

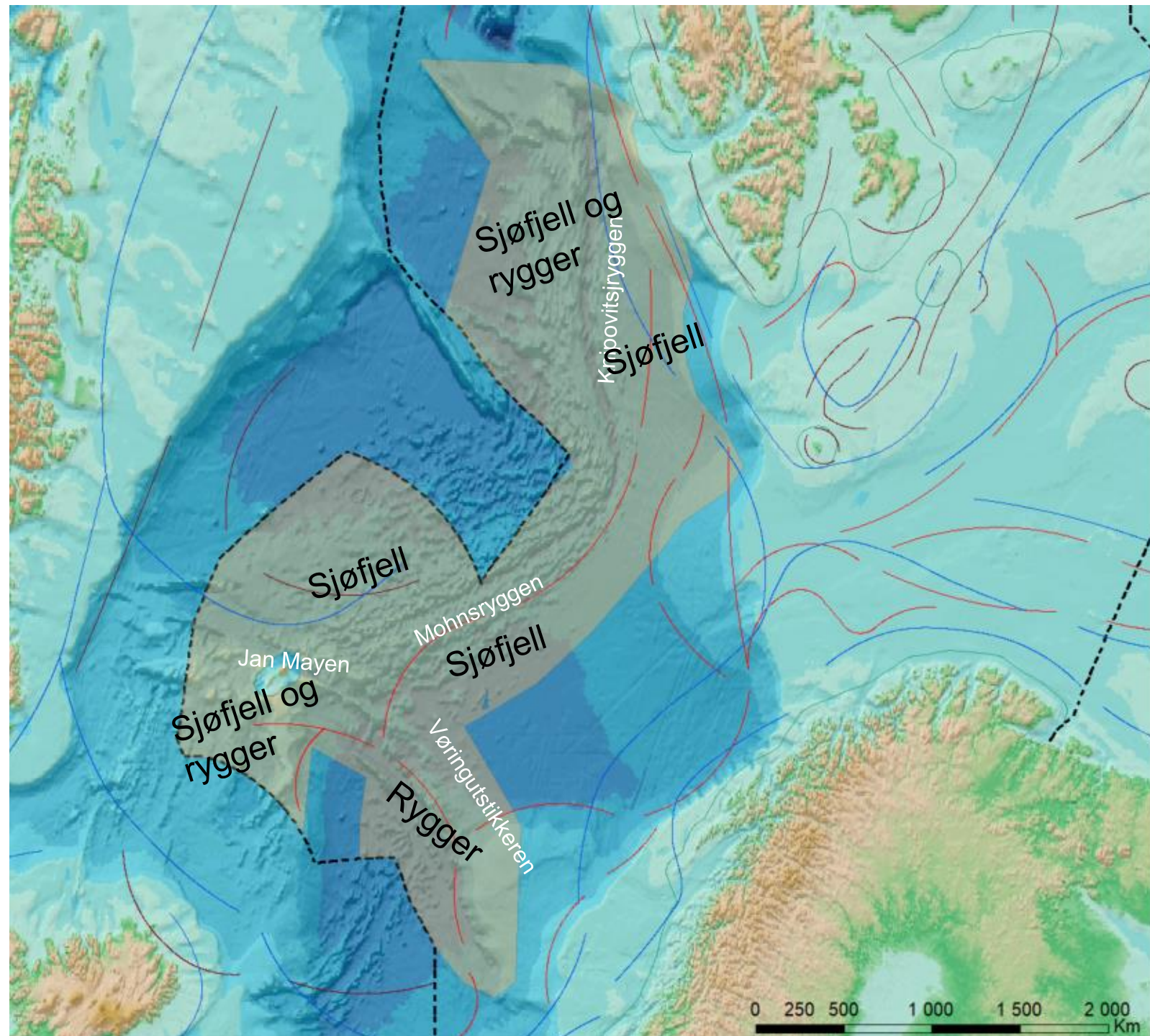
Manganskorpe



Kristoffer Solvi, Oljedirektoratet 02.juni 2022

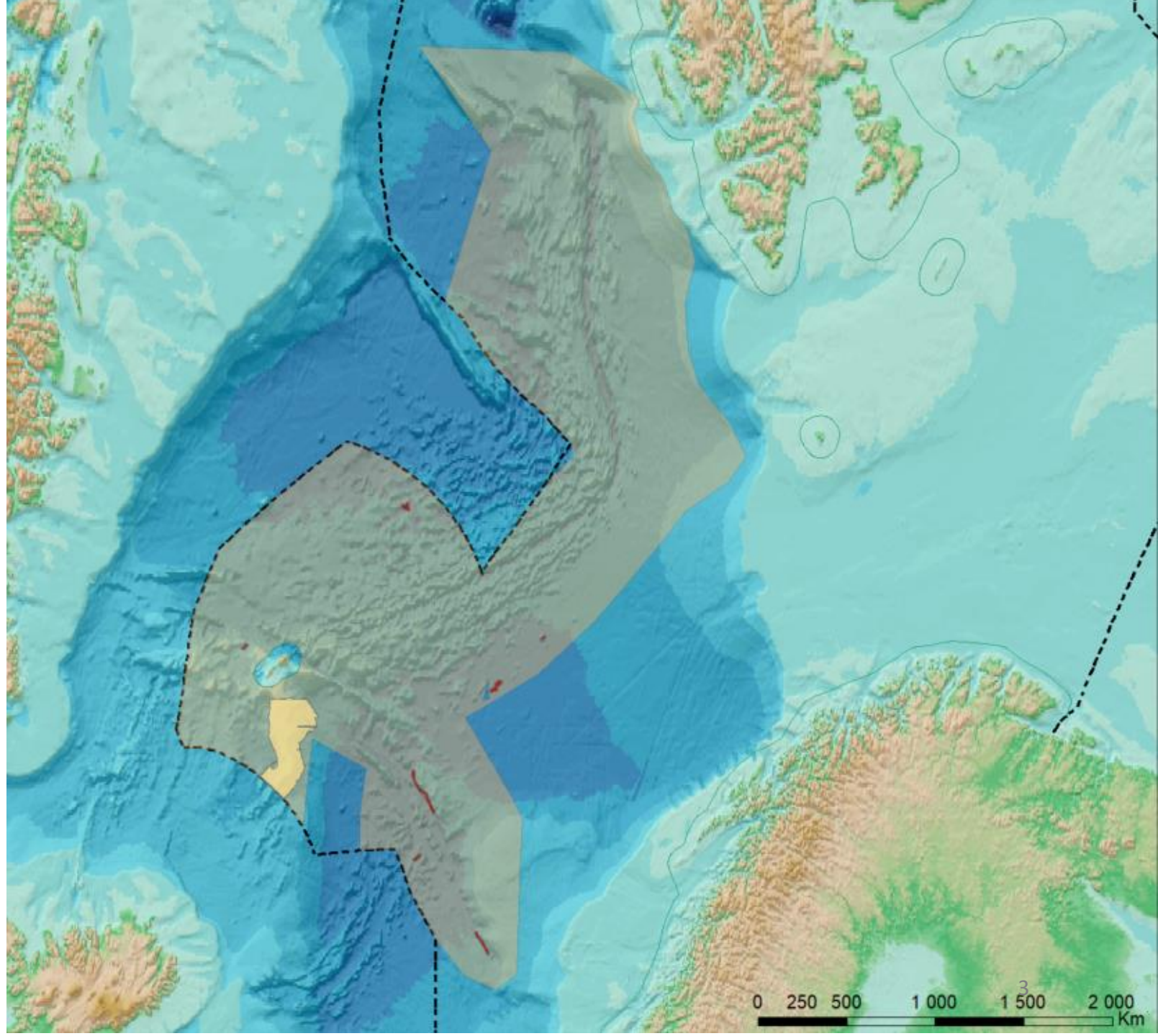
Agenda

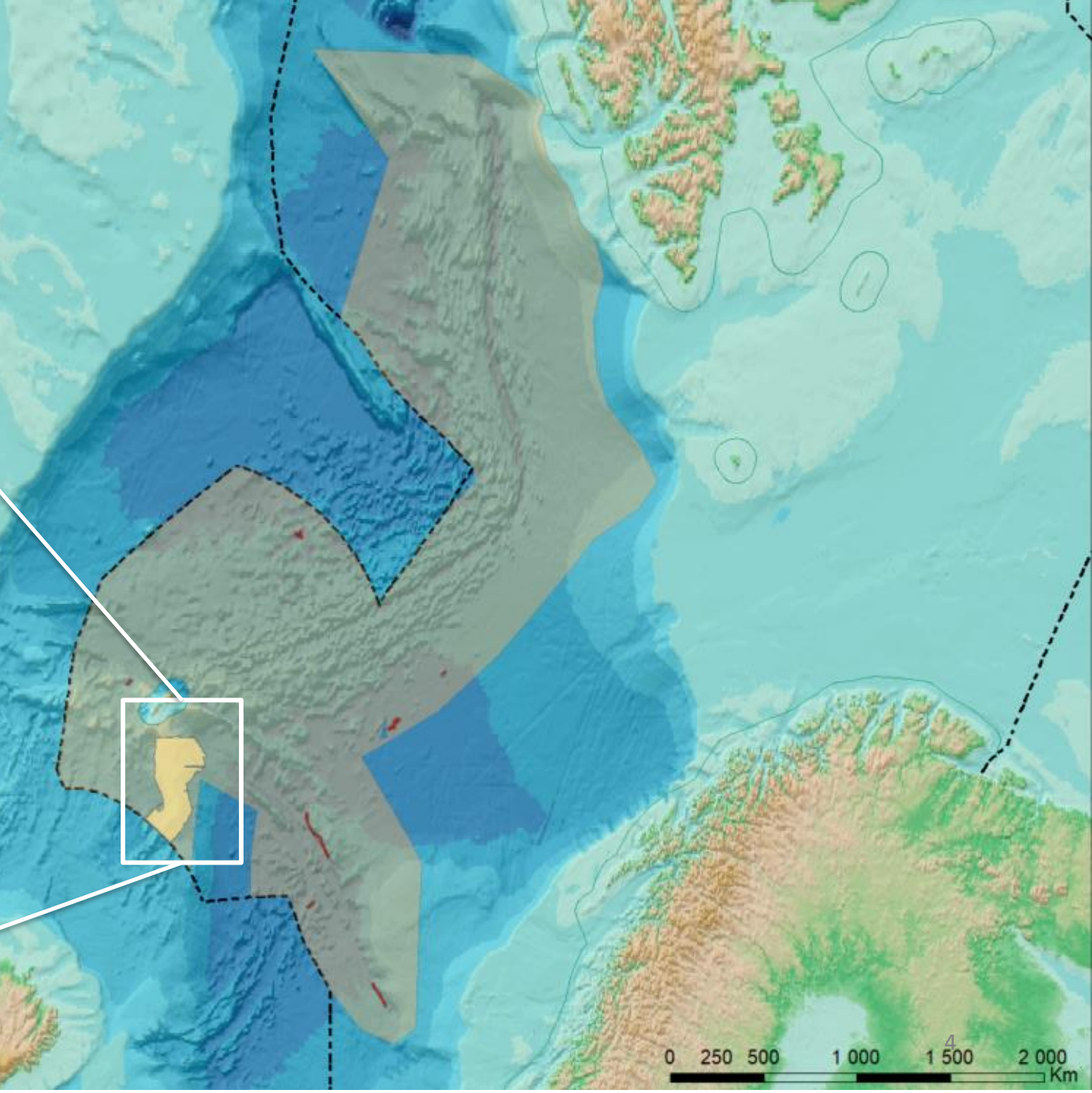
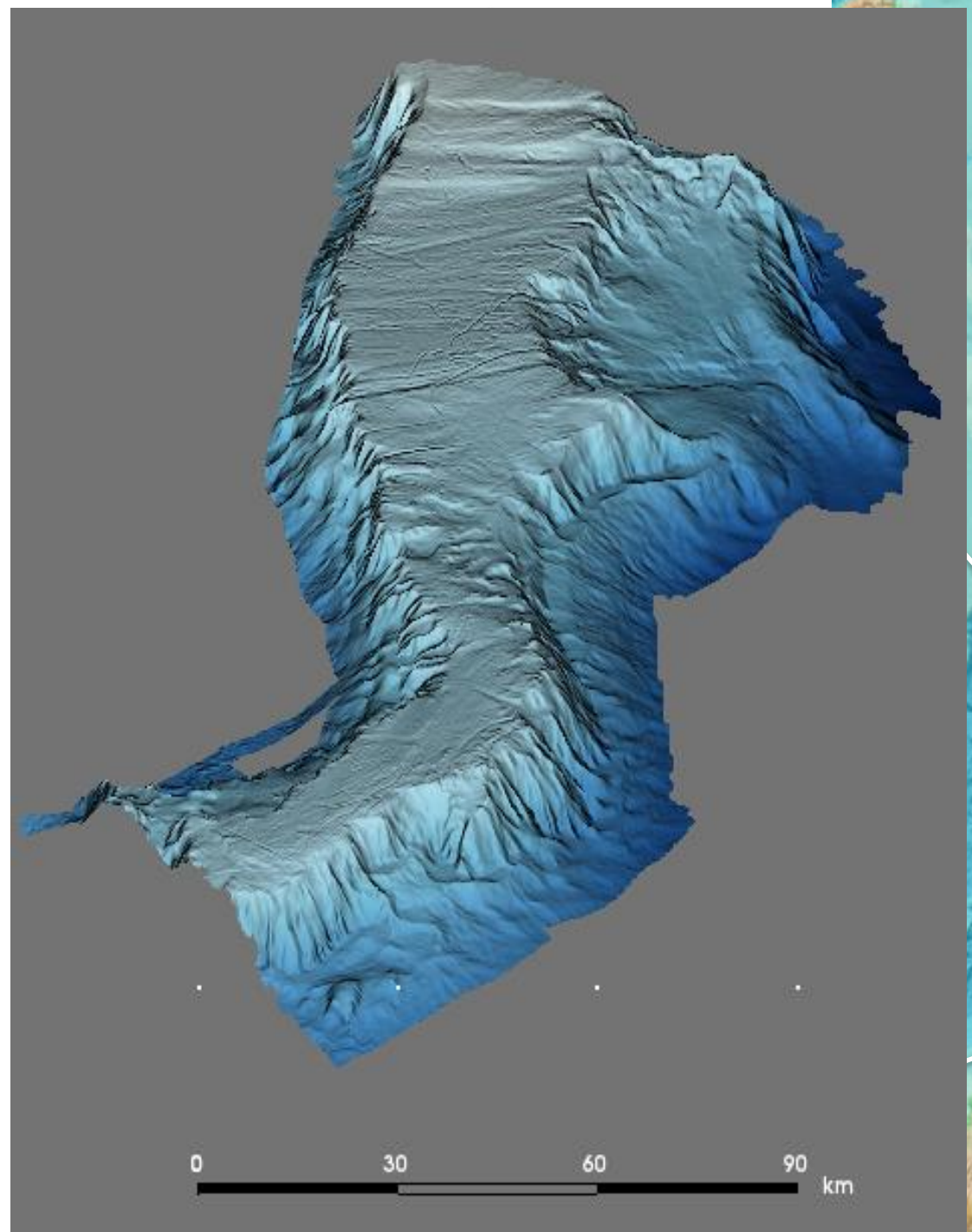
- Jan Mayen Ryggen
- Vøringutstikkeren
- Lofotenbassenget og Grønlandsbassenget
- Oppsummering

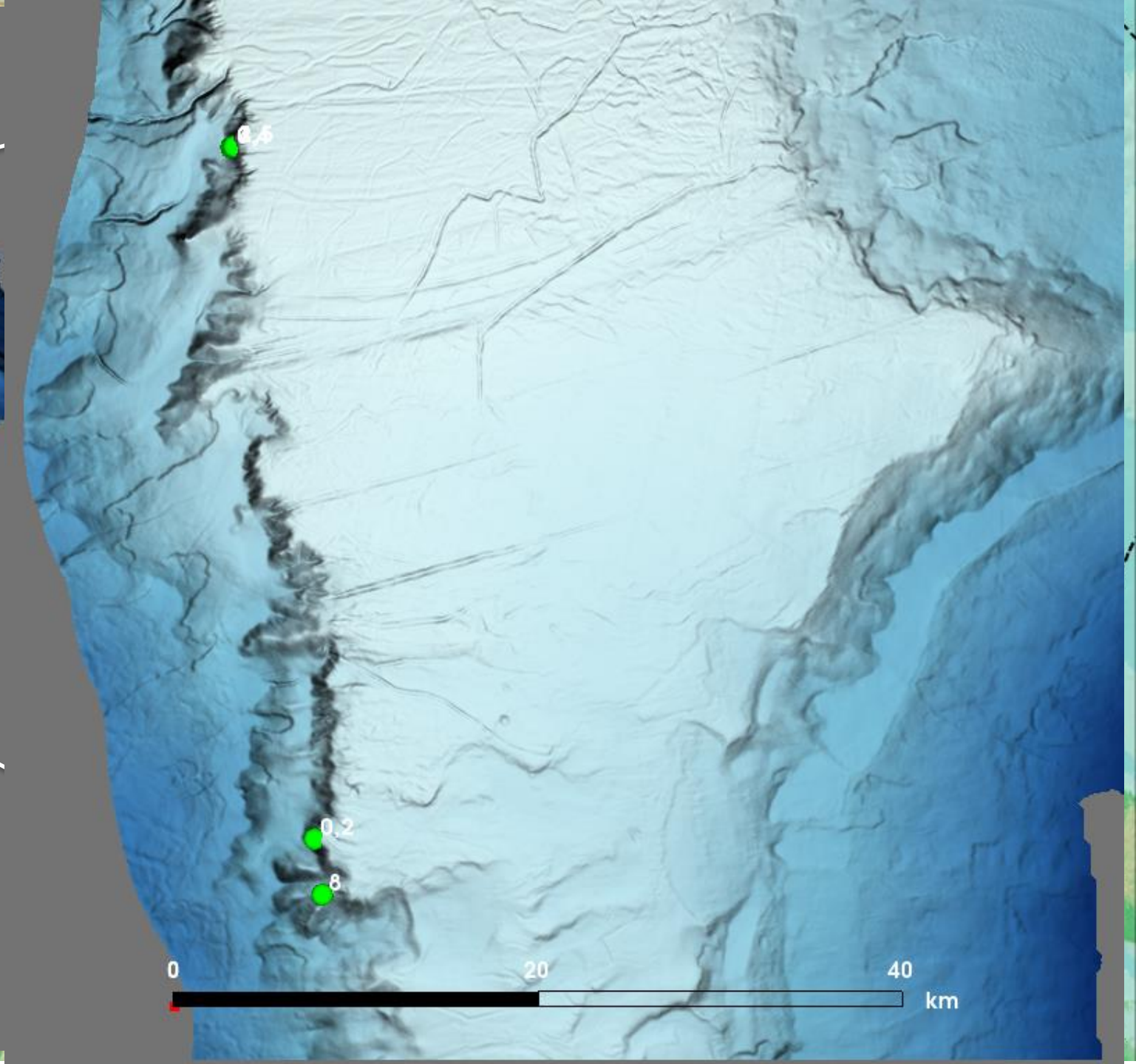
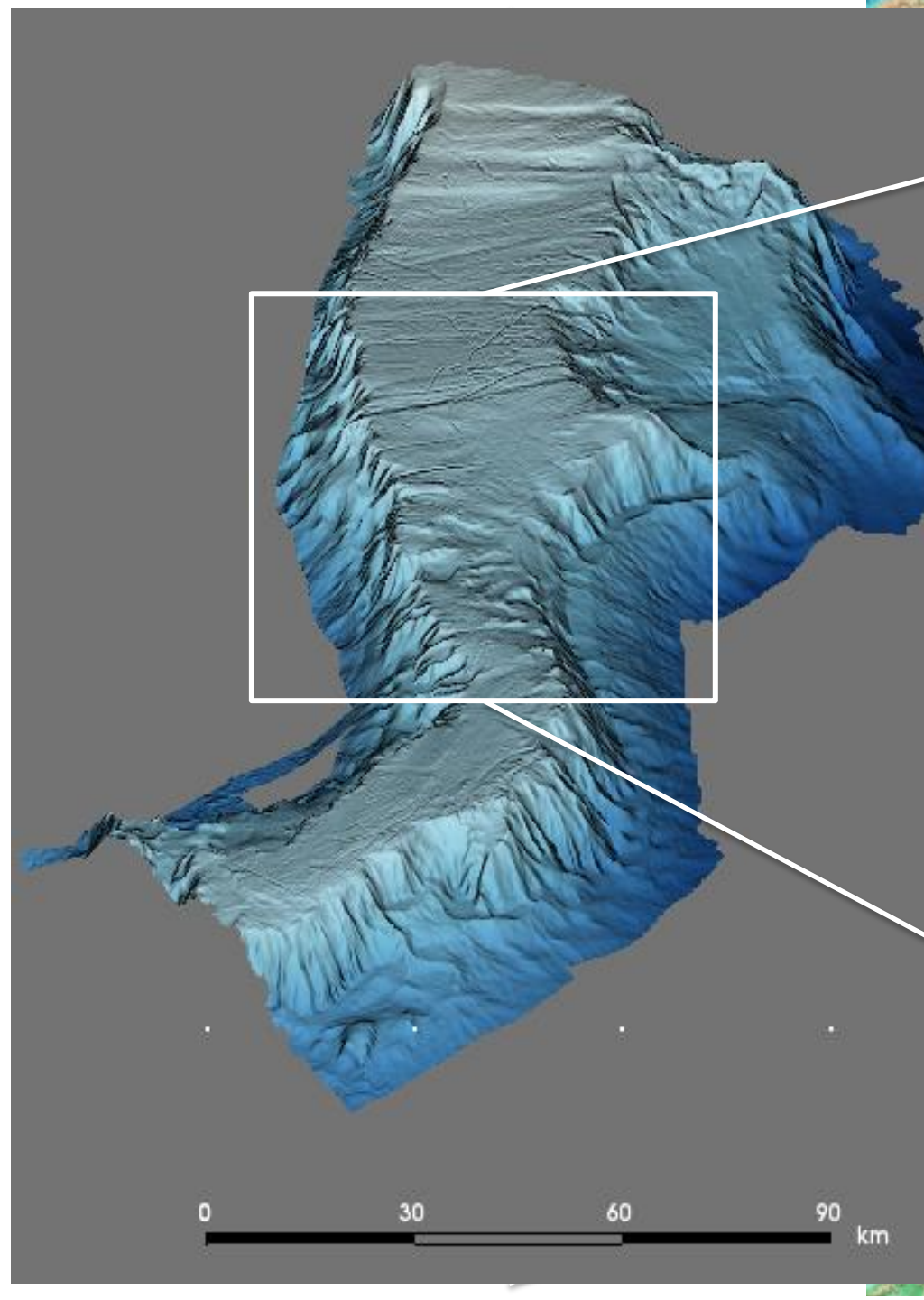


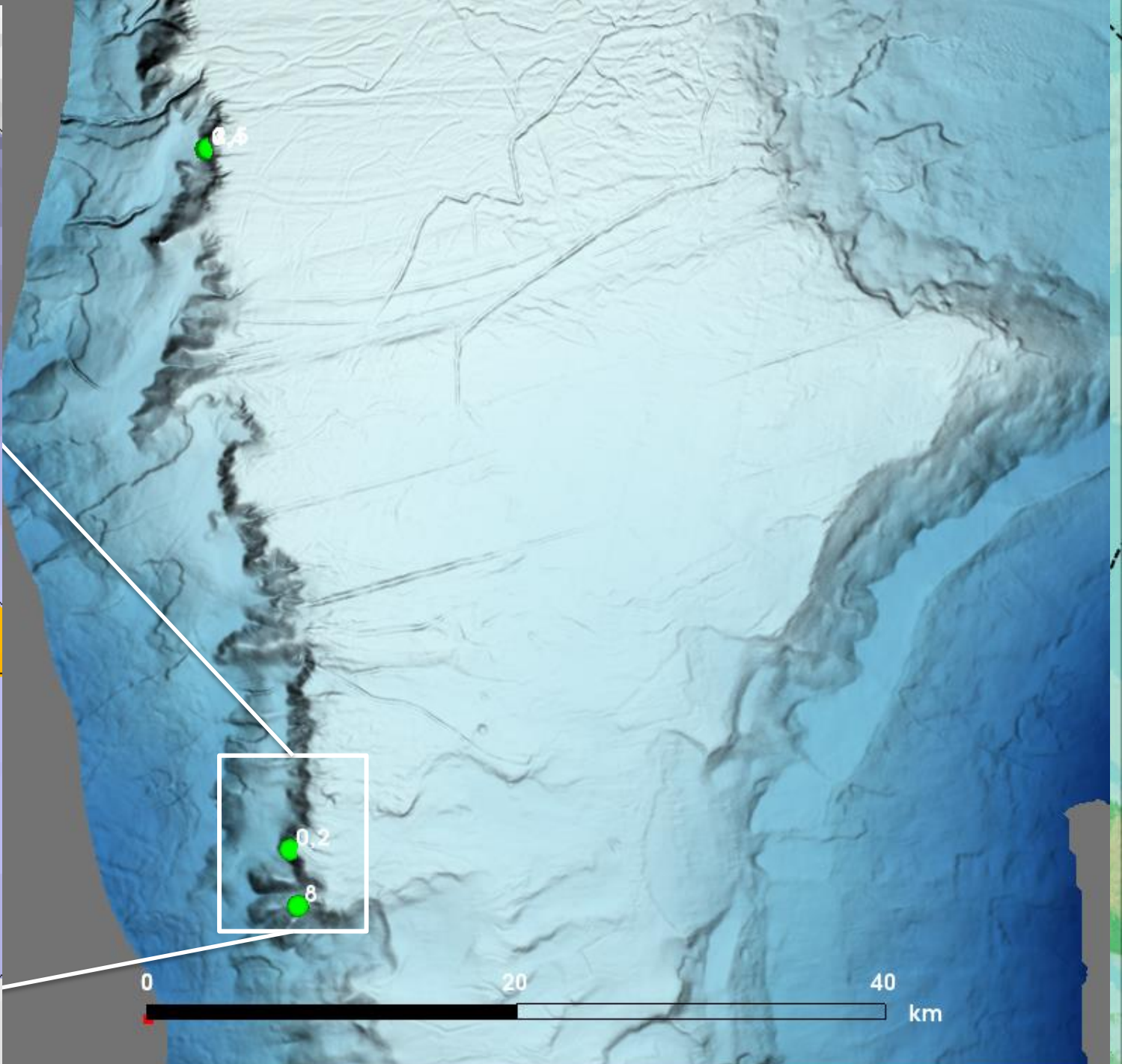
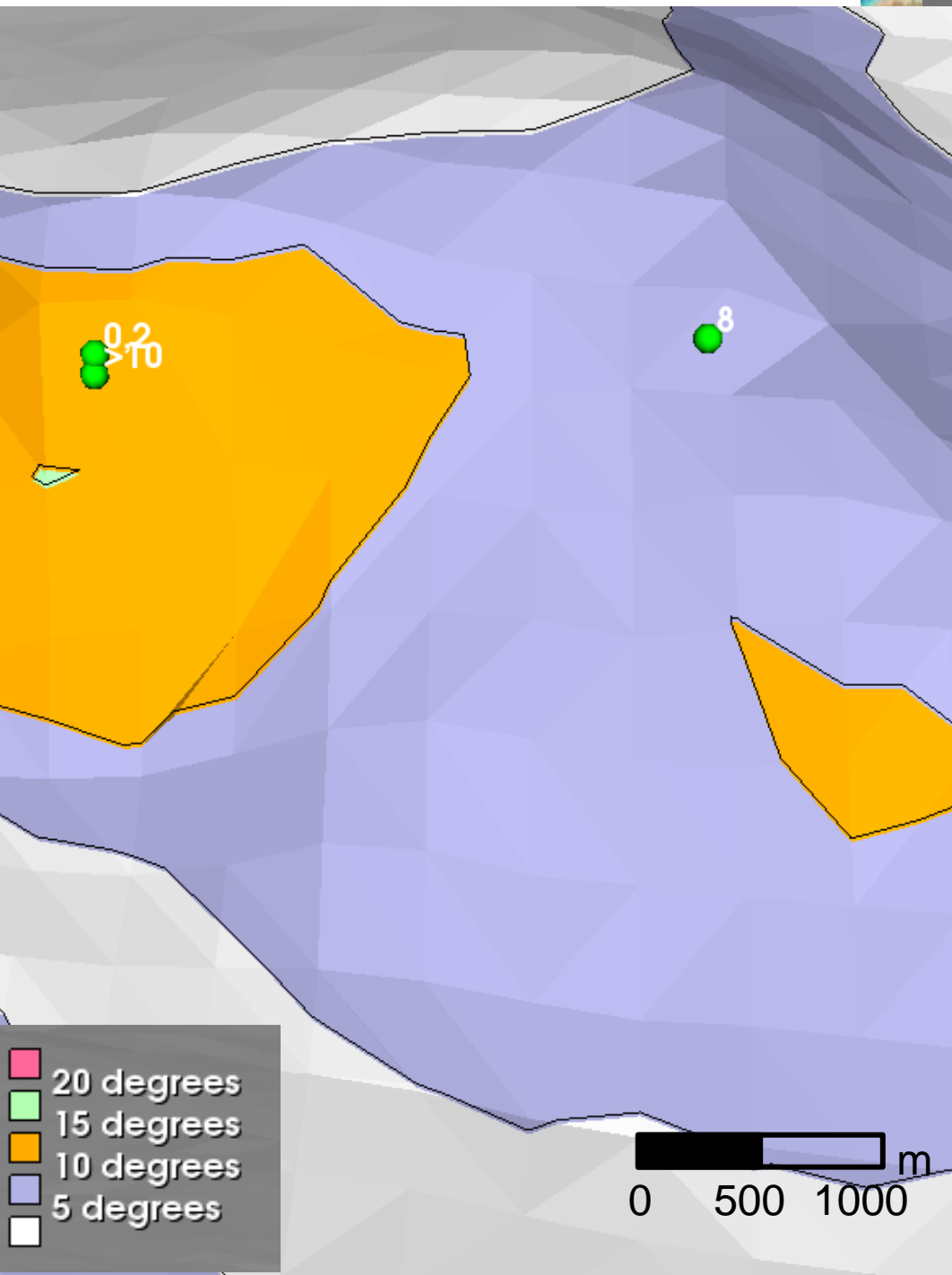
Jan Mayen Ryggen

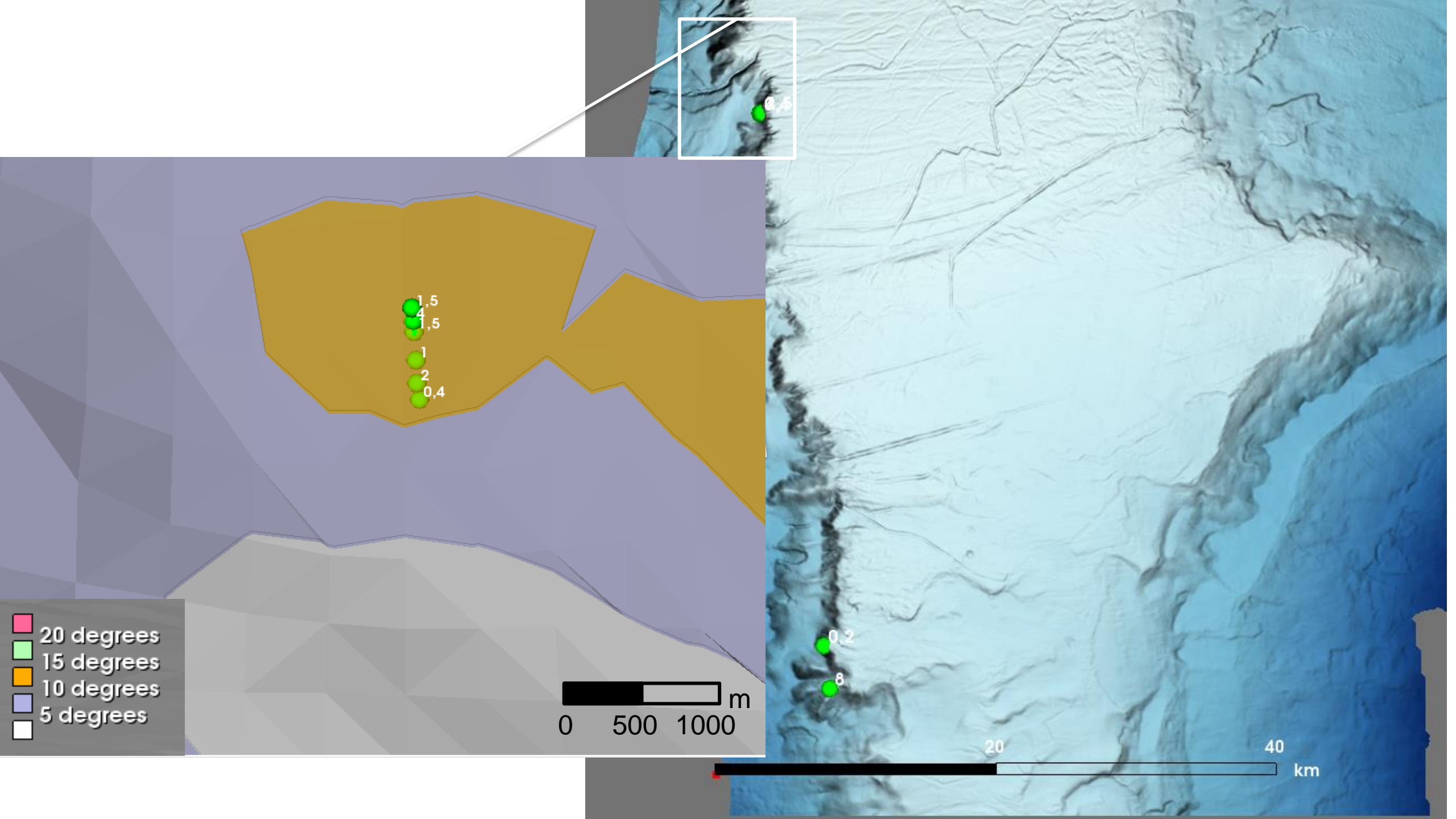
- Kartlagt med skipsbatymetri i 2010
- Manganskorpeprøver nordvest på ryggen samlet inn i 2011 og 2012
- Grunnere prøver











Geokjemisk analyse Jan Mayen ryggen NordVest

Bulk: 8 prøver



Hovedelementer

LOI	Al	Fe	Mn	Mg	P	Ti	K	Ca
%	%	%	%	%	%	%	%	%
21,1	11,0	28,4	14,8	4,7	1,3	2,0	1,5	2,8

Sporelementer

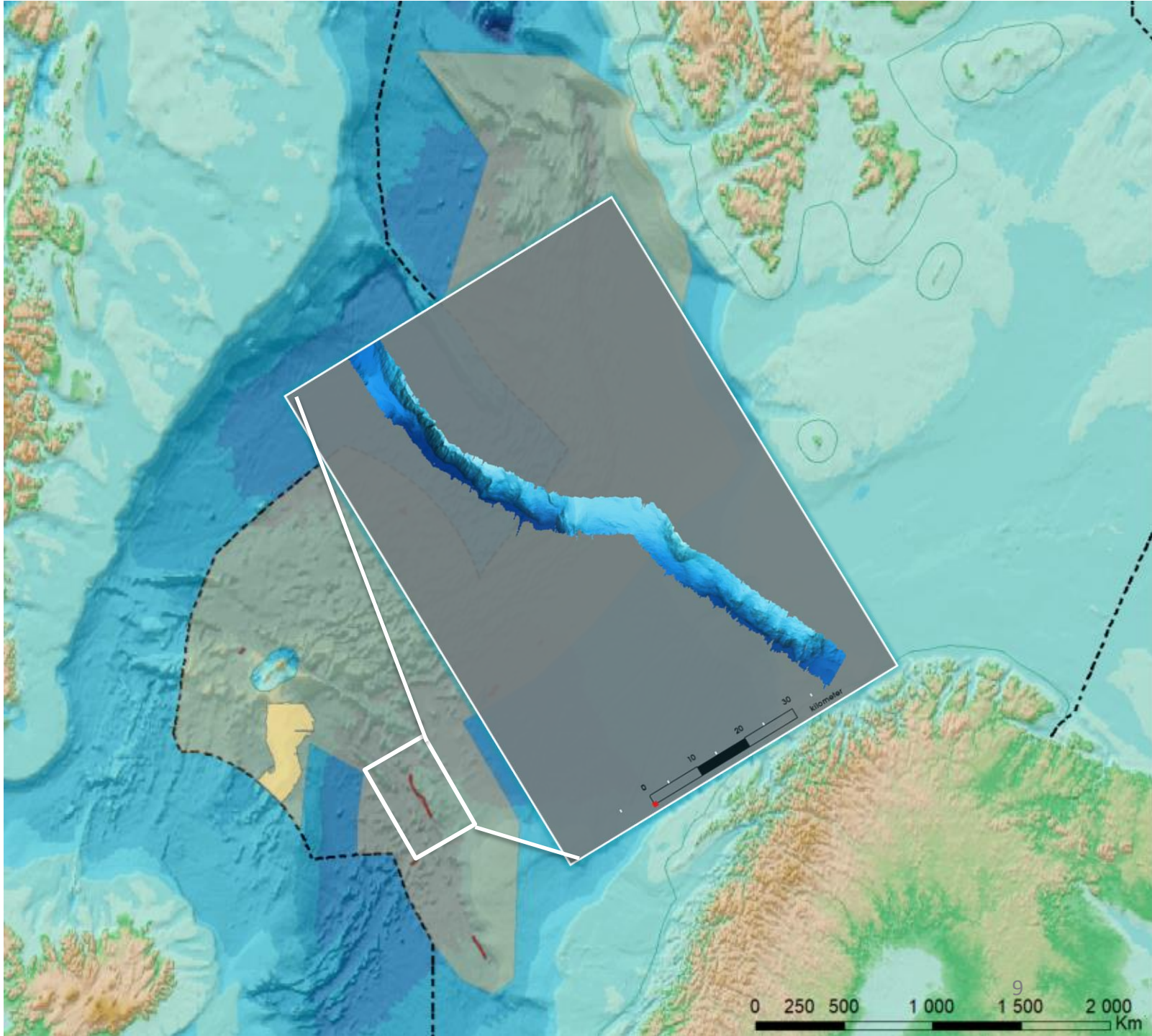
Li	Rb	Sr	Ba	Cs	Pb	Cr	Th	U	Cu	Zn	V	Co	Ni	Nb	Hf	Ta	Zr	REE
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
137	48	638	924	2	59	81	33	9	447	637	1045	1174	2060	98	9	3	366	1421

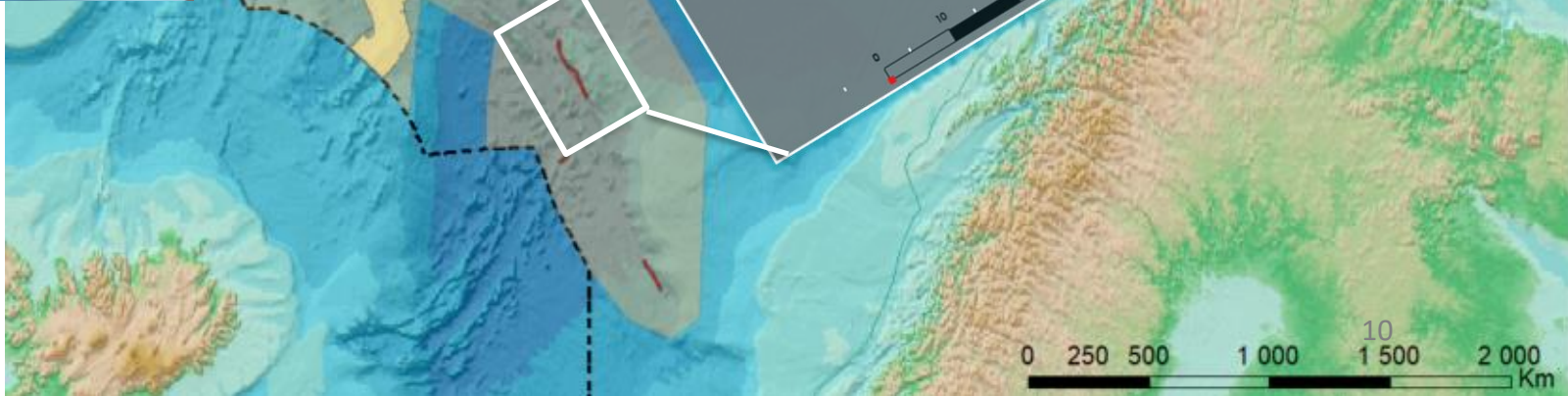
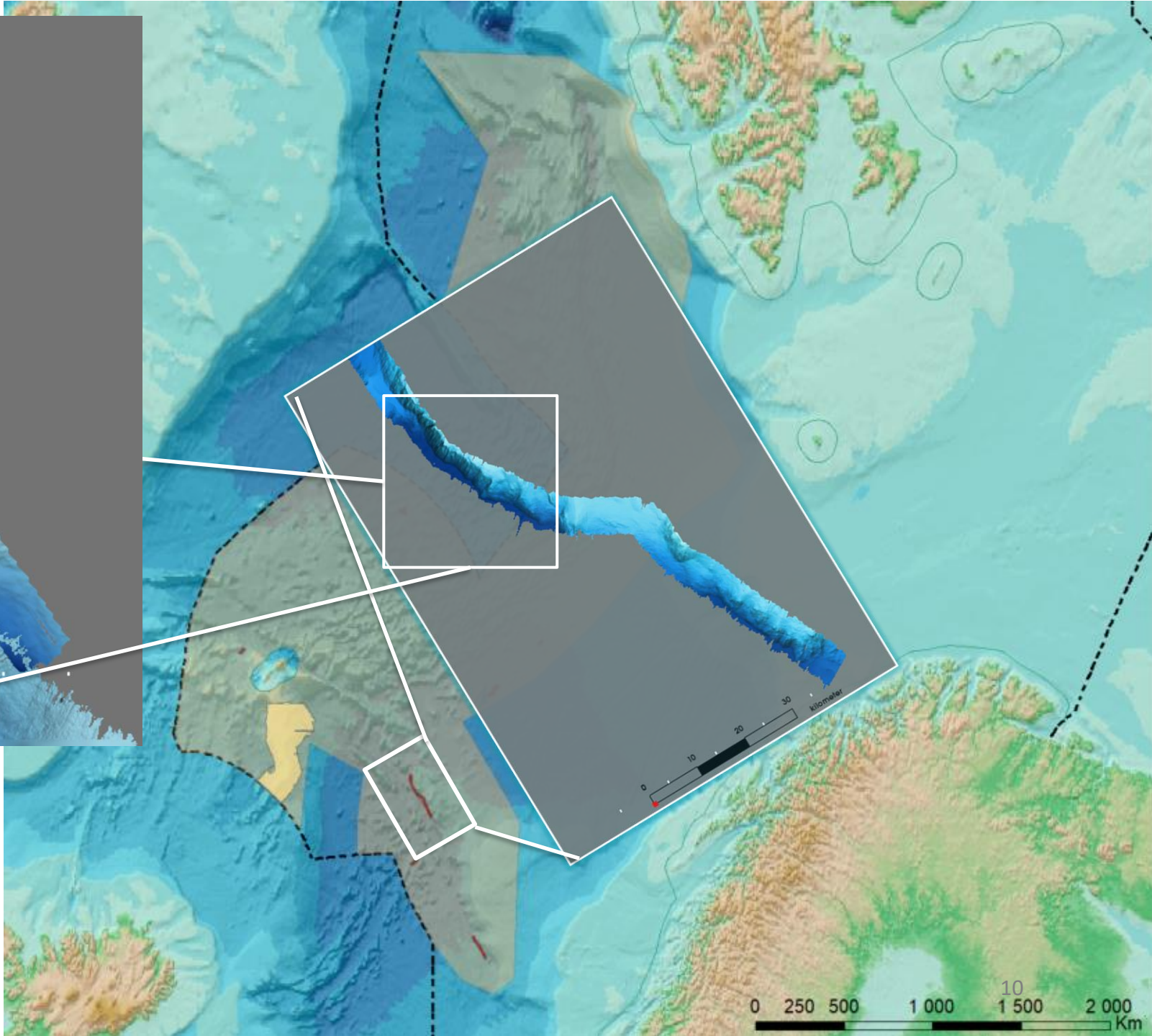
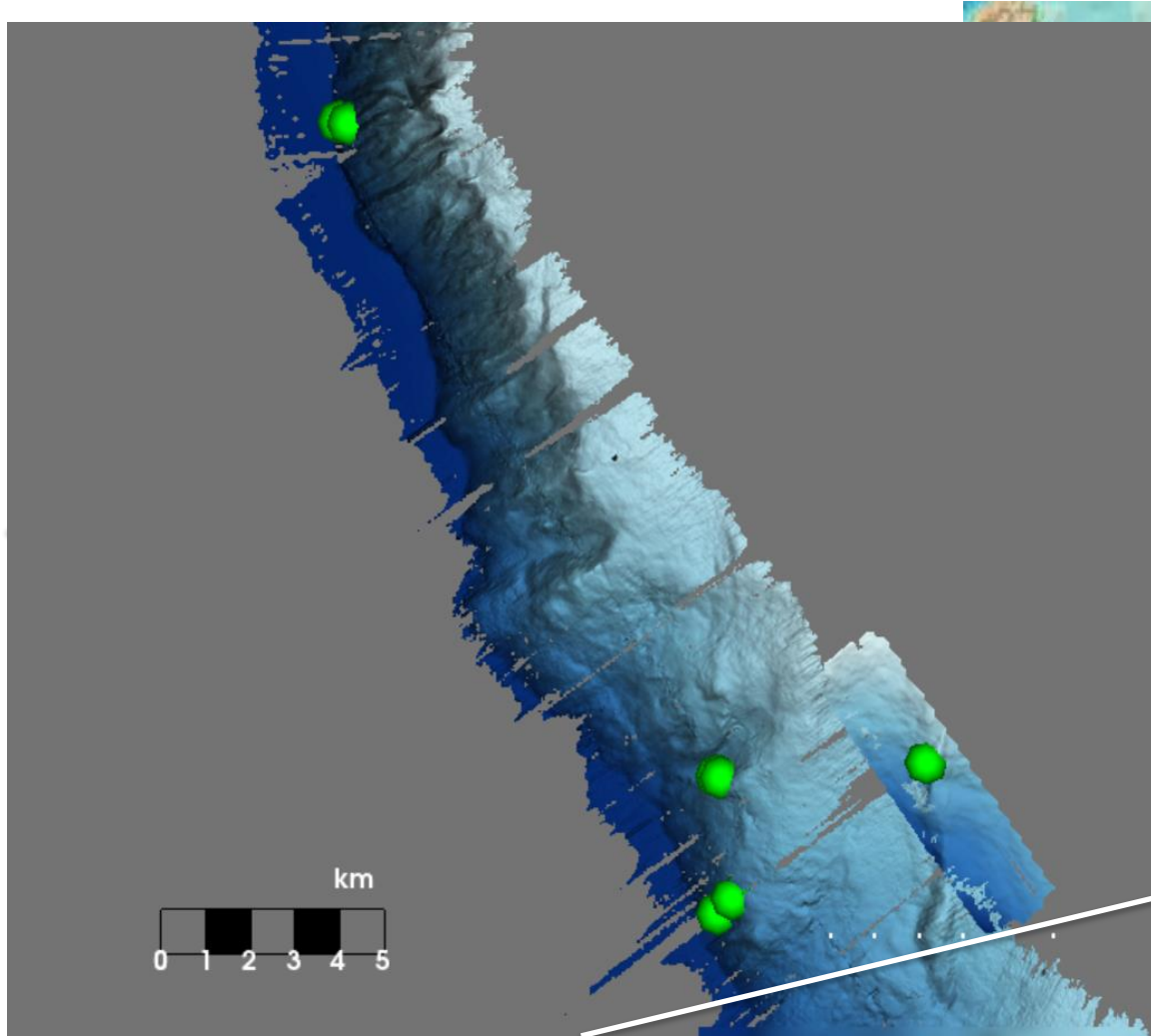
Sjeldne jordarter

