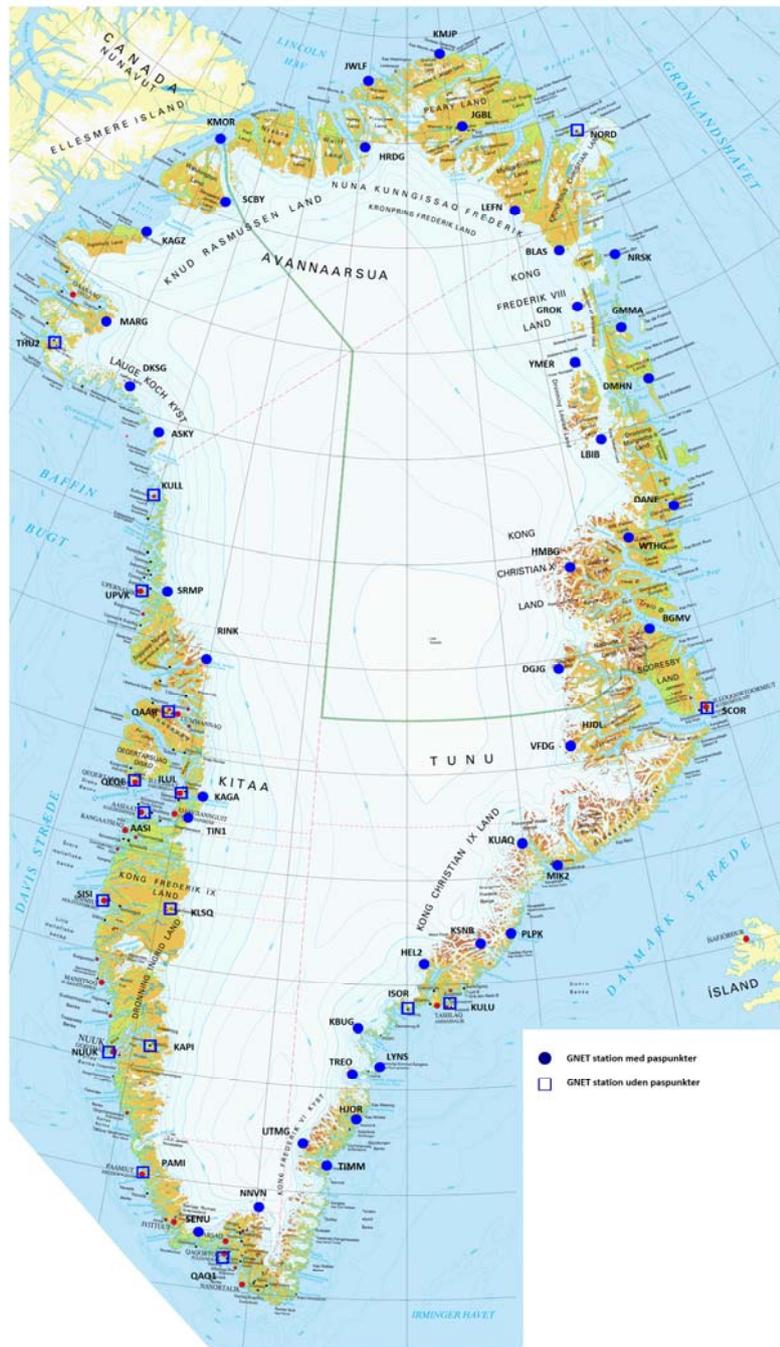


Paspunkter ved GNET stationer



Paspunkter ved GNET stationer

Rapport
2019

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Forord

Denne rapport dokumenterer etablering og opmåling af paspunkter ved GNET stationer udført i sommeren 2019 under vedligehold og opgradering af den geodætiske infrastruktur i Grønland.

Paspunkterne er etableret i forbindelse med at anvende GNET som det geometriske grundlag for ny satellitbaseret topografisk kortlægning i Grønland

DTU Space, oktober 2019

Finn Bo Madsen
Sektionsleder

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Summary

I sommeren 2019 blev der i 41 GNET stationer etableret lokale paspunkter med henblik på fotogrammetrisk at danne en lokal højdemodel som grundlag for at overføre GNET stationen placering til de satellitbilleder der skal benyttes til nyt topografisk kortværk for Grønland.

I de 41 stationer blev paspunkter enten markeret permanent med malede cirkler eller rektangler eller temporært med stof, plