Supplementary data file 2

P.M. Holm & N.-O. Prægel: The importance of *in situ* crystallisation and loss of interstitial melt during formation of the Kærven Syenite Complex, Kangerlussuaq, East Greenland

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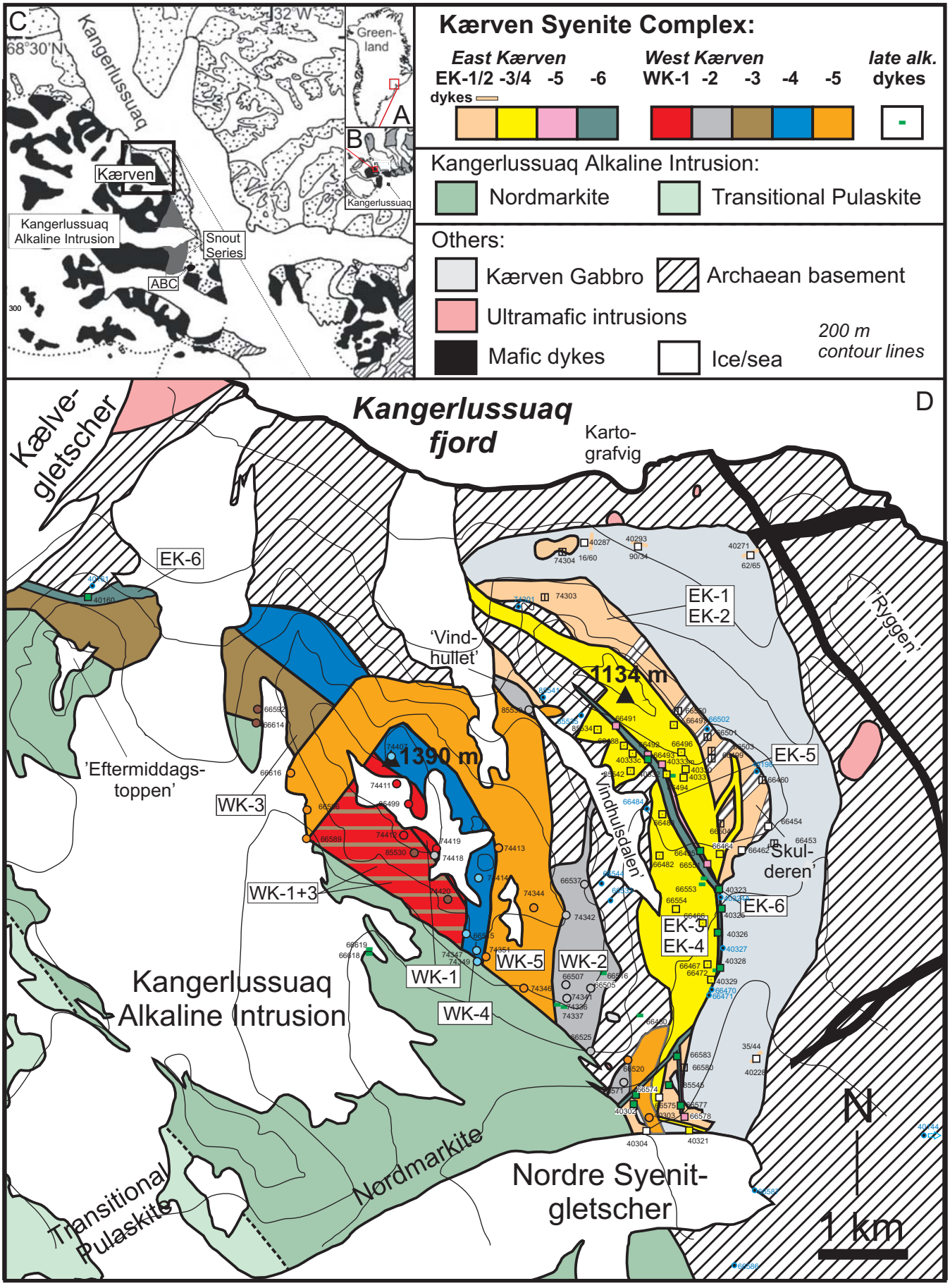
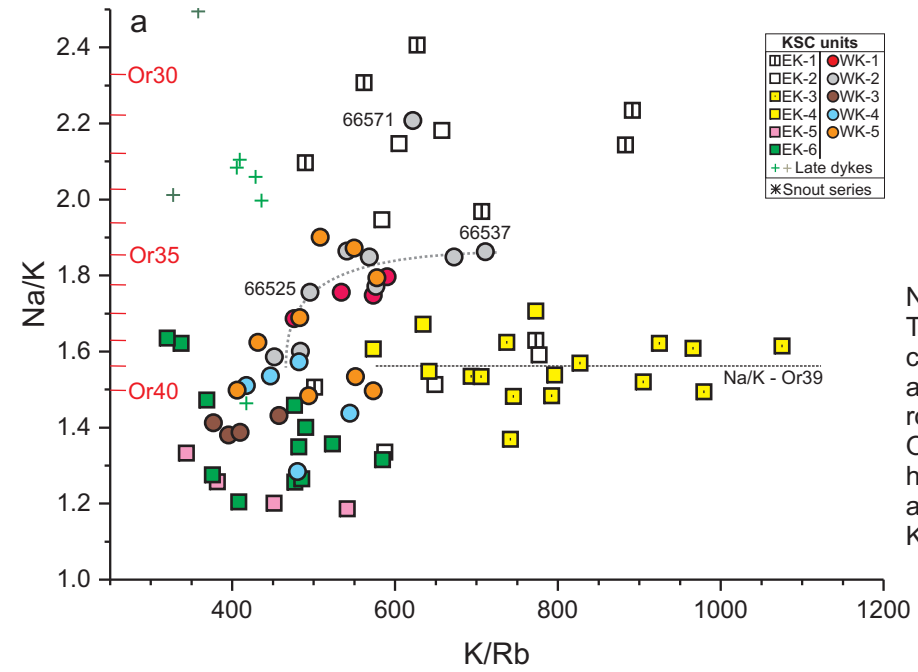
1. Location of samples of the Kærven Syenite Complex