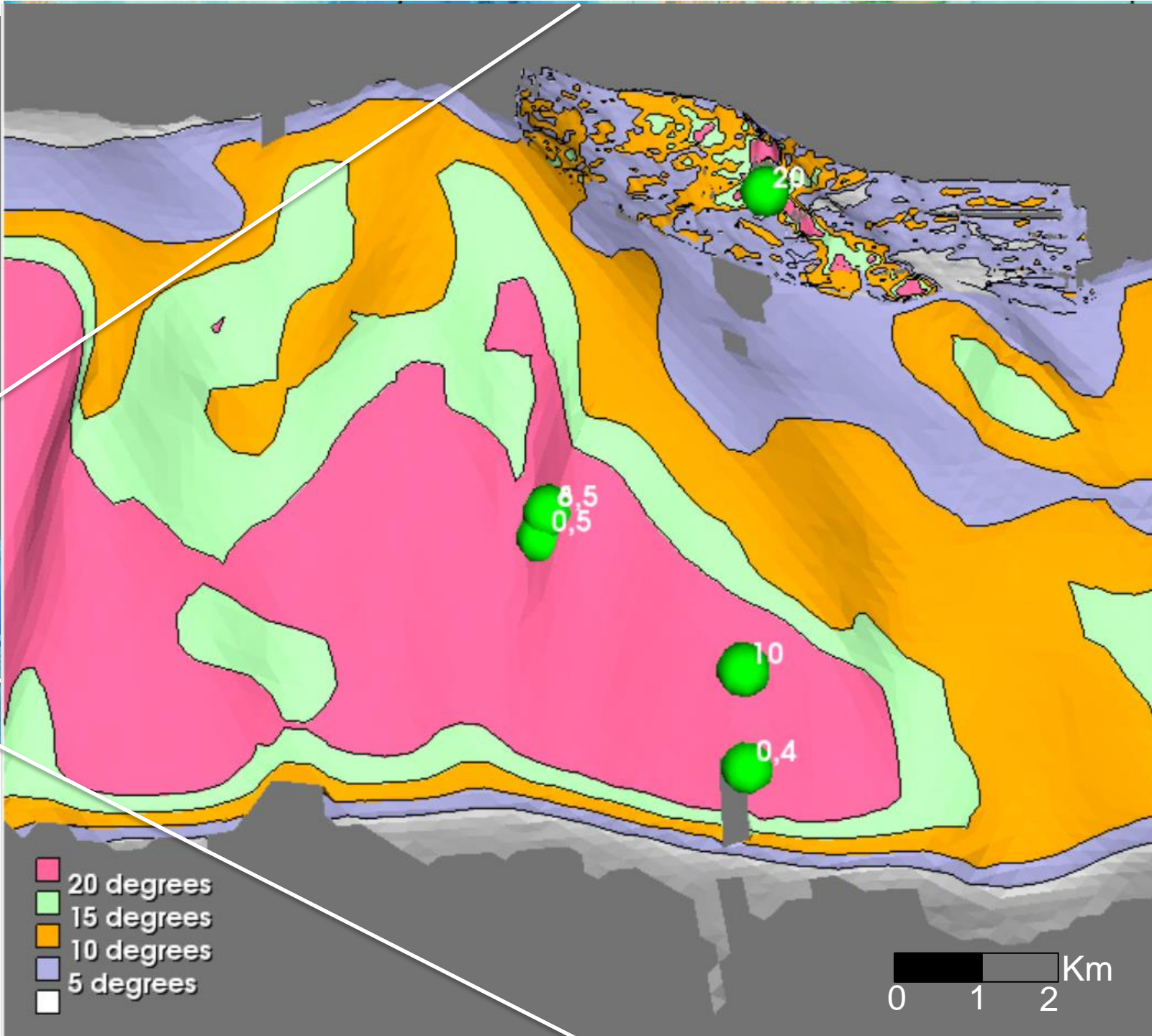
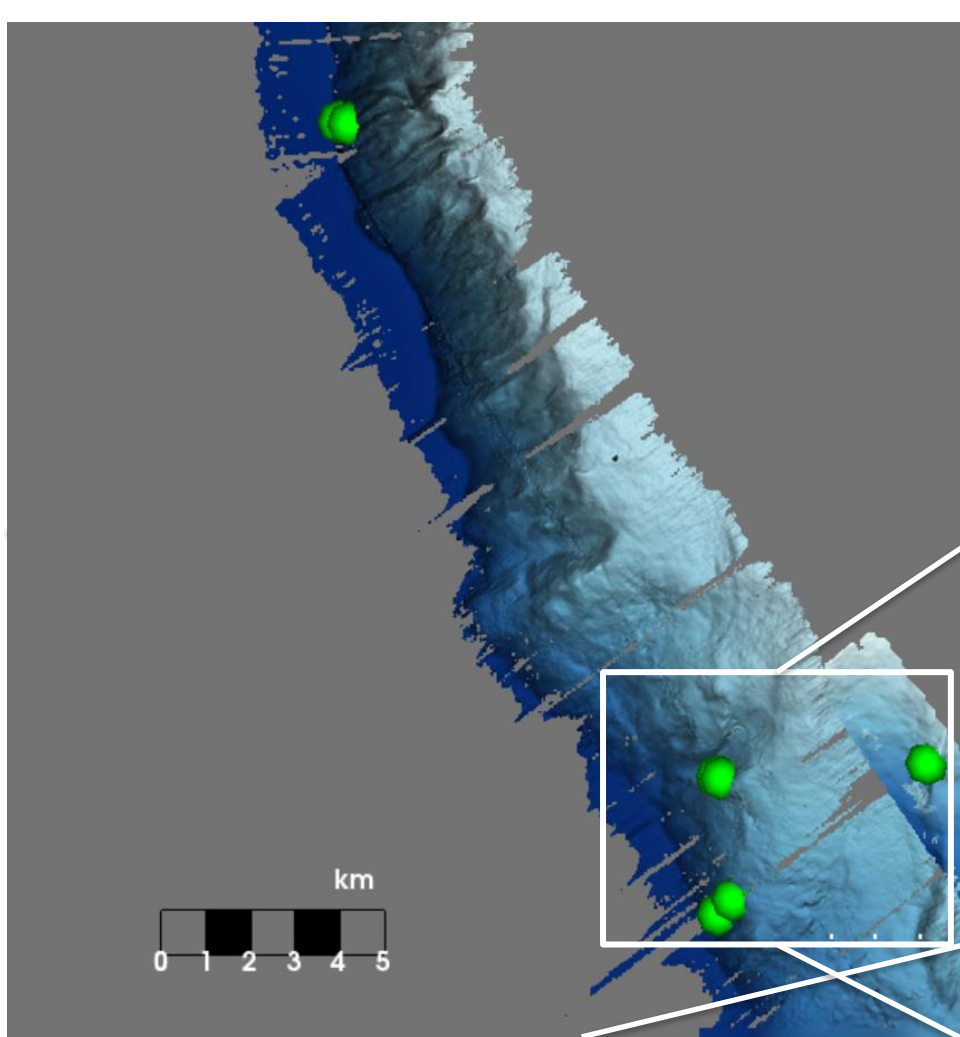
Tm	Sc	La	Ce	Pr	Yb	Sm	Eu	Gd	Tb	Lu	Ho	Er	Y	Nd	Dy
Ppm	ppm	ppm	ppm	ppm	Ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
5	34	296	971	77	28	71	17	73	11	4	12	33	151	326	64

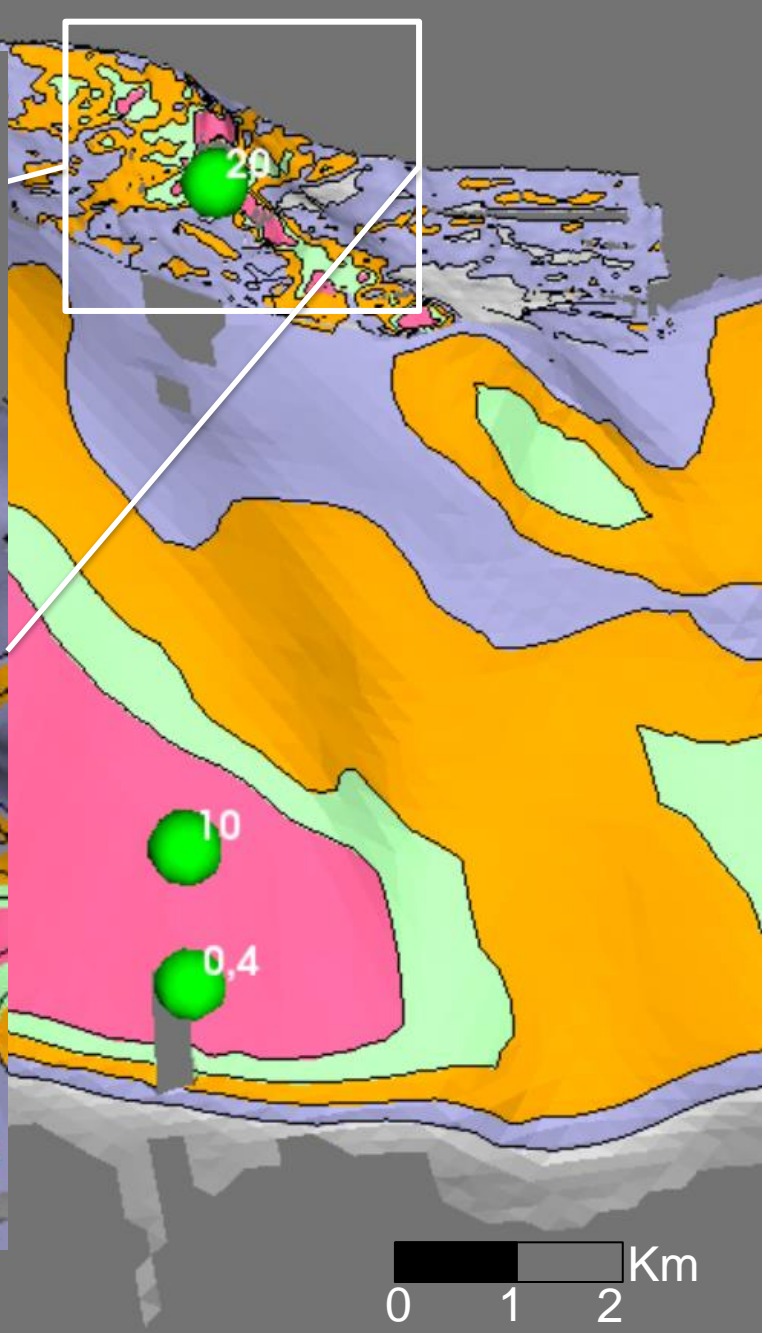
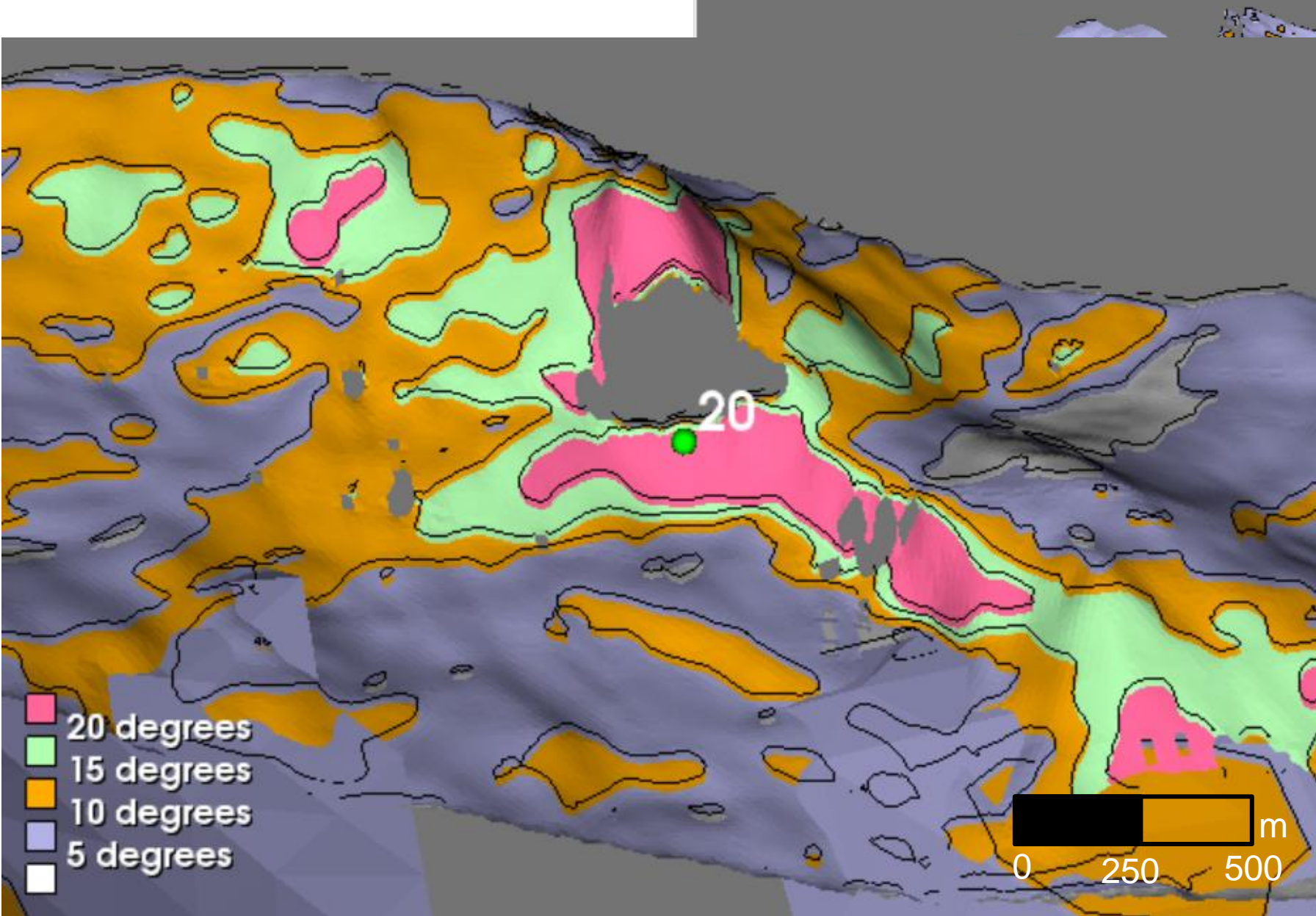
Vøringutstikkeren

- Ble samlet inn MBES og prøver i 2013 og 2016.
- Samlet inn detaljert MBES med AUV i 2018
- Viser stor variasjon i tilstedeværelse og tykkelse på skorpene









5 degrees

Geokjemisk analyse Vøringutstikkeren

Bulk: 9 prøver



Hovedelementer

LOI	Al	Fe	Mg	Mn	P	Ti	K	Ca
%	%	%	%	%	%	%	%	%
28,55	12,72	29,52	3,61	25,26	1,38	2,61	1,48	2,27

Sporelementer

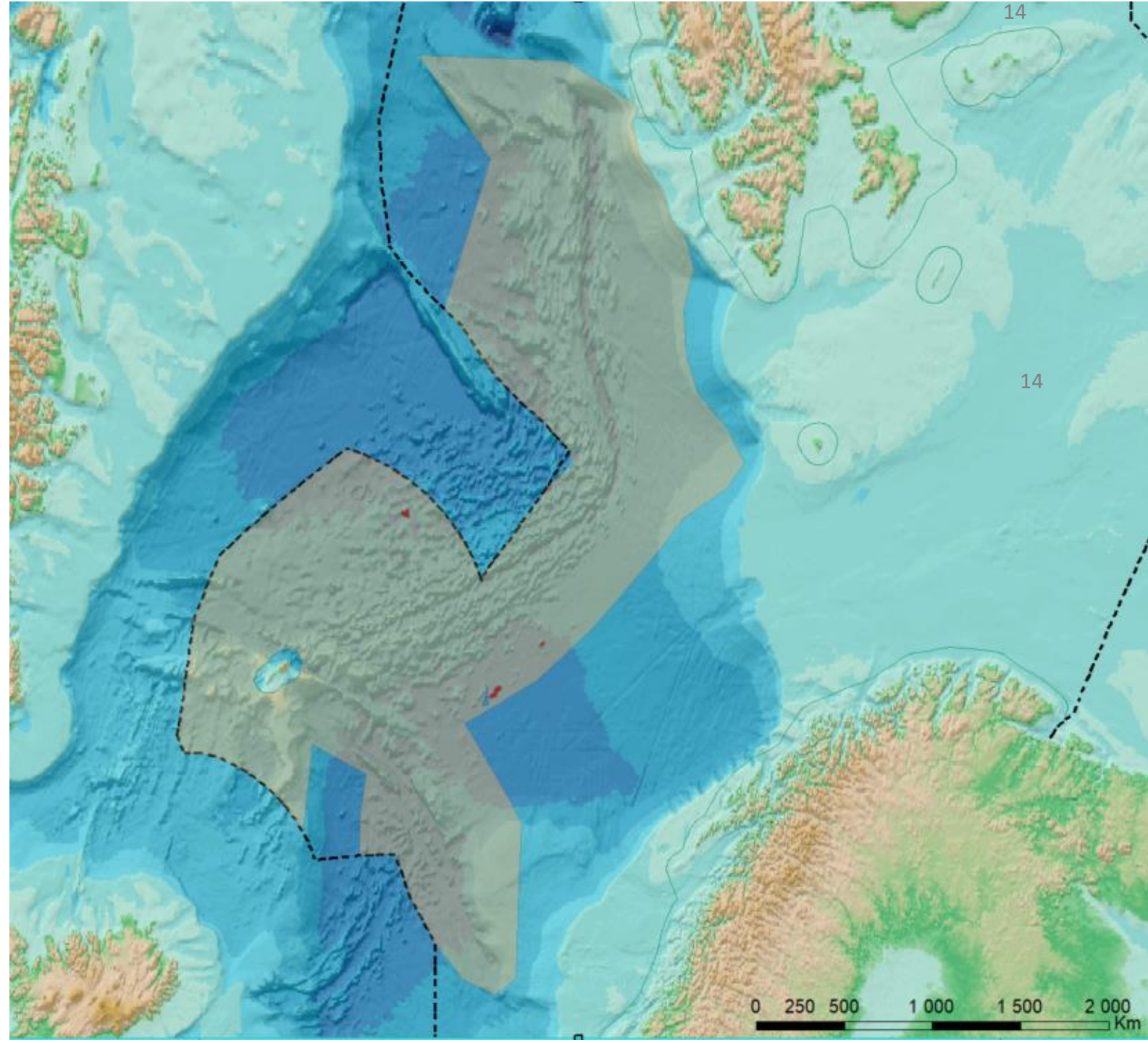
Li	S	Rb	Sr	Ba	Cs	Pb	Cr	Th	U	Cu	Zn	V	Co	Ni	Nb	Hf	Ta	Zr	REE
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
320	3856	36	864	960	1	58	33	57	15	772	560	1086	2081	3001	66	12	2	434	2150

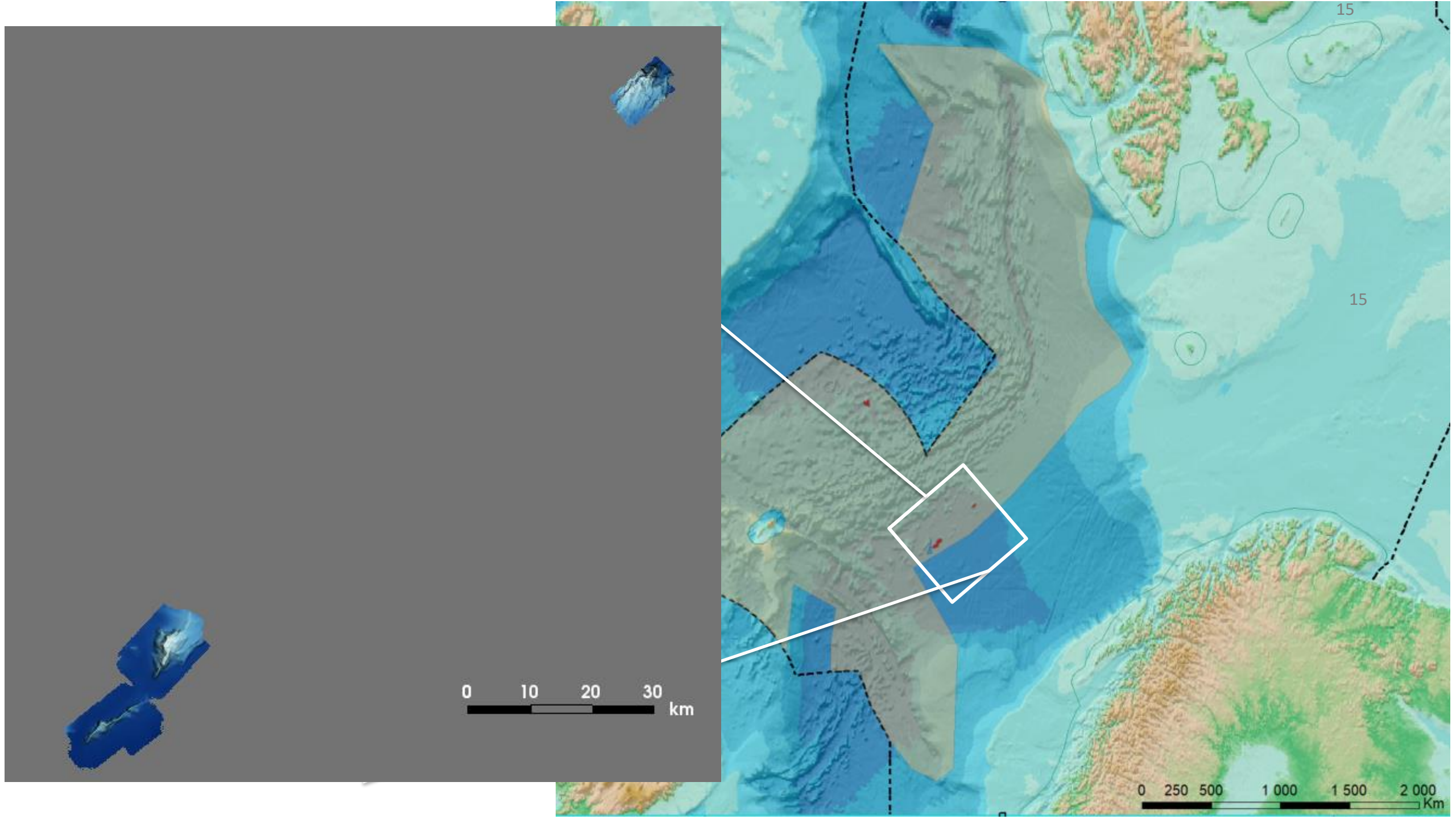
Sjeldne jordarter

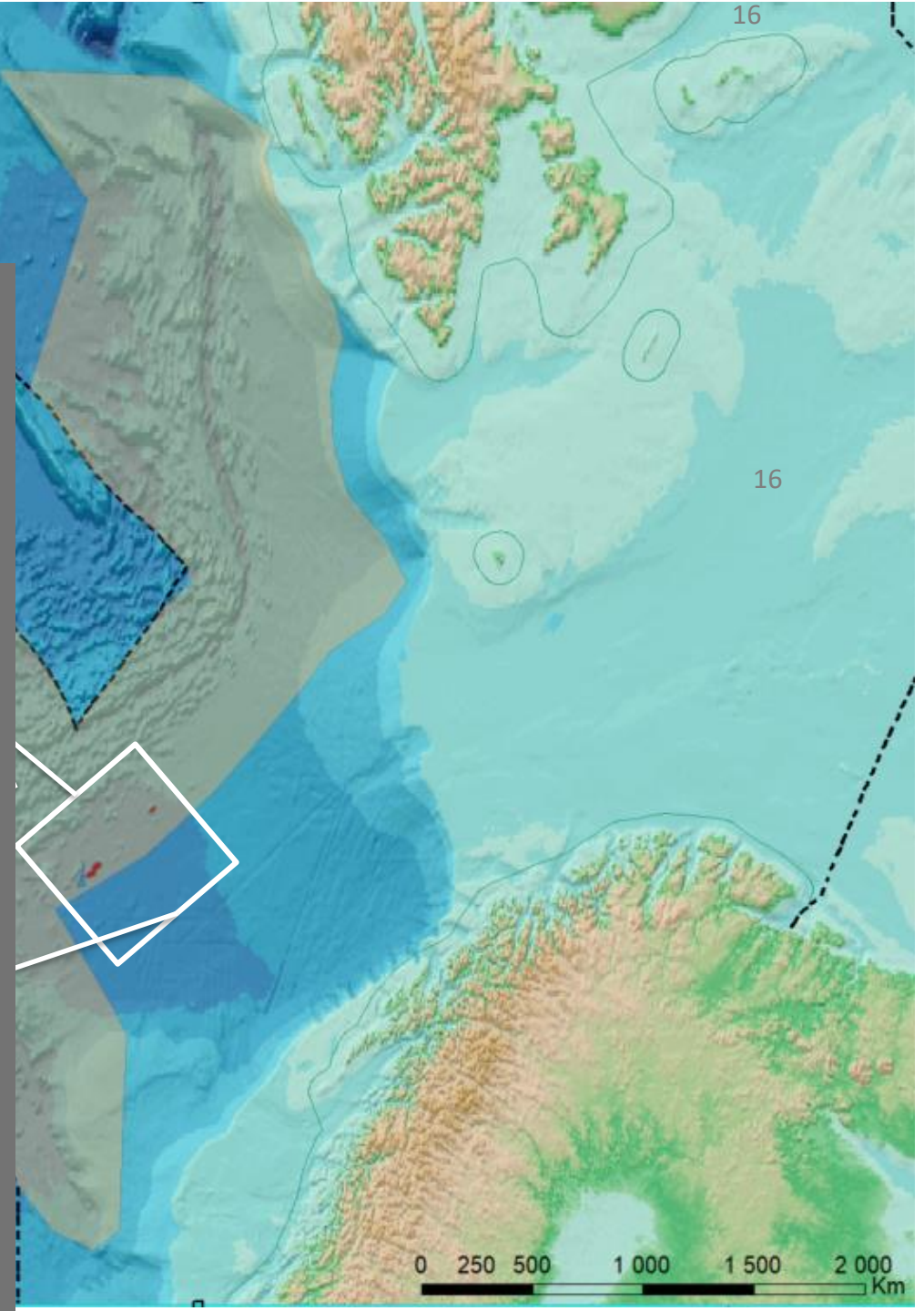
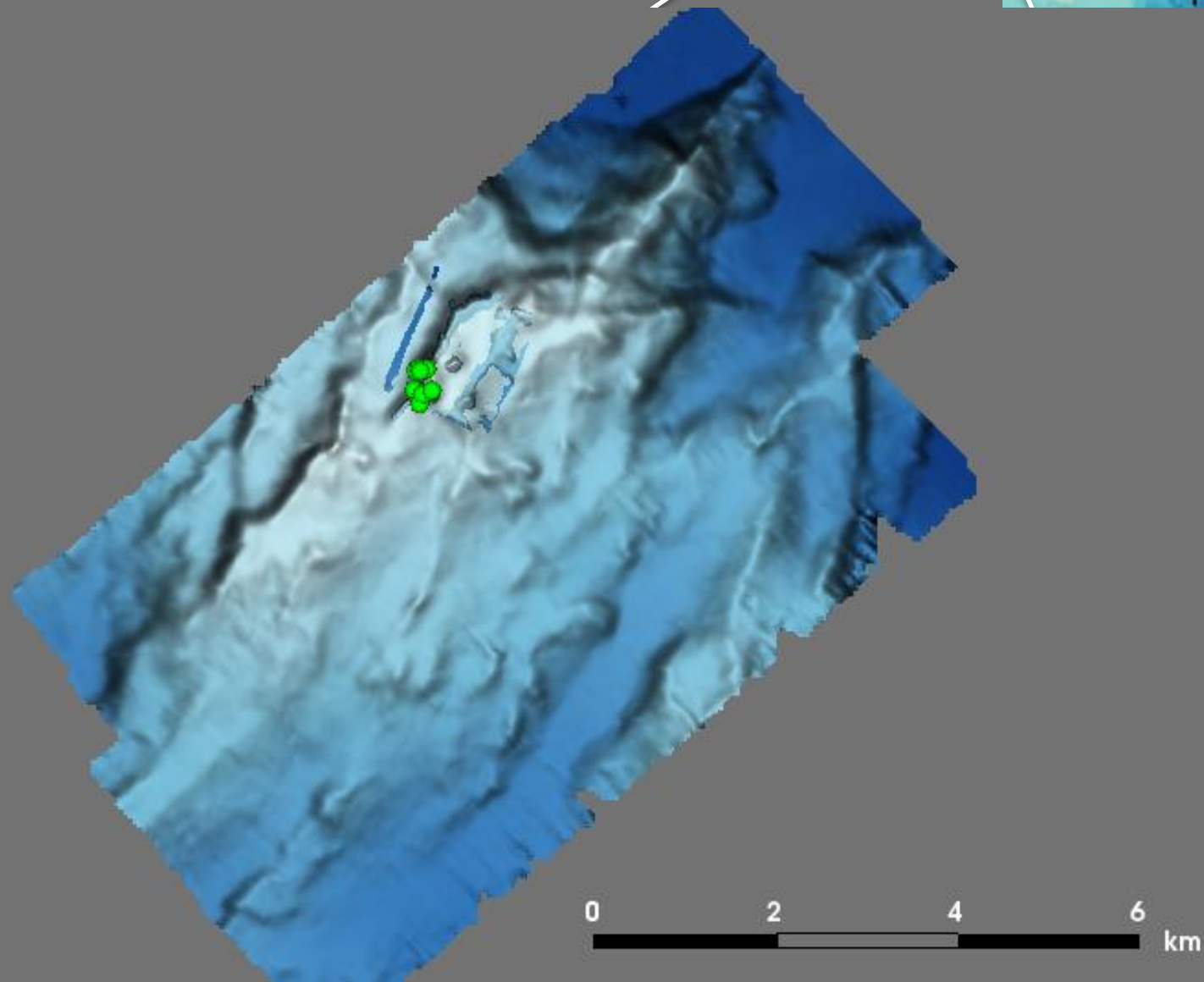
Lu	Er	Sc	La	Ce	Pr	Tm	Sm	Eu	Gd	Tb	Yb	Ho	Y	Nd	Dy
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
4	33	41	232	1026	62	5	62	15	67	11	30	12	229	258	63

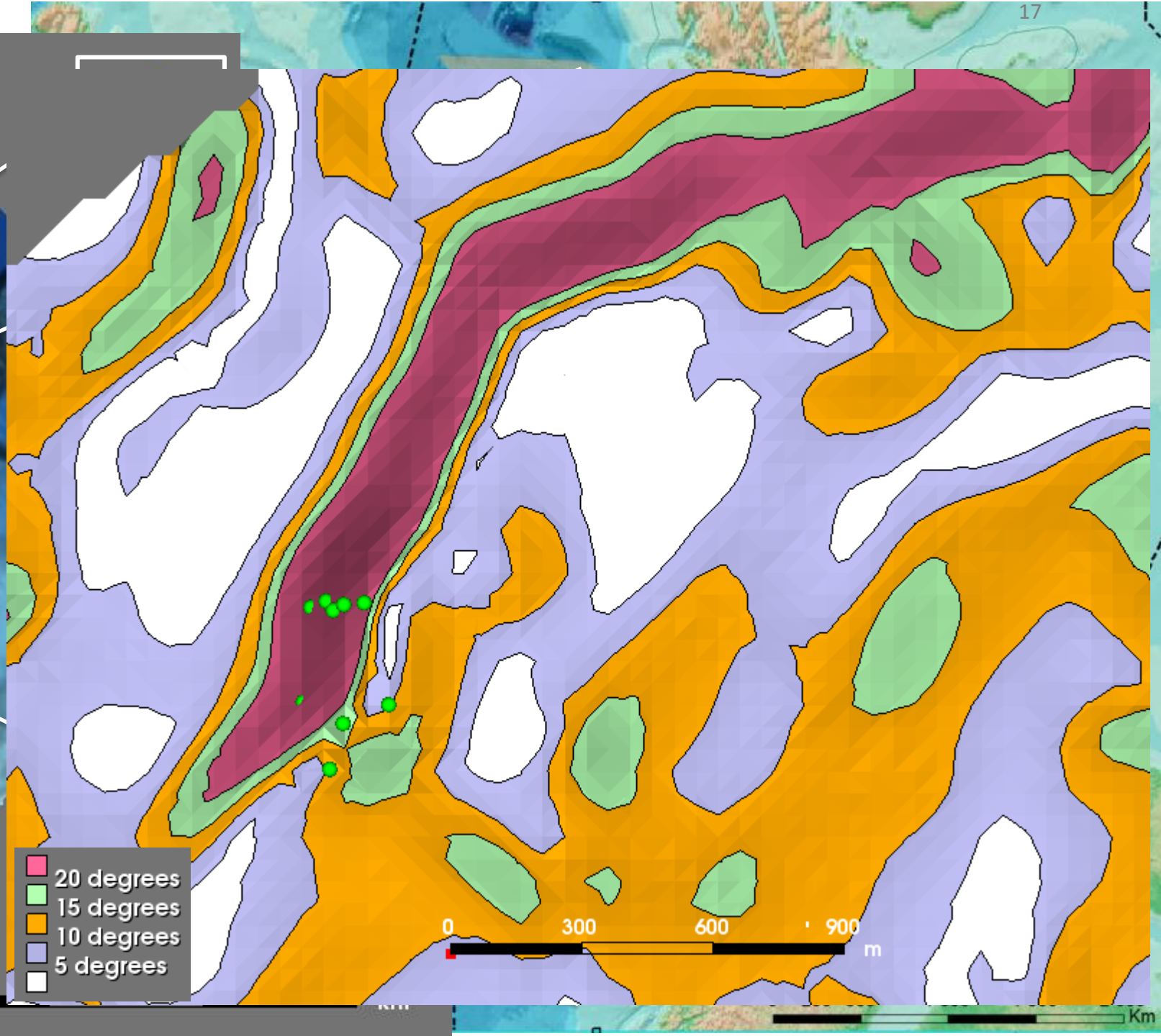
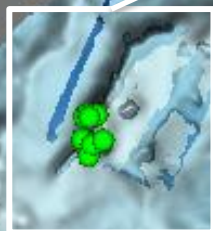
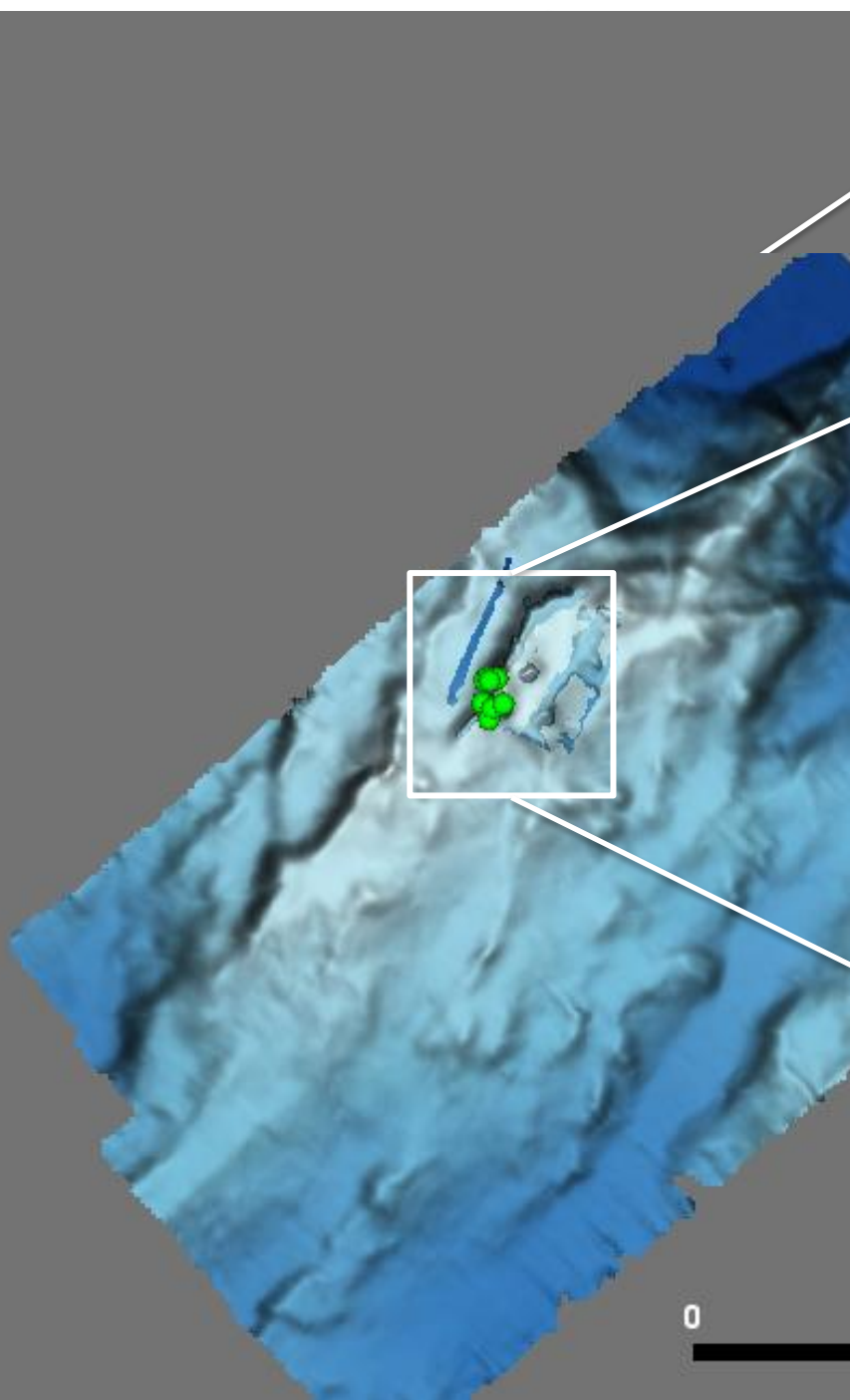
Lofotenbassenget

