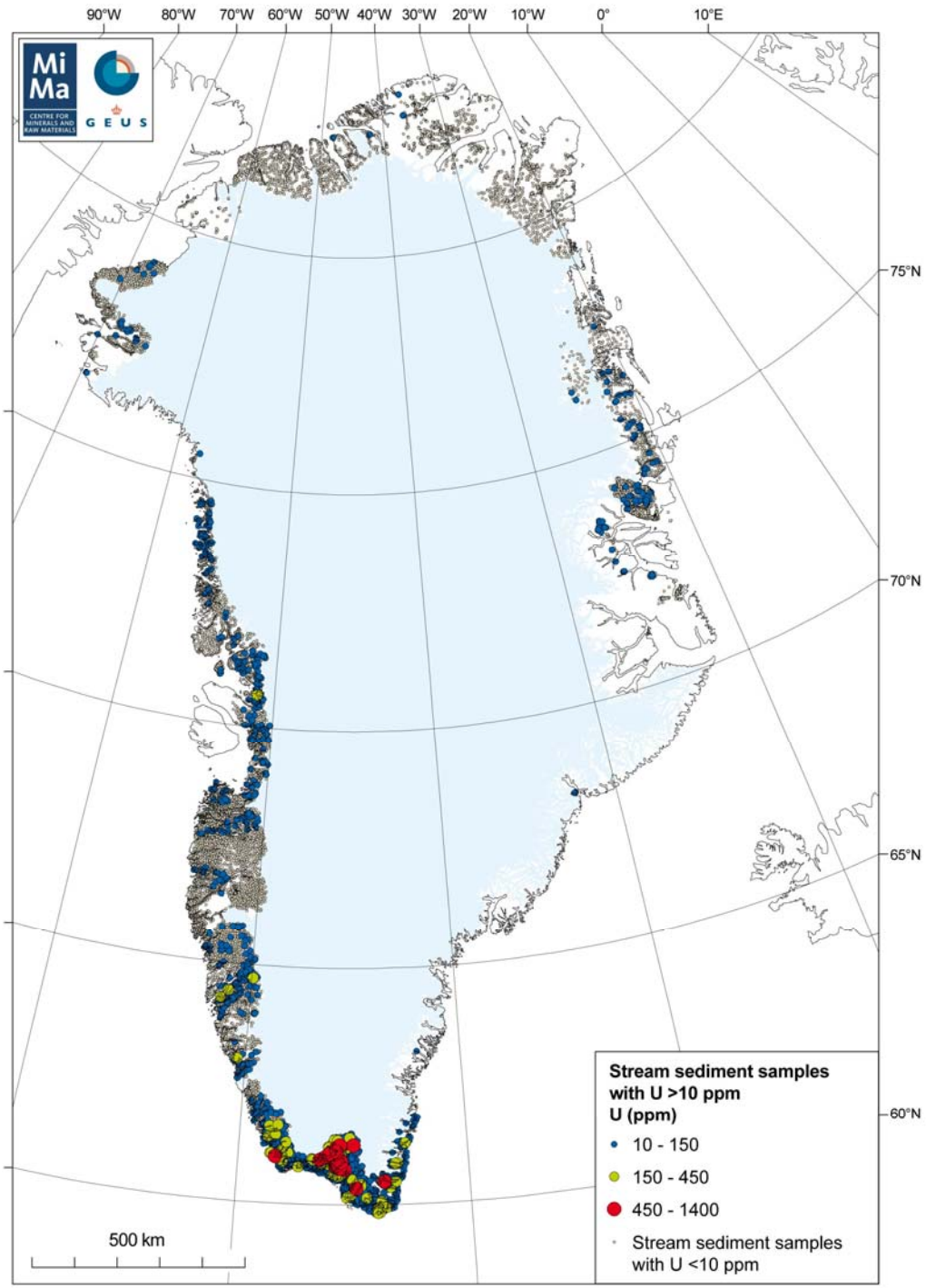


- Known uranium deposits (Keulen et al. 2014)

- Exploration and research in South and East Greenland in the 1950's to the 1980's

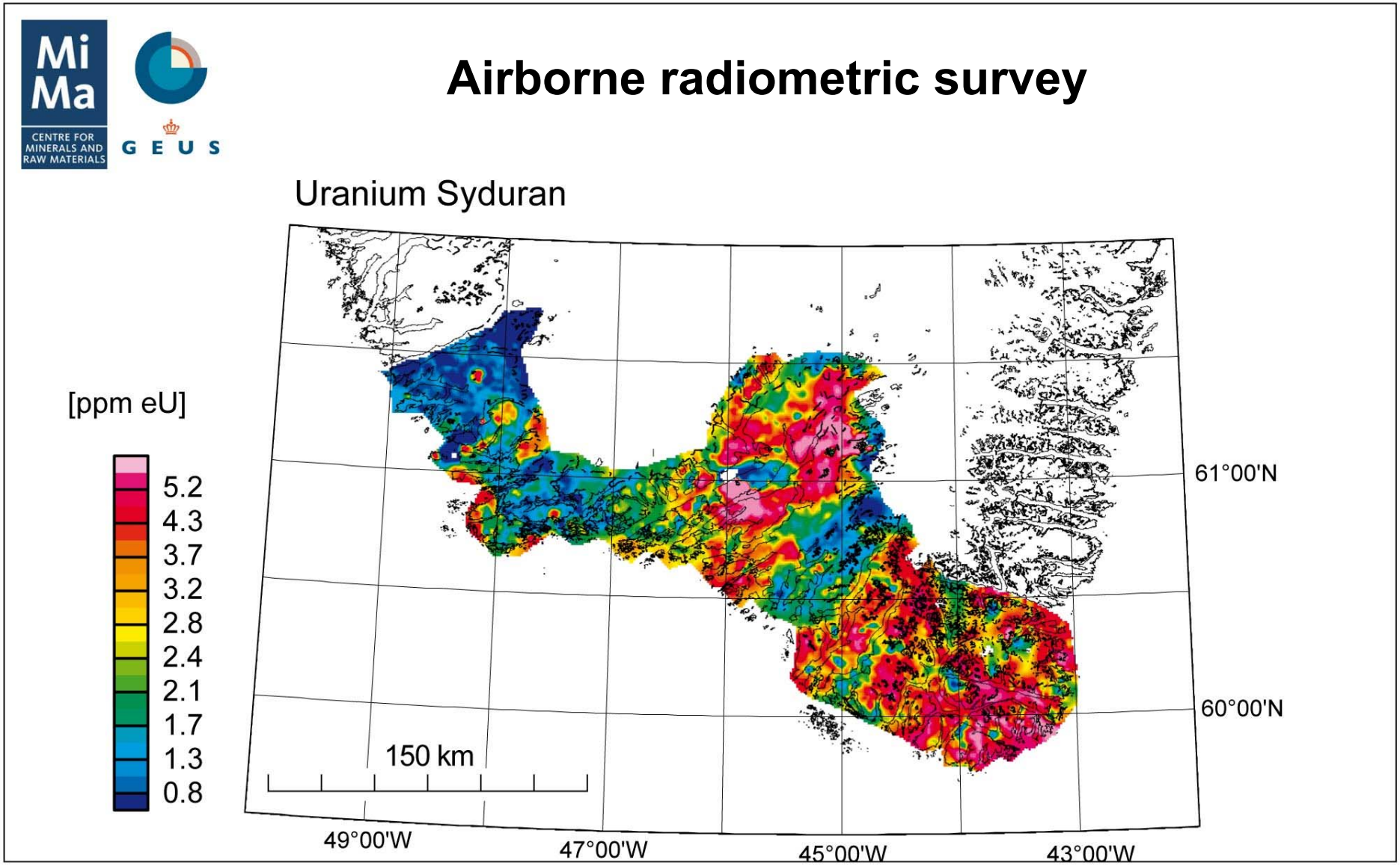
- Intrusion
- Vein
- Sandstone
- Metasomatic
- Volcanic
- Qz-pebble conglomerate

Stream sediment data



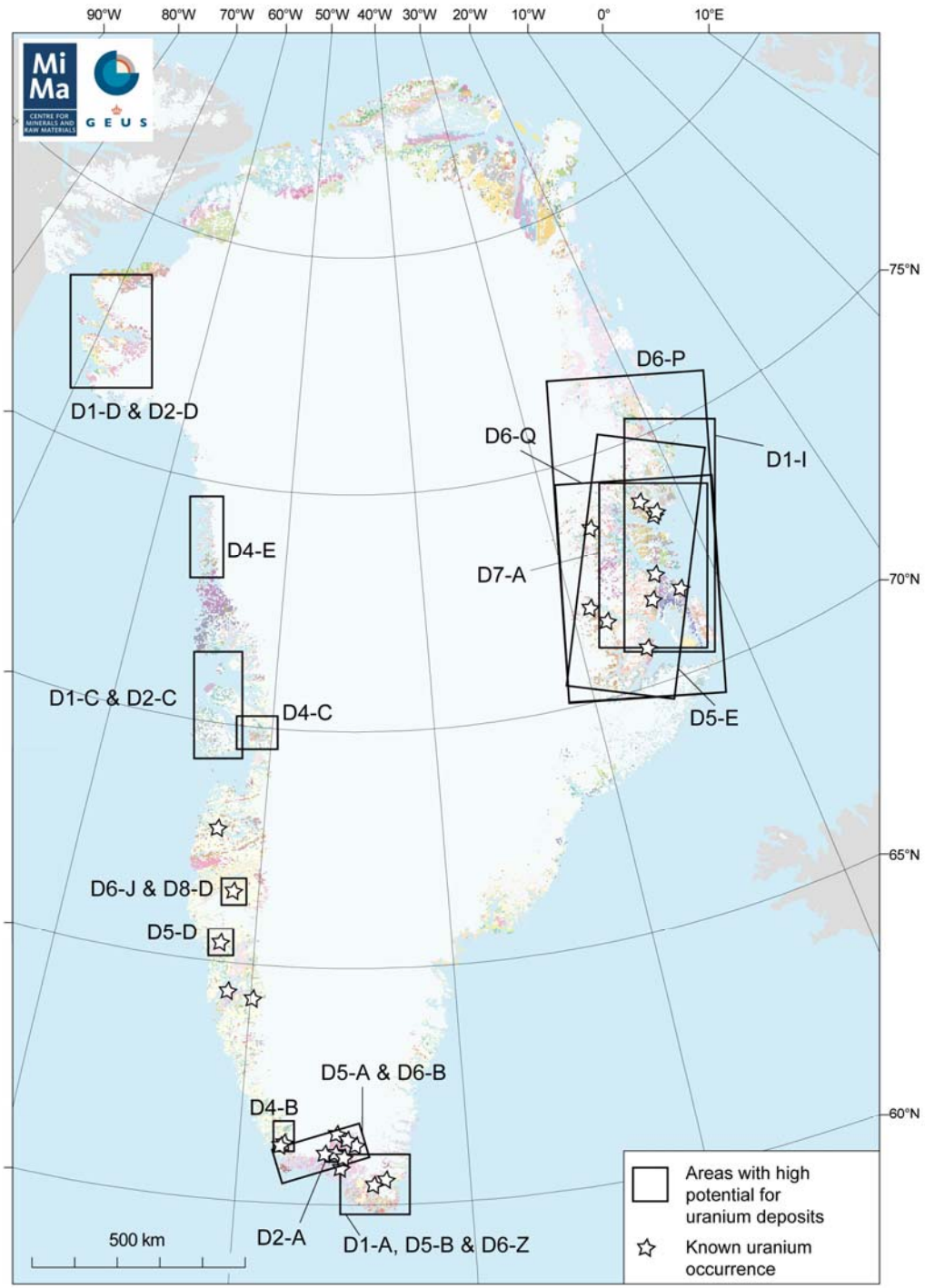
South Greenland has the highest background radiation in Greenland, but the Nuuk region also has relatively high background radiation

Airborne radiometric survey



Armour-Brown et al. (1982)

Uranium in Greenland



- The potential for uranium deposits is good (Keulen et al. 2014)
- Several areas with favorable geological environment for uranium deposits, fx. the Thule region (sandstone and unconformity-related deposit types).