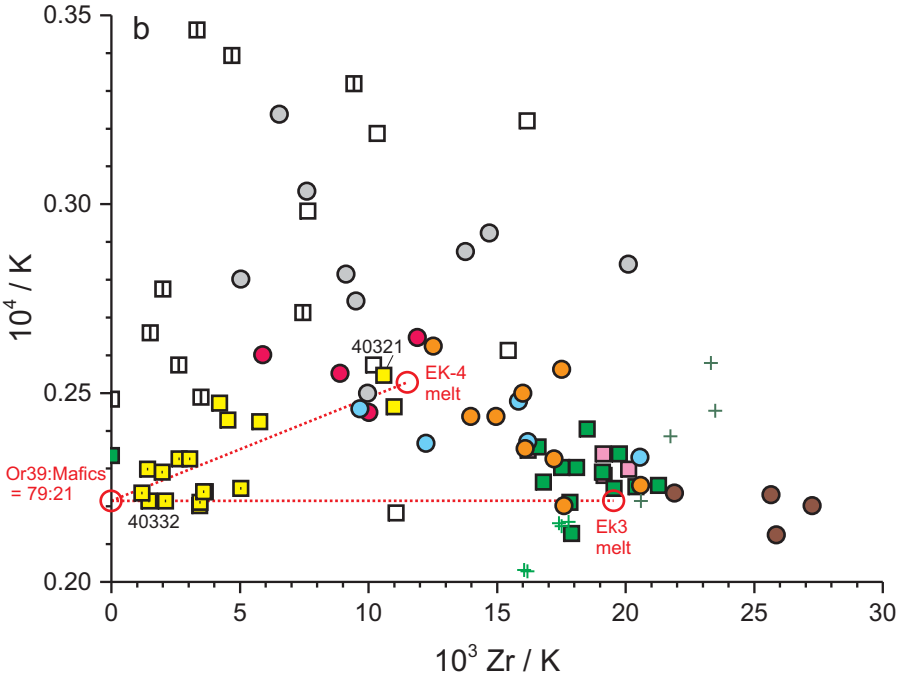
Samples of KSC are shown with the same symbols as in the main text. See legends in figures of the main text. Samples of basement gneiss are blue circles with black interior with numbers in blue. Sample numbers refer to the tables in Supplementary data file 1.


C
68°30'N
32°W
Kangerlussuaq
Kærven
Kangerlussuaq Alkaline Intrusion
Snout Series
ABC
300
Green-land
A
B
Kangerlussuaq
Kærven Syenite Complex:
East Kærven
EK-1/2 -3/4 -5 -6
West Kærven
WK-1 -2 -3 -4 -5
late alk. dykes
dykes
Kangerlussuaq Alkaline Intrusion:
Nordmarkite
Transitional Pulaskite
Others:
Kærven Gabbro
Archaean basement
Ultramafic intrusions
Mafic dykes
Ice/sea
200 m contour lines
D
Kælve-gletscher
Kangerlussuaq fjord
Karto-grafvig
EK-6
EK-1
EK-2
'Ryggen'
'Vind-hullet'
1134 m
1390 m
EK-5
'Eftermiddags-toppen'
WK-3
Vindhulsdalen'
'Skul-deren'
WK-1+3
EK-6
EK-5
EK-4
WK-5
WK-2
WK-1
WK-4
Kangerlussuaq Alkaline Intrusion
Transitional Pulaskite
Nordmarkite
Nordre Syenit-gletscher
N
1 km

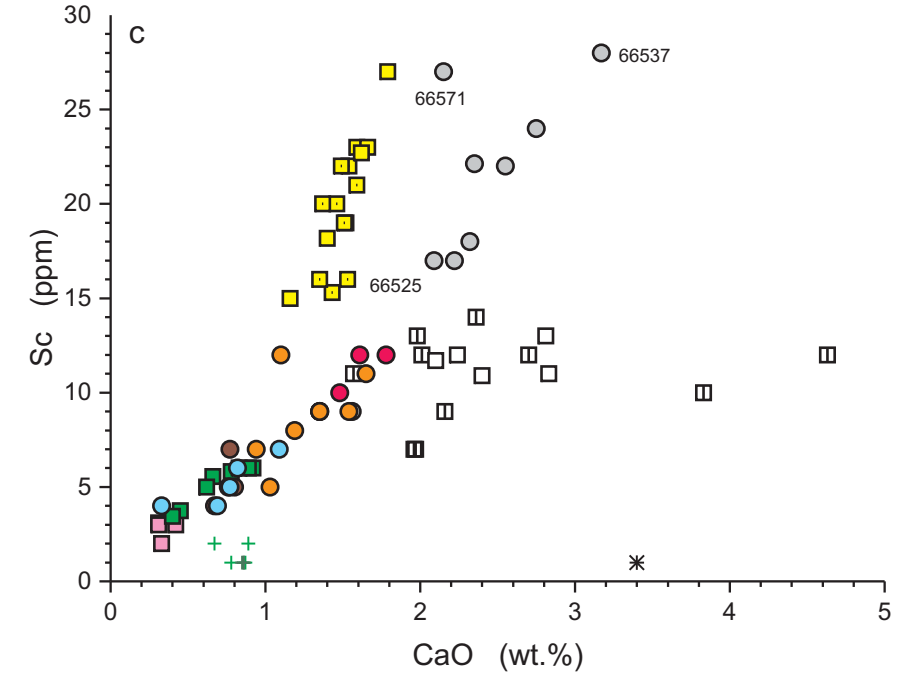
2. Additional figures



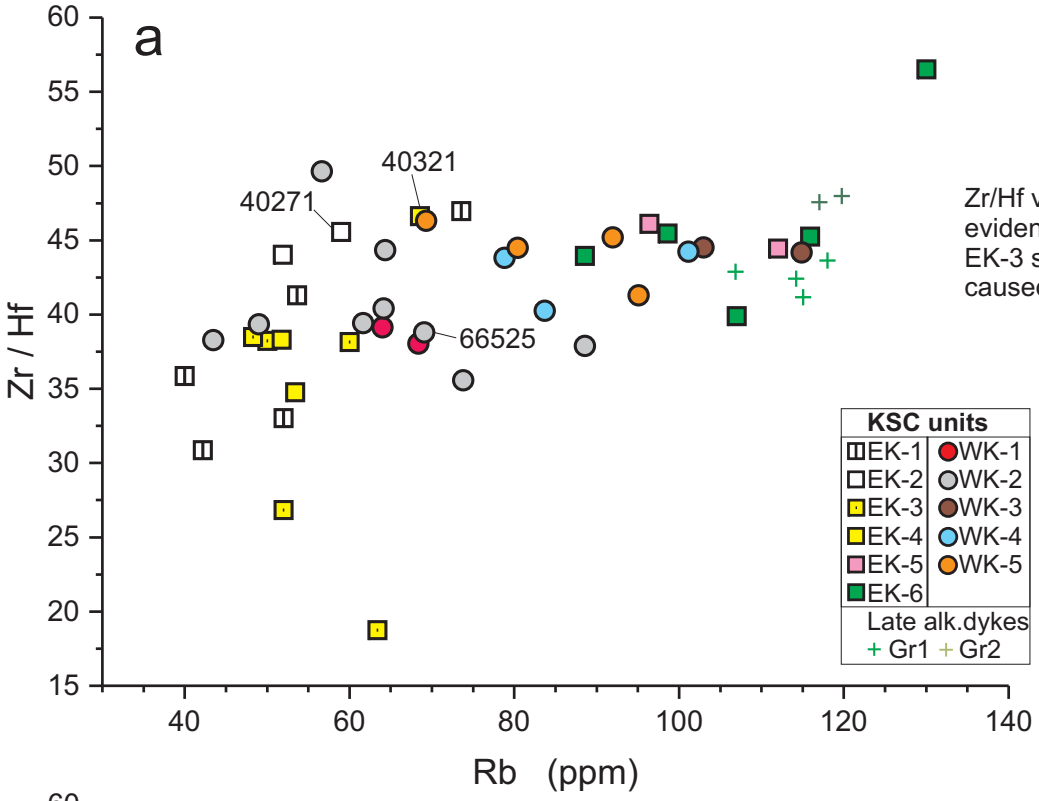
Na/K (atom/atom) vs K/Rb (wt%/wt%)
The variation of WK-2 and EK-3+4 constrain the composition of the alkali feldspar cumulus phase. WK-2 rocks trend hyperbolically towards Or35 in sample 66537. EK-3 rocks have a limited variation in Na/K with a well defined value of Or39 for high K/Rb rocks