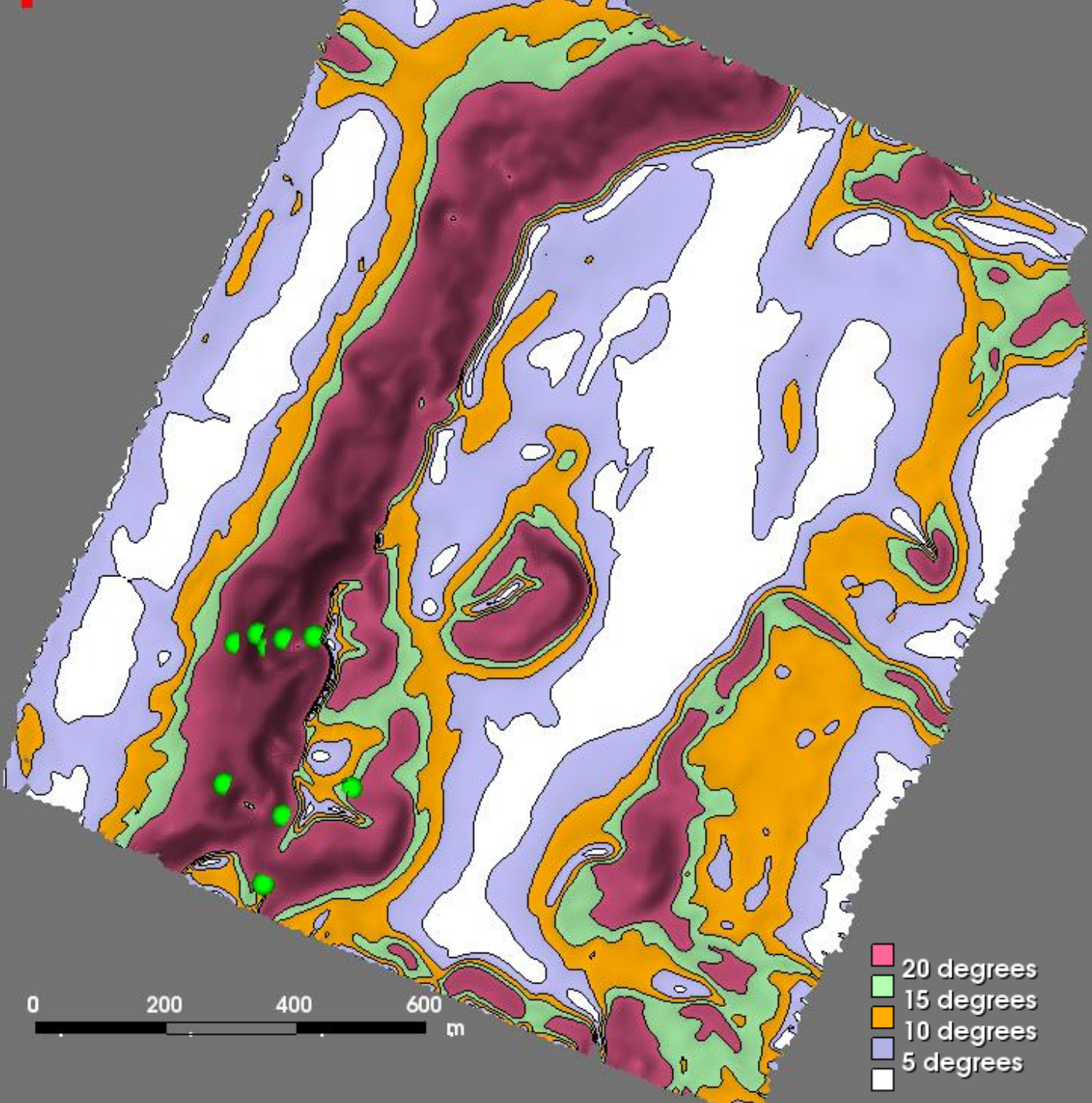
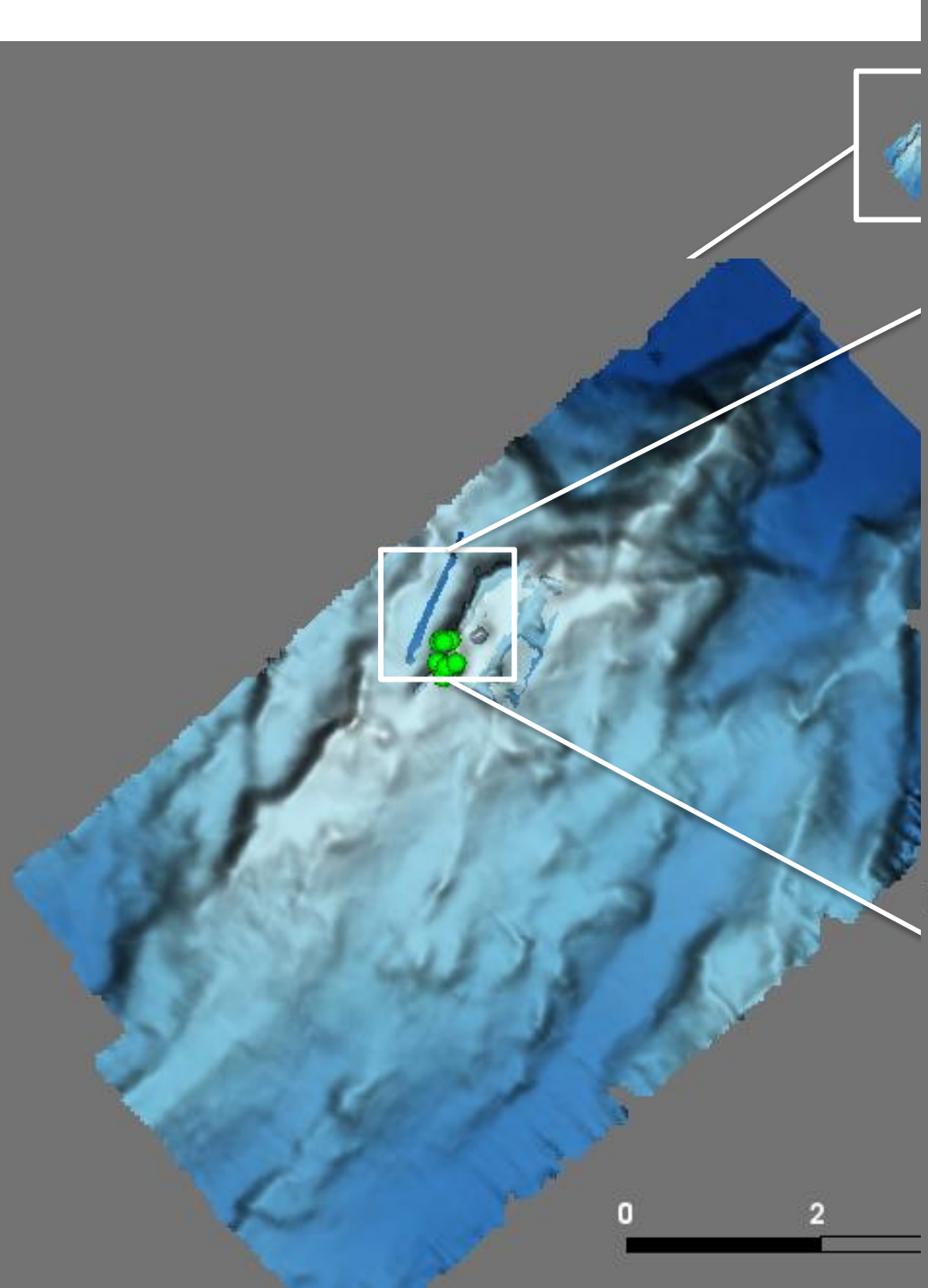
- Samlet inn MBESdata og Mn-skorpe prøver i 2018, 2019 og 2021 sammen med UiB

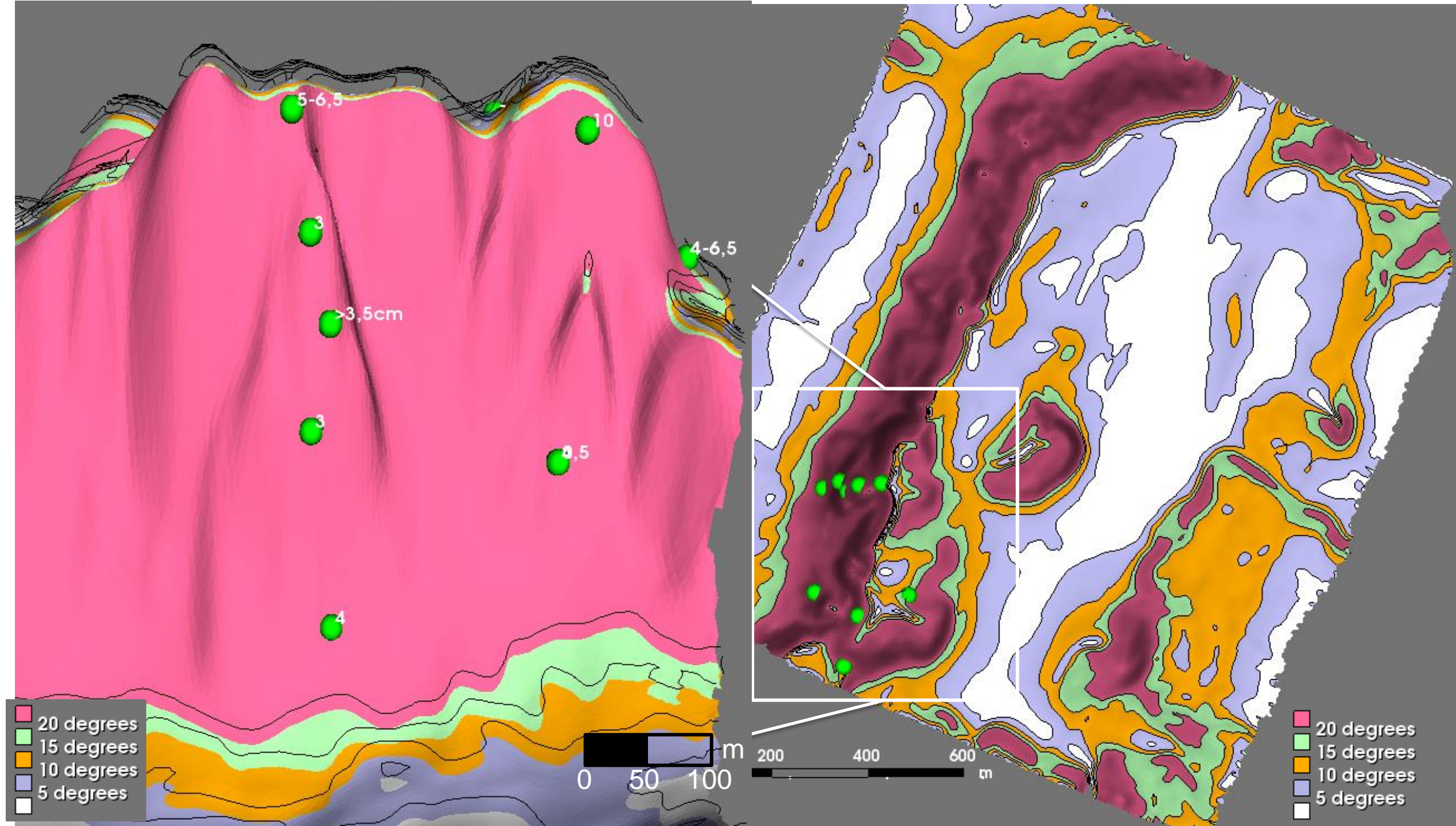












Geokjemisk analyse Lofotenbassenget (2021)

Bulk: 20 prøver



Hovedelementer

LOI	Al	Fe	Mg	Mn	P	Ti	K	Ca
%	%	%	%	%	%	%	%	%
15,9	3,6	18,8	1,7	13,6	0,5	0,5	0,9	1,1

Sporelementer

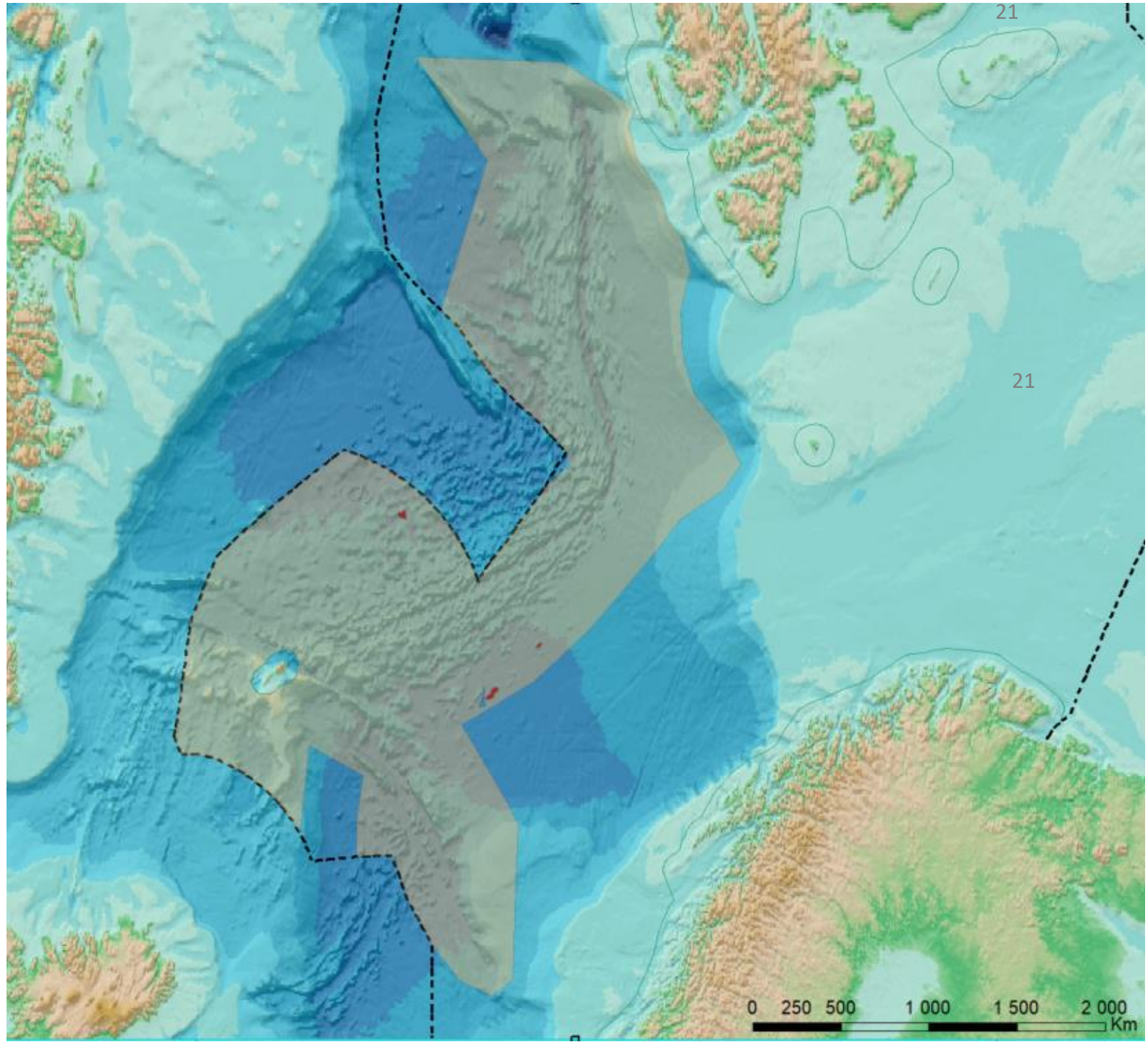
Li	S	Rb	Sr	Ba	Cs	Th	Cr	U	Cu	Zn	Pb	V	Co	Ni	Hf	Ta	Nb	Zr	REE
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
152	3956	29	736	1087	1	45	27	8	562	448	16	1064	1151	2272	7	1	30	252	1553