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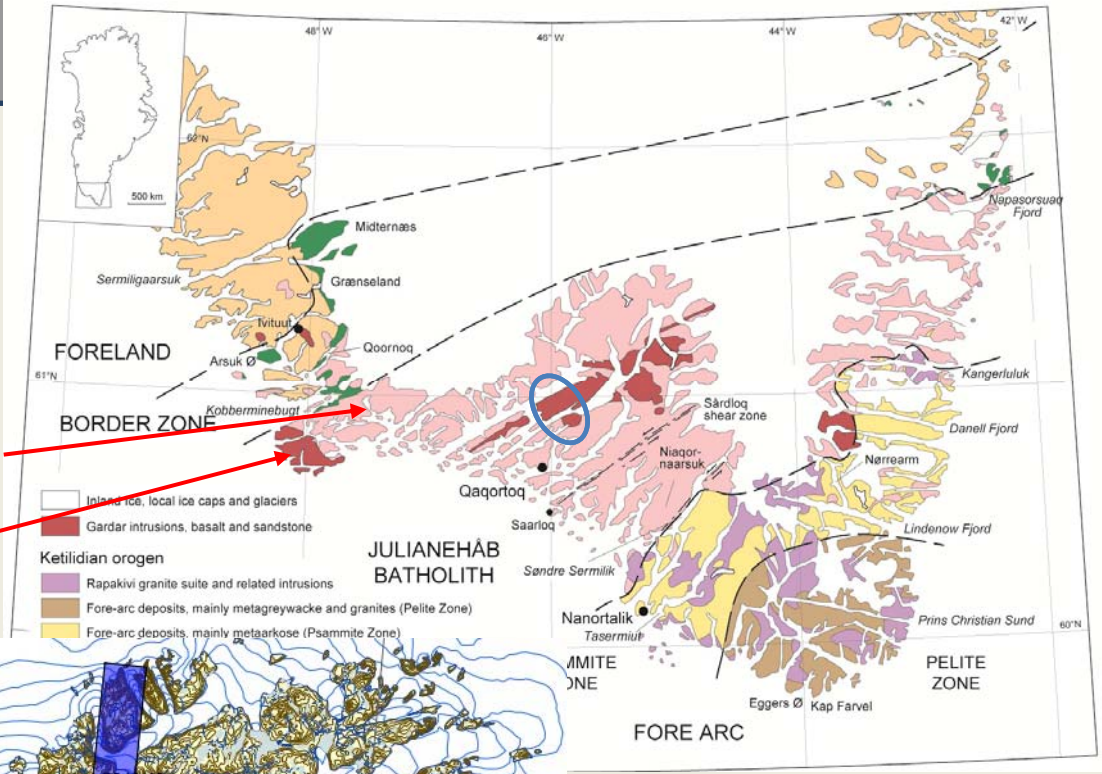
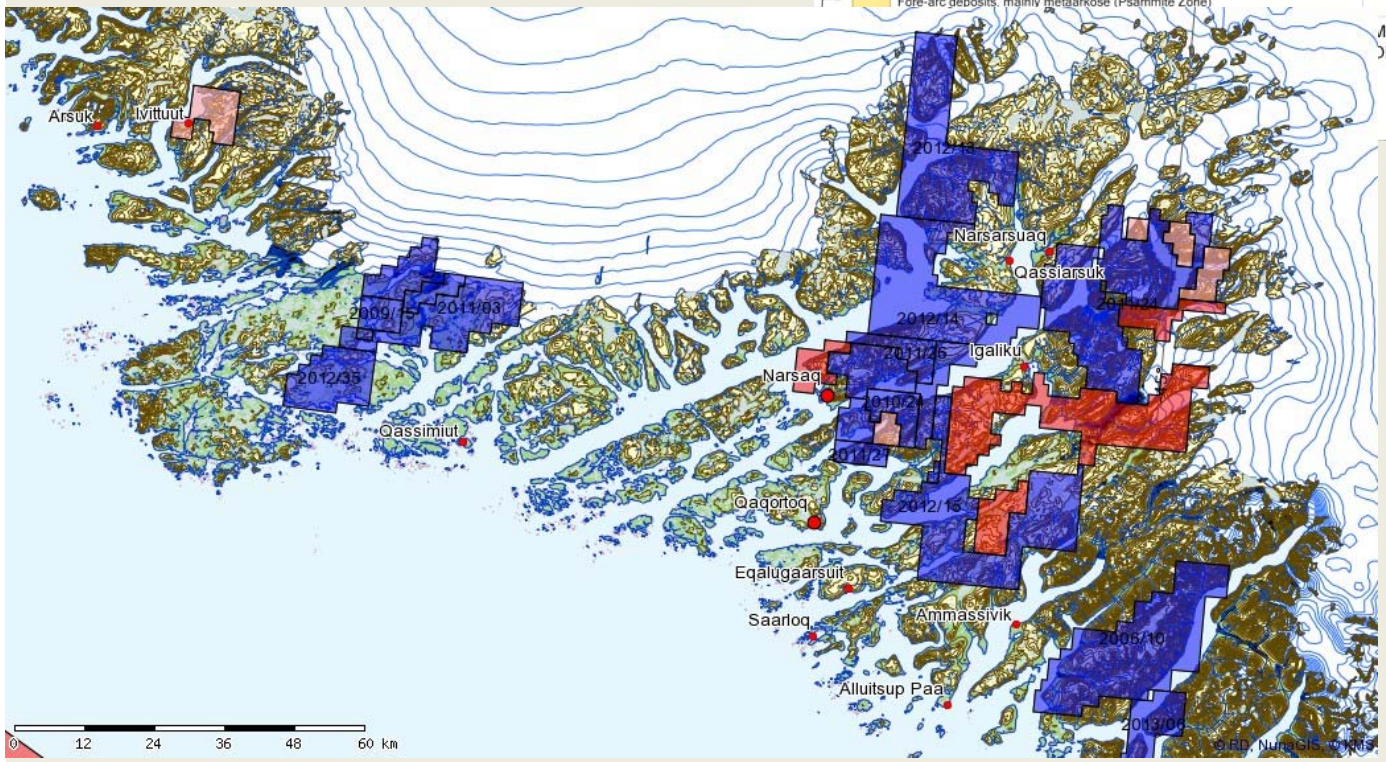
South Greenland

Radioactivity related to:

1) The Julianehåb batholith (pink)

2) Gardar intrusions (red-brown)