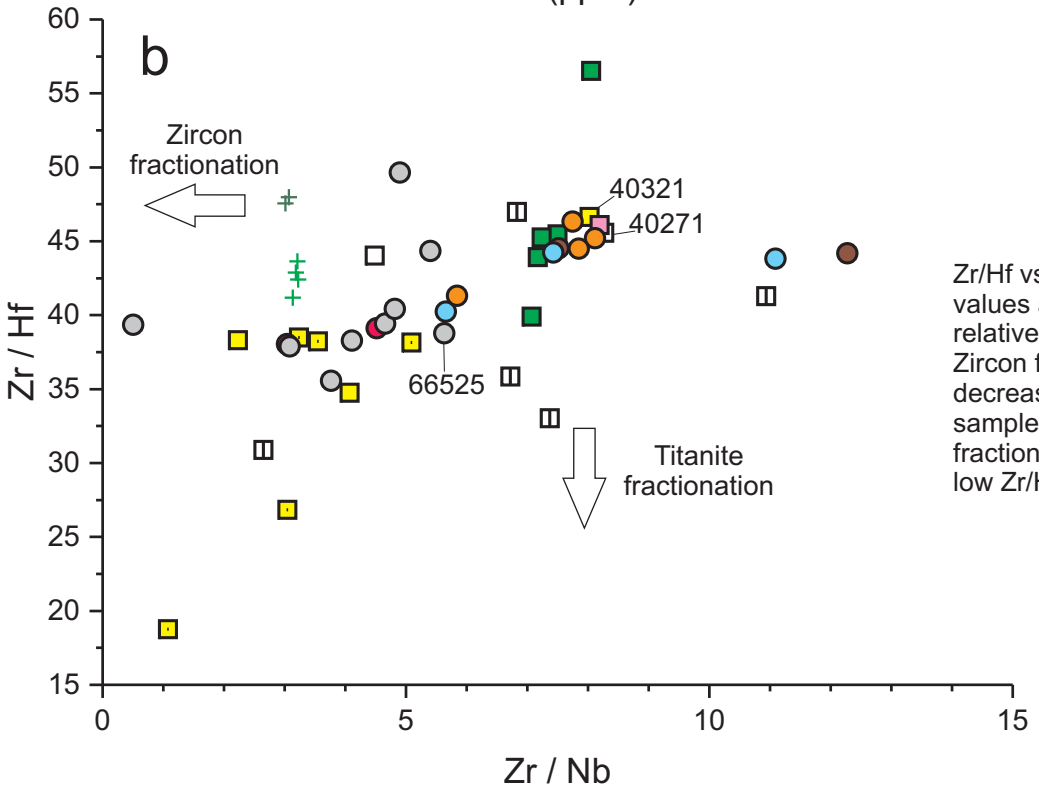
1/K vs Zr/K
If approximate melt compositions plot along the main cluster of data points the EK-4 melt composition may be approximated by the sample with the highest Zr/K ratio, 40321. If the alkali feldspar syenite cumulate of EK-3 is Zr-free, sample 40332 can be calculated to have had 11 % remaining (interstitial) melt of composition as 40321.



Sc vs CaO
Melt evolution for several units may be illustrated by the trend of decreasing Sc and CaO (accompanied by increasing silica - see Fig. 4).
EK-3+EK-4 show a strong positive correlation of Sc and CaO which can be explained by just 2 % clinopyroxene accumulation - see text for explanation.
Clinopyroxene accumulation for WK-2 can also explain the trend for this unit (except sample 66571).
High CaO in some EK-1 samples with Sc as in other EK-1 samples is likely be caused by plagioclase accumulation.



Zr/Hf vs Rb. Low Zr/Hf is evident in a few EK-1 and EK-3 samples, and may be caused by titanite fractionation.



Zr/Hf vs Zr/Nb. Magmatic values are indicated for the relatively tight cluster of samples. Zircon fractionation causes decrease of Zr/Nb in some samples, whereas titanite fractionation likely cause the low Zr/Hf in others.