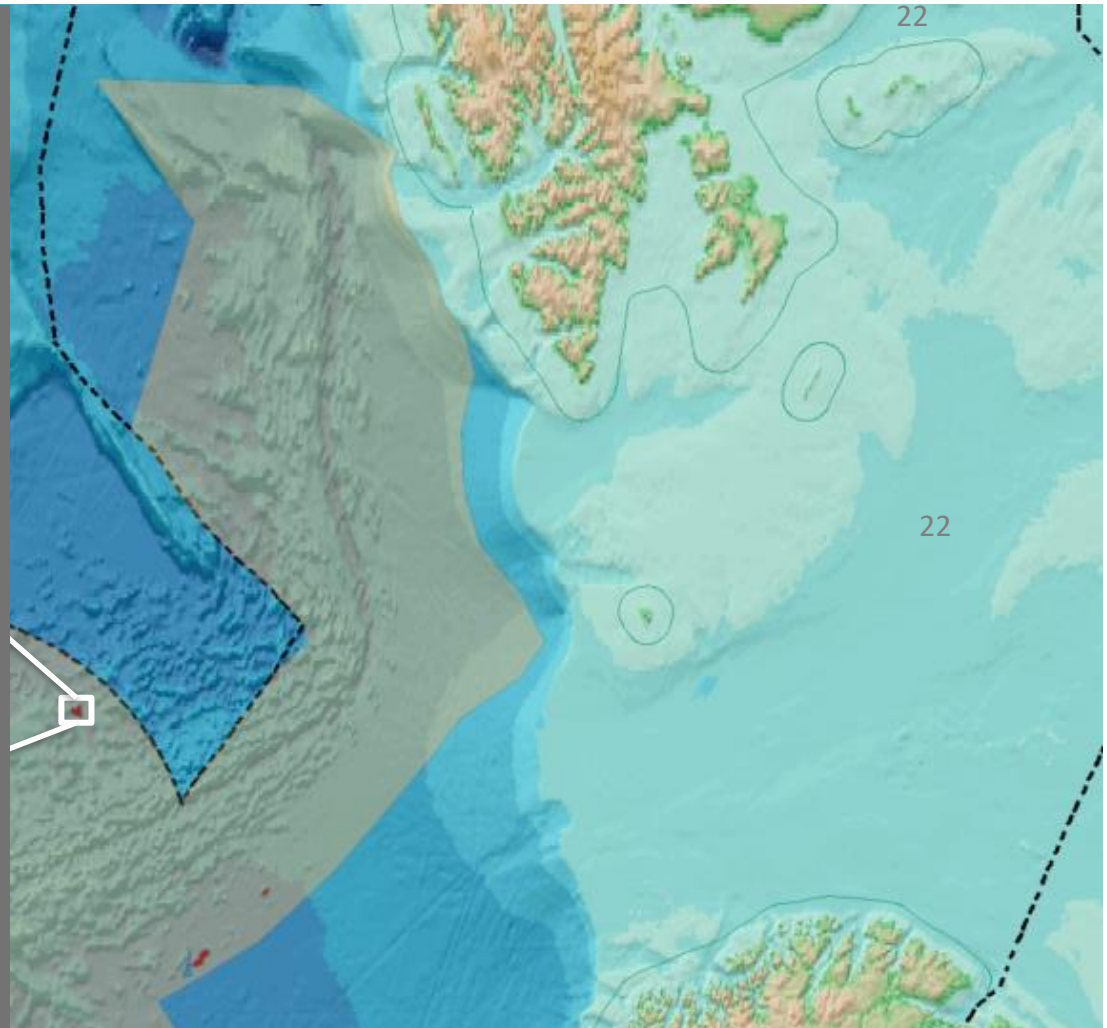
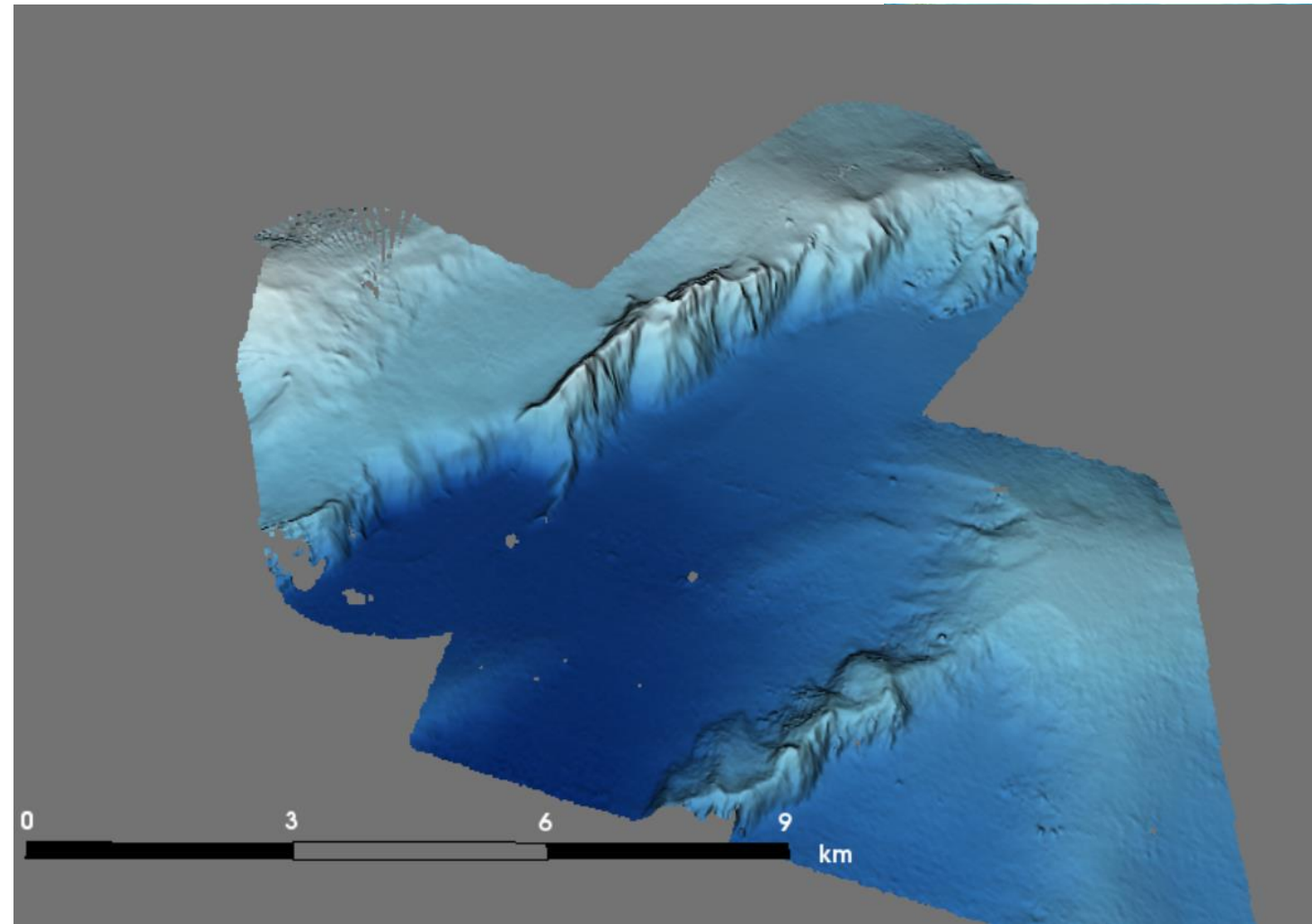
Sjeldne jordarter

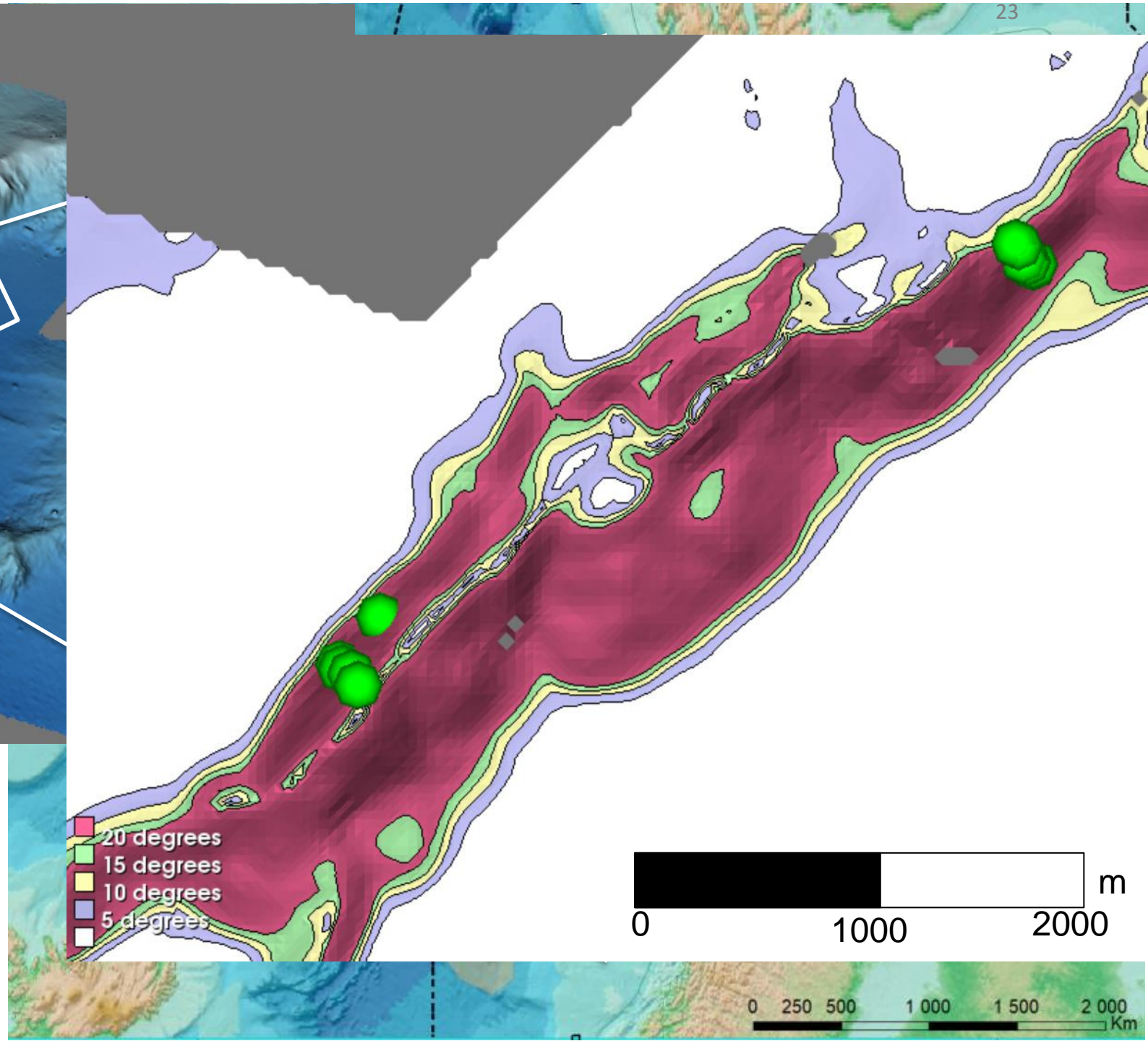
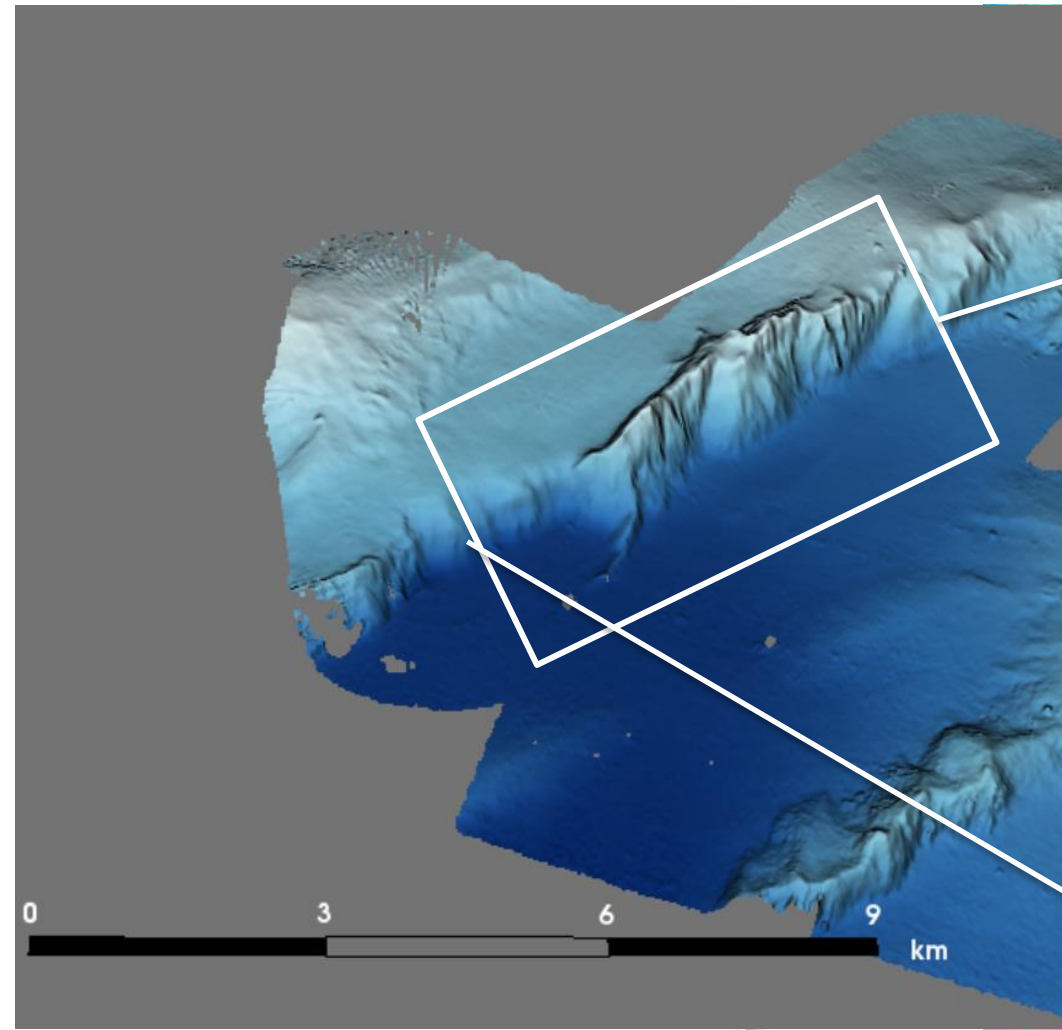
Tm	Sc	La	Ce	Pr	Yb	Sm	Eu	Gd	Tb	Lu	Ho	Er	Y	Nd	Dy
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
3	25	188	714	53	17	50	12	49	7	3	8	21	142	220	42