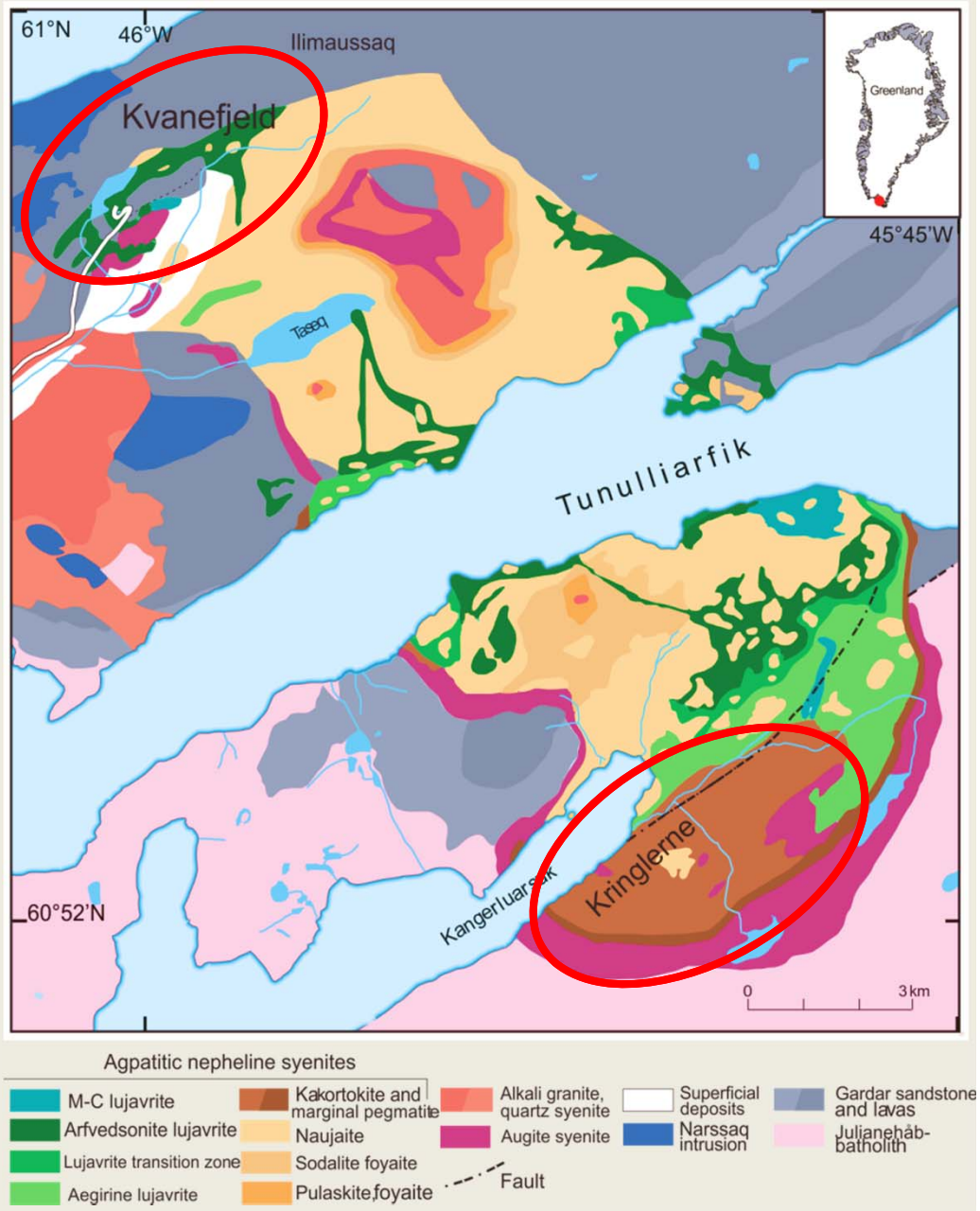
Licences – March 2013

The Ilímaussaq Complex

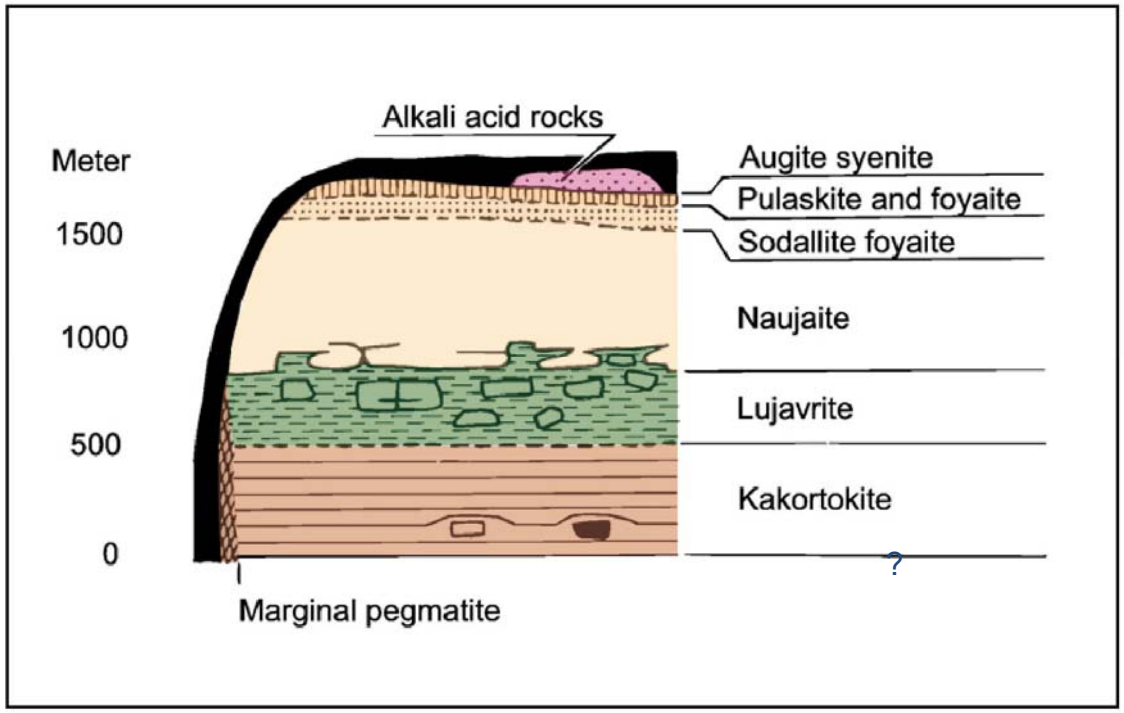
Agpaitic Nepheline Syenites
Highly-evolved, highly-enriched
in incompatible elements
(Zr, Nb, Ta, Be, REE, U, Th etc)

>220 minerals
34 discovered here
16 unique

- Kakortokites
- Lujavrites
- Naujaite
- Sodalite Foyaite
- Pulaskite, Foyaite
- Augite Syenite
- Quartz Syenite



Ilímaussaq Instrusion



From Rønsbo, 2008 modified after Andersen et al., 1981

Upper Lujavrites (at Kvanefjeld)

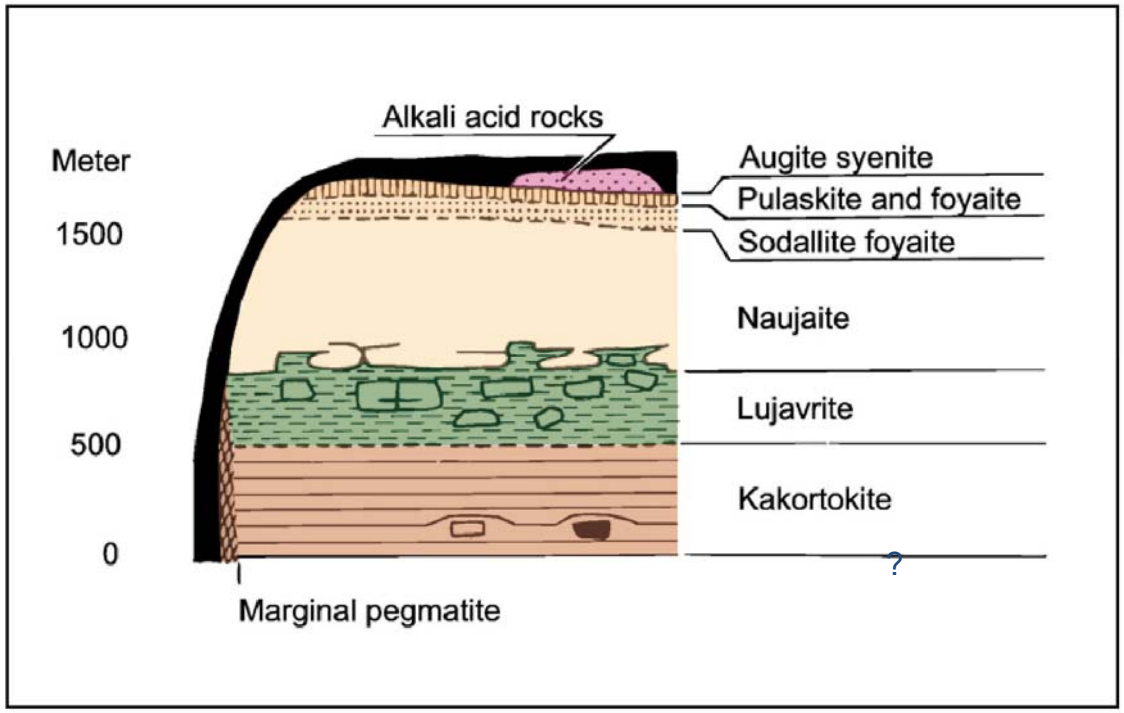
- Final crystallized melt
- U concentrated in steenstrupine
- Also enriched in REE, Th, Zn and Be

Kakortokites (at Kringlerne)

- Floor cumulates
- Eudialyte rich layers – red kakortokite
- Eudialyte enriched in REE, Zr, Ta, Nb and Hf
- No U


Kringlerne

Ilímaussaq Instrusion



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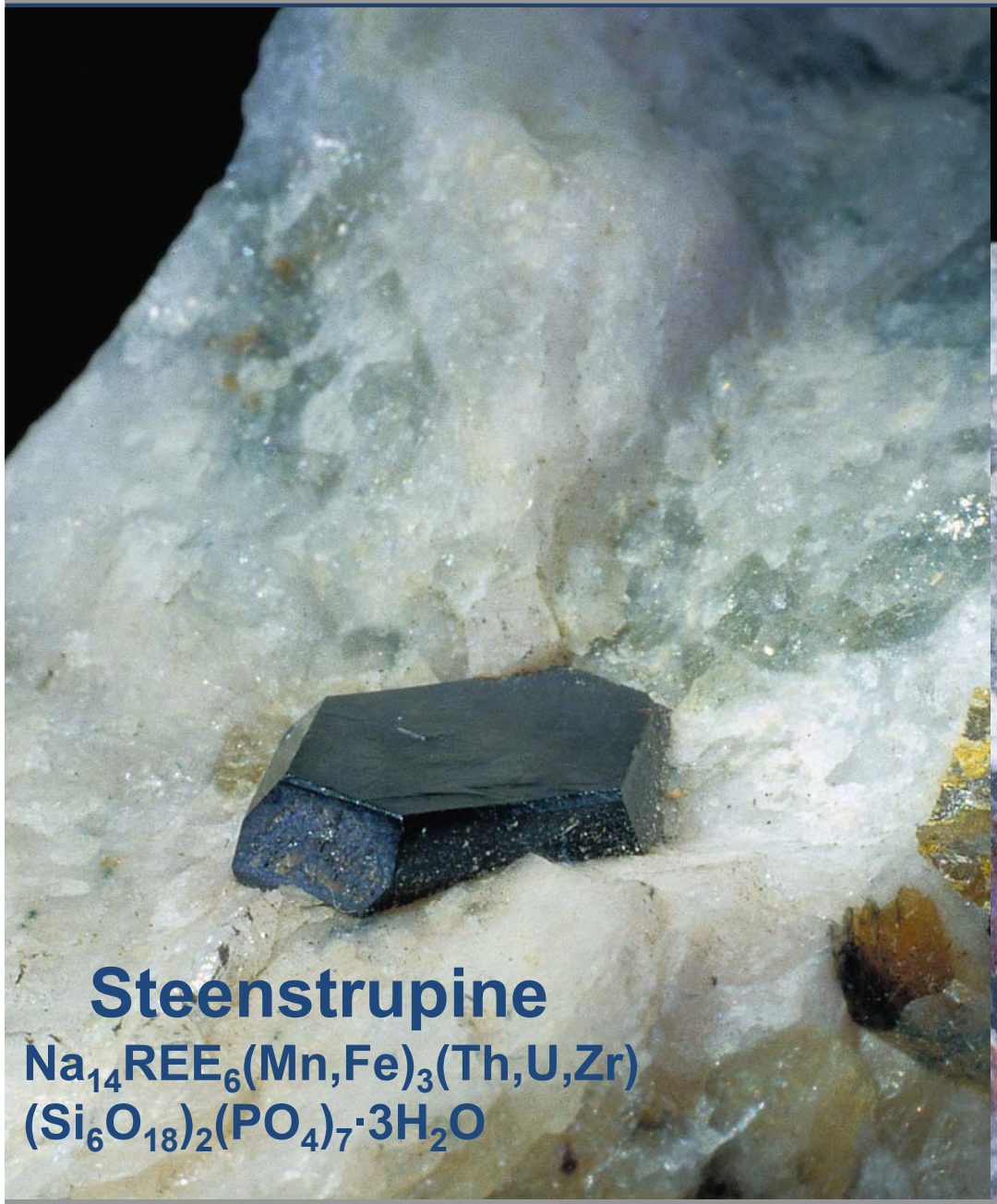
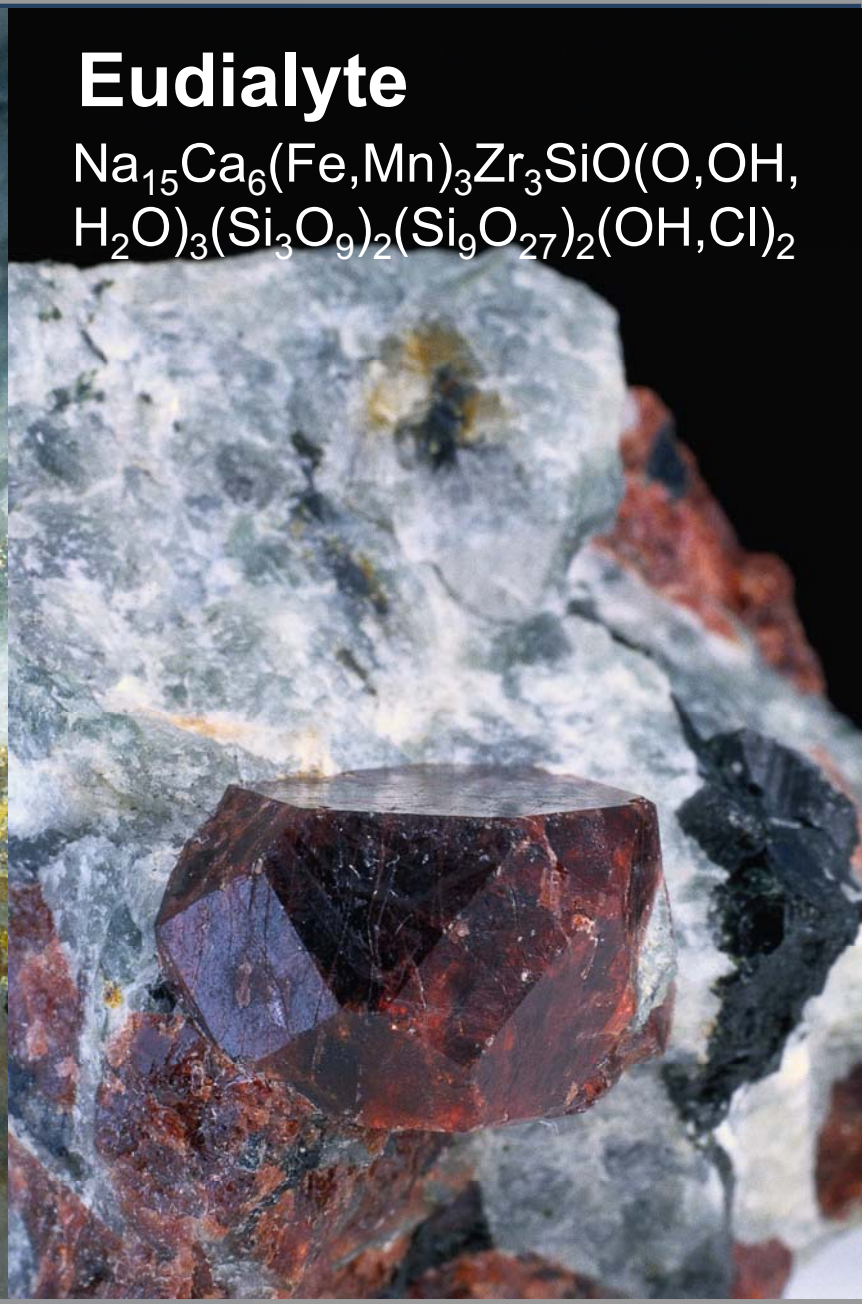
Kvanefjeld
Foto: Henrik Friis



Steenstrupine

$Na_{14}REE_6(Mn,Fe)_3(Th,U,Zr)(Si_6O_{18})_2(PO_4)_7 \cdot 3H_2O$



Eudialyte

$Na_{15}Ca_6(Fe,Mn)_3Zr_3SiO(O,OH,H_2O)_3(Si_3O_9)_2(Si_9O_{27})_2(OH,Cl)_2$

The history of Kvanefjeld

- 1955, Danish government initiates uranium prospecting program
- GGU recommends targeting the Ilímaussaq Complex
- A primitive geiger counter survey was carried out by military personnel.
- 1956, the Kvanefjeld deposit was discovered.

Start up

- 1957, first attempts were made to develop a method to extract uranium from ore
- 1958, the first drilling program was carried out – 36 holes, 3728m
- 1962, 1400 m were drilled

1957, Niels Bohr became an honourary citizen in Narsaq

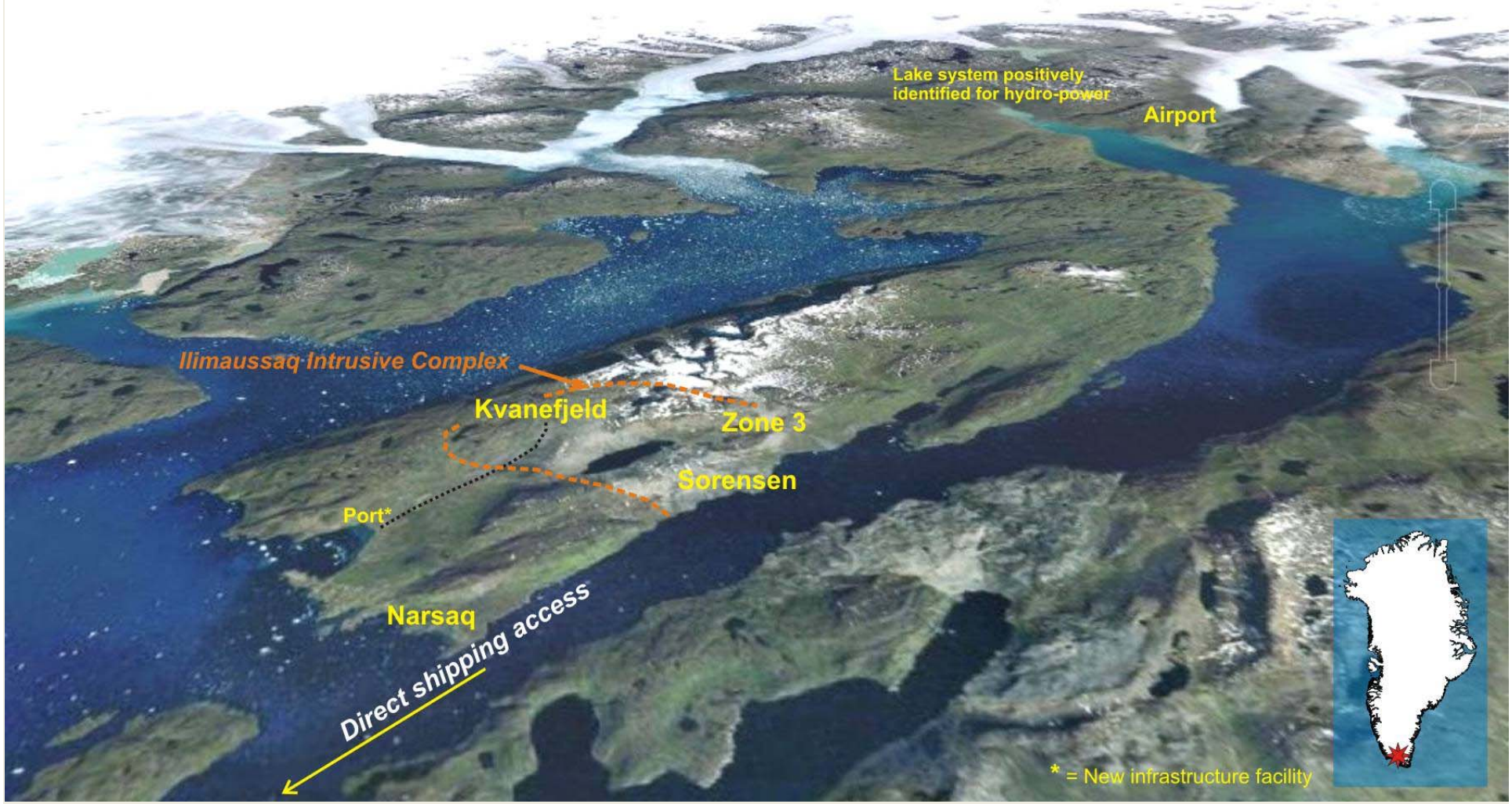
Progress

- In 1977, 27 holes, 5100 m drilled
- A one kilometre long adit in 1979-80
- Approximately 4.500 tonnes of ore were transported to Denmark in 1980 for further testing and processing.
- Finally in 1982, an efficient extraction method was developed for uranium from Steenstrupine.

Resistance

- Late 1970's resistance against nuclear power rose in Greenland and Denmark.
- In 1985, Danish Parliament formally decided not to have nuclear power facilities in Denmark.
- A "zero tolerance" policy was introduced.
- The ban was lifted October 24, 2013

Greenland Minerals and Energy (GME)