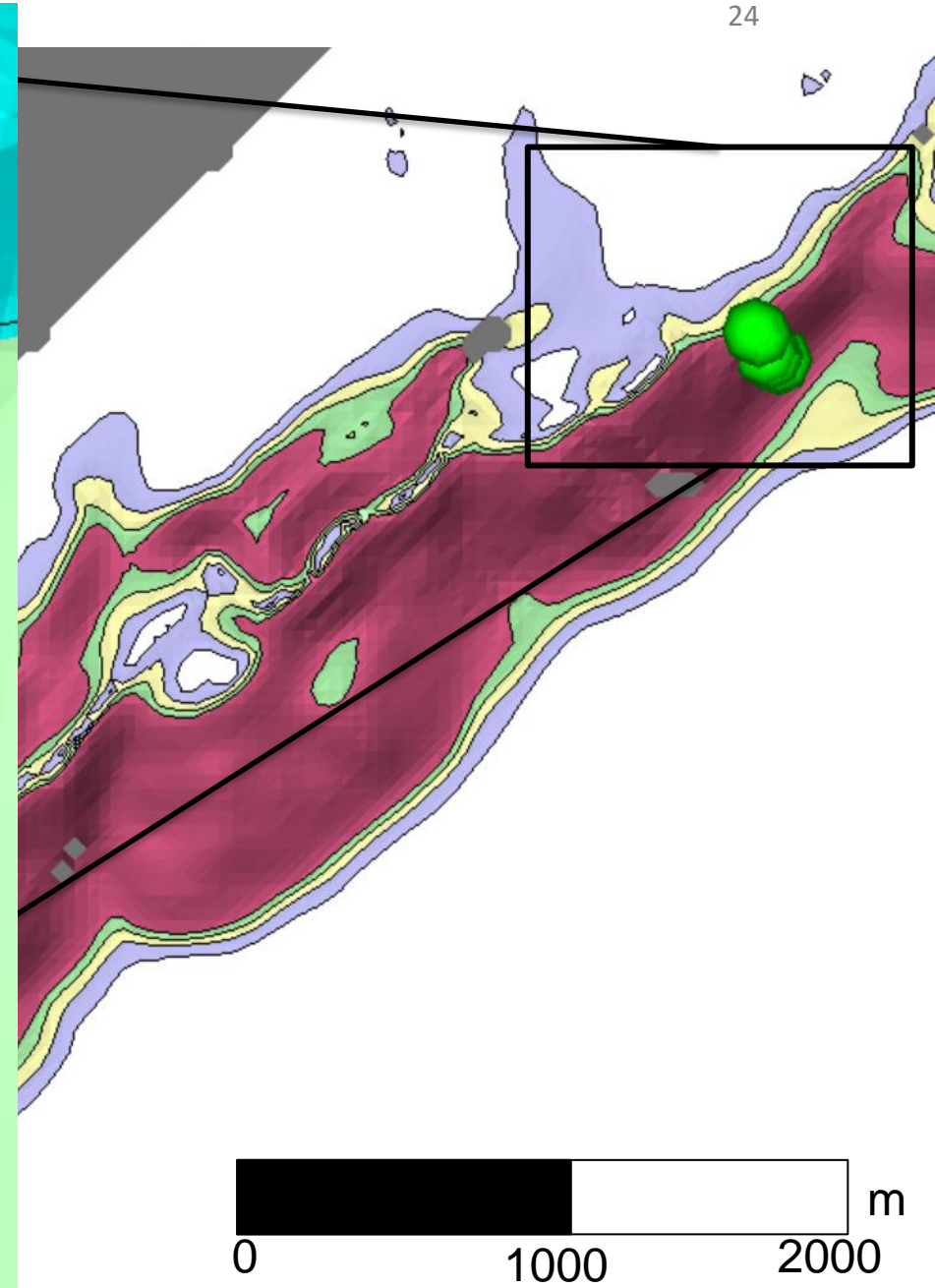
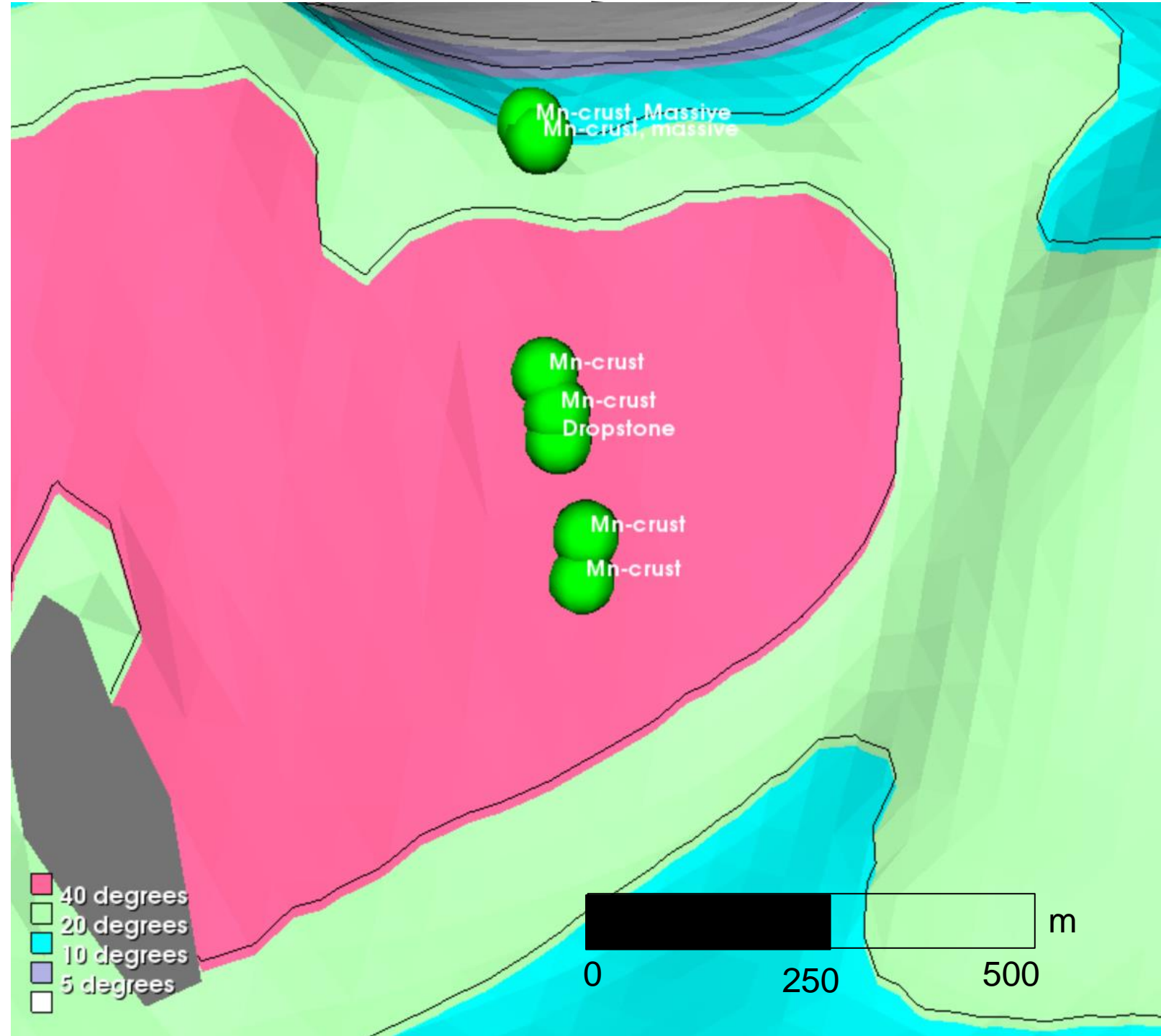
Grønlandsbassenget

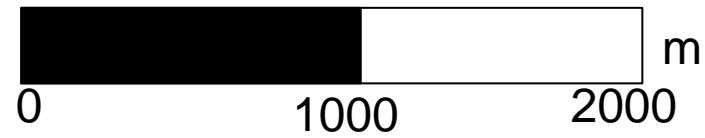
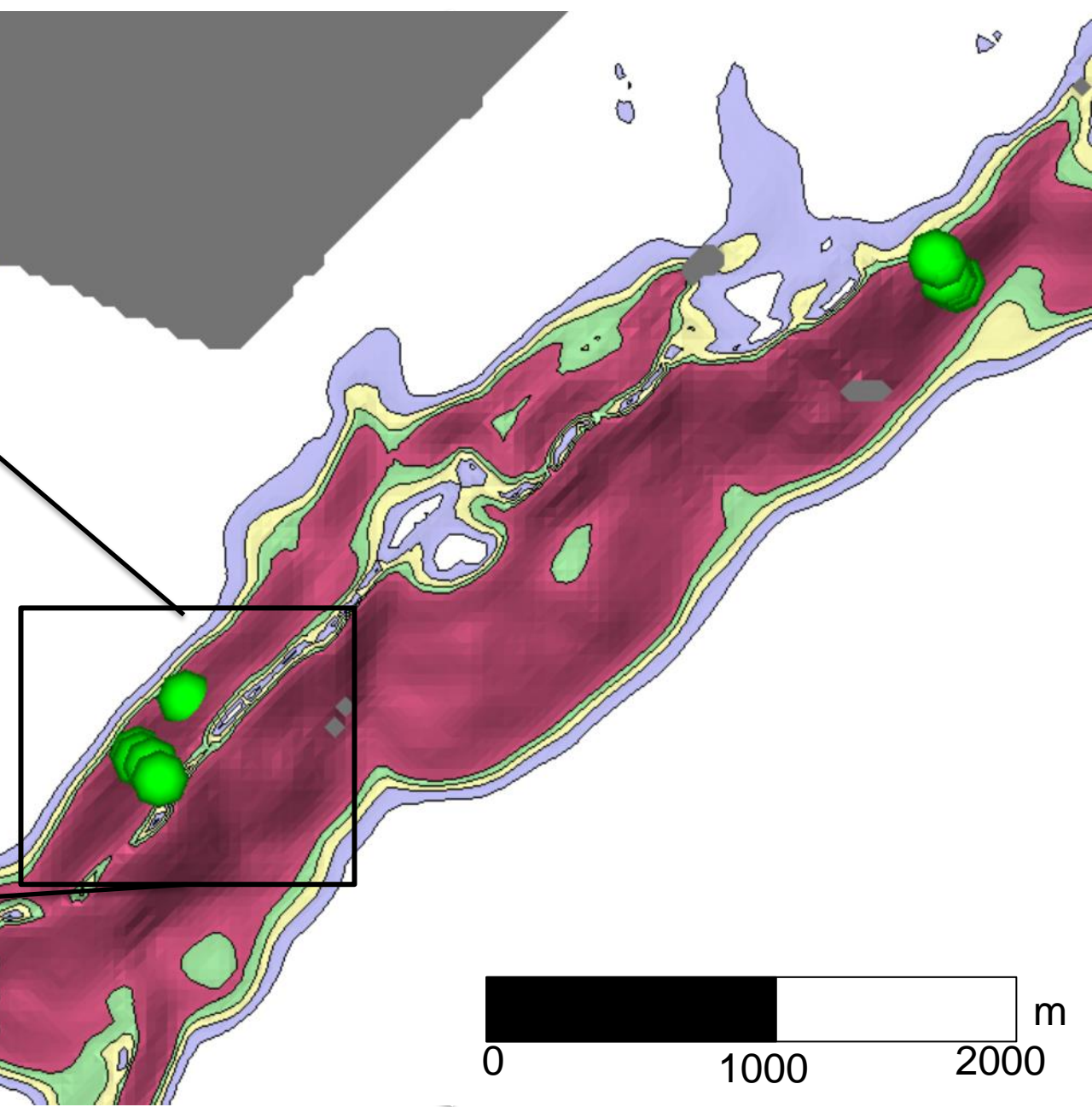
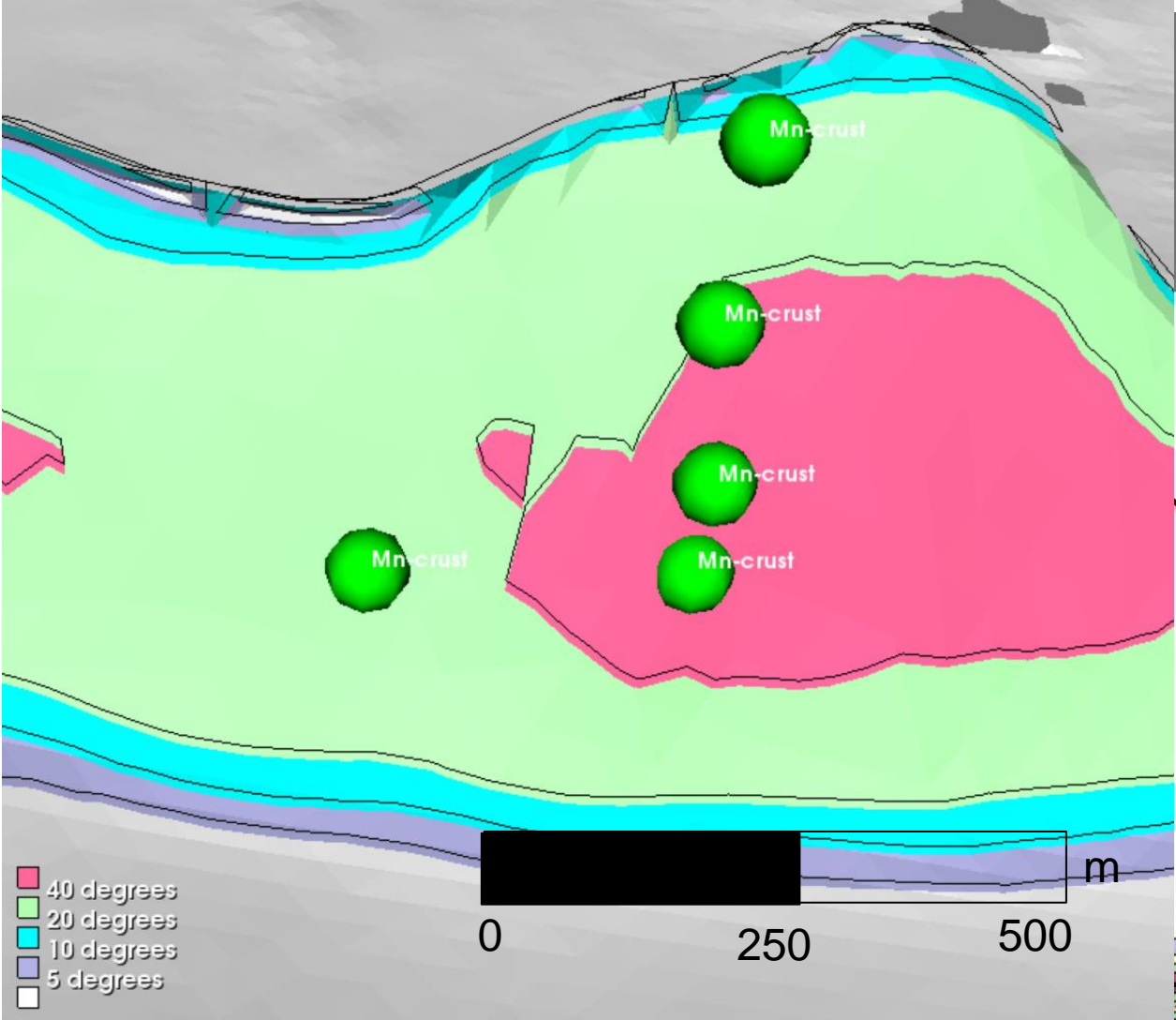
- Samlet inn MBESdata og Mn-skorpe prøver i 2021 sammen med UiB
- Prøver indikerer mektigheter på opp mot 40 cm











Geokjemisk analyse Grønlandsbassenget

Bulk: 25 prøver



Hovedelementer

LOI	Al	Fe	Mg	Mn	P	Ti	K	Ca
%	%	%	%	%	%	%	%	%
16,7	4,1	19,7	1,6	11,7	0,7	0,5	0,7	1,3

Sporelementer

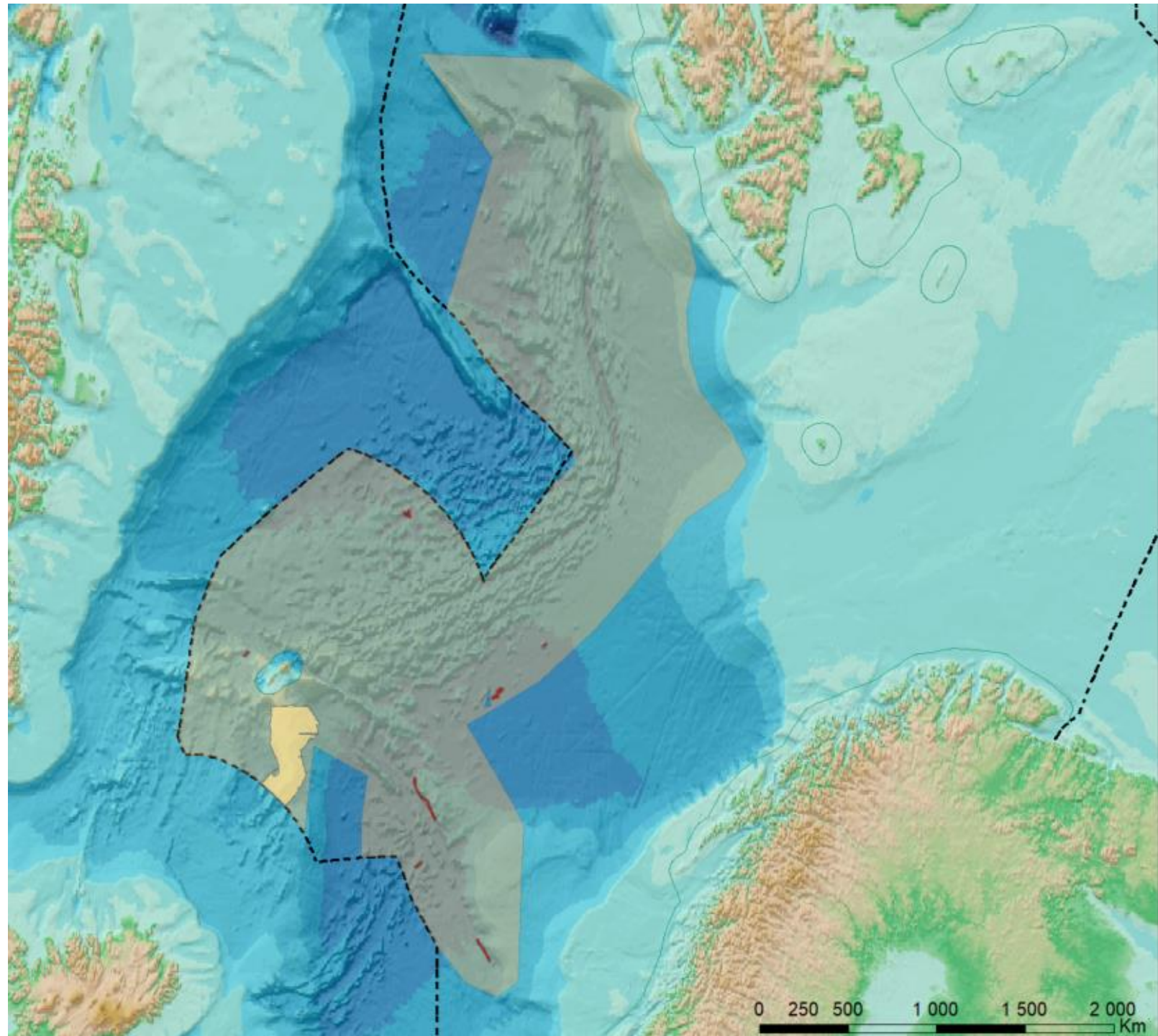
Li	S	Rb	Sr	Ba	Cs	Pb	Cr	Th	U	Cu	Zn	V	Co	Ni	Nb	Hf	Ta	Zr	REE
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
110	3115	25	837	736	1	14	28	75	11	417	368	1215	2169	1977	45	10	1	319	2464

Sjeldne jordarter

Tm	Sc	La	Ce	Pr	Yb	Sm	Eu	Gd	Tb	Lu	Ho	Er	Y	Nd	Dy
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
4	34	273	1249	77	27	73	17	73	11	4	12	31	198	318	63

Oppsummering

- Interessante Mn-skorpe forekomster
- Interessante mengder viktige metaller
- Videre kartlegging i år



Takk for oppmerksomheten!

npd.no
factpages.npd.no/no
norskpetroleum.no