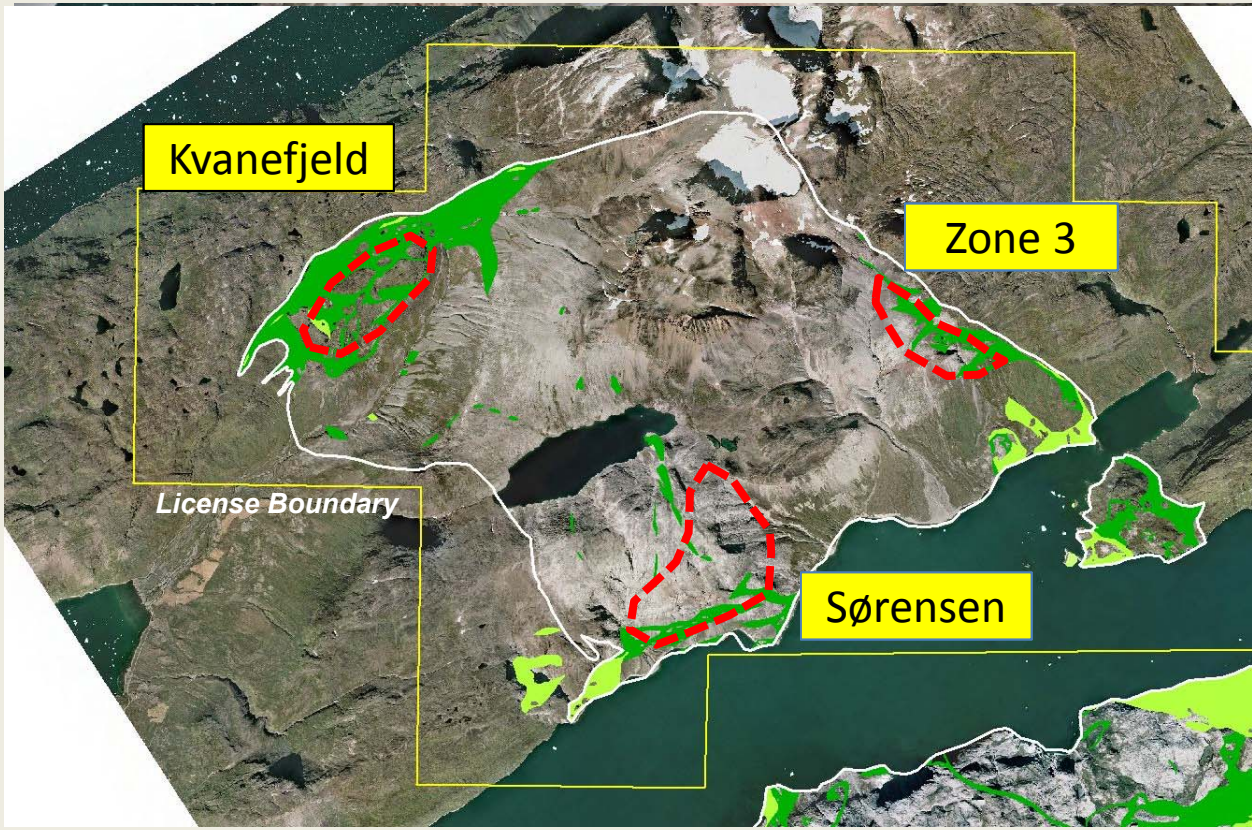


- GME has invested over $75M in exploration and research over the past 6 years

Source: GME

Kvanefjeld Multi-Element Project

- The Kvanefjeld project: Kvanefjeld, Sørensen (Zone 2) Zone 3
- One of the largest REE deposits in the world
- Open pit mining highest grades near surface



Source: GME

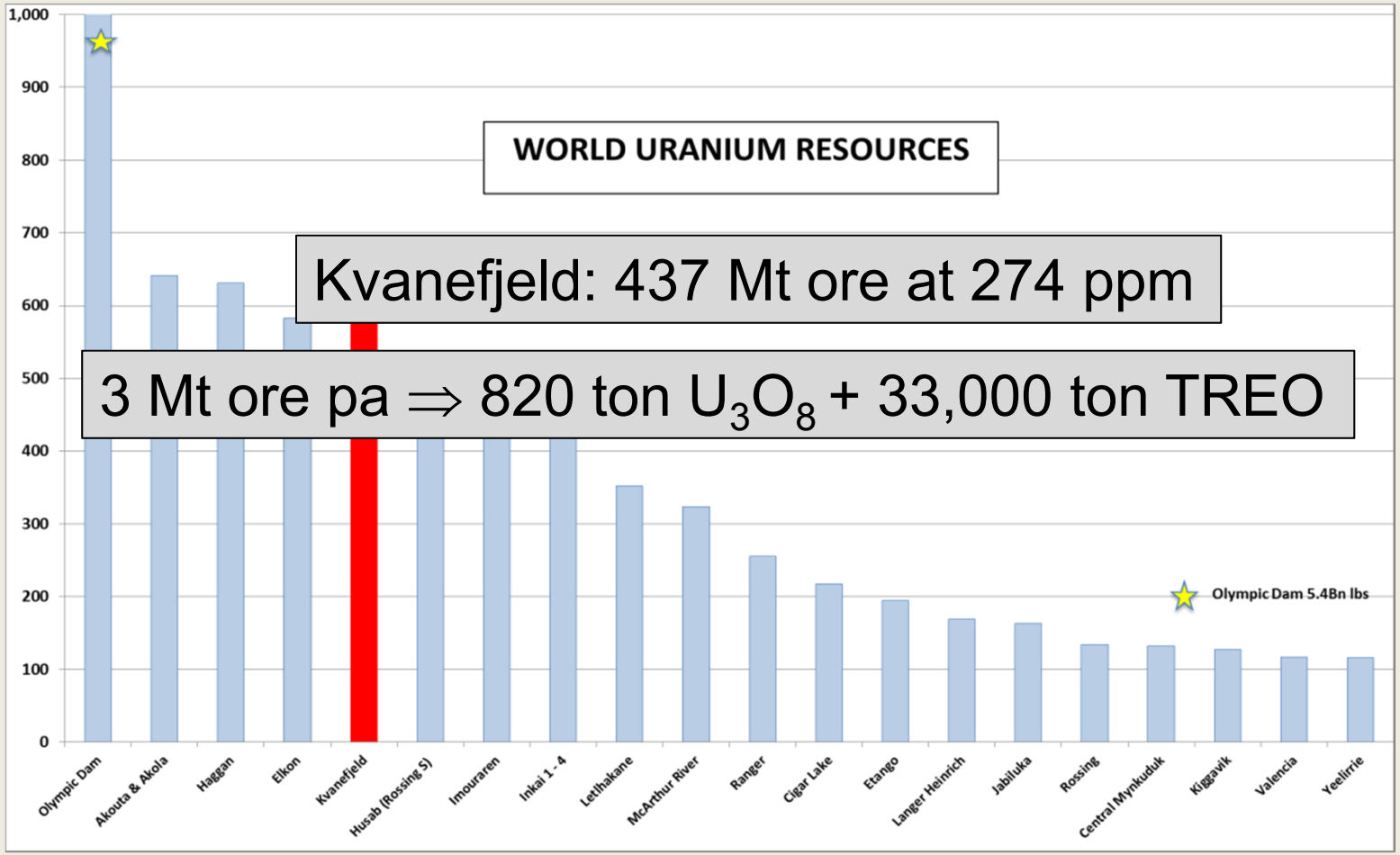
Project overall resource inventory:

956 Mt of ore containing: 10.33 Mt TREO (TREO includes: 0.37 Mt heavy REO, 0.84 Mt yttrium oxide), 2.25 Mt zinc,
575 Mlbs U_3O_8 indicated and inferred (JORC-compliant), at a 150ppm cut off

Total of 575 Mlbs U_3O_8 (260.800 ton U_3O_8)

indicated and inferred, JORC-compliant, at a 150 ppm U_3O_8 cut-off

Source: GME



☆ Olympic Dam's resources are 5,404 Mlbs

Source: BCC, Company Filings and websites as at January 27, 2012

Conclusions

- The uranium potential in Greenland is very good
- Kvanefjeld is the first advanced uranium project in Greenland
- Application for exploration licence expected in 2015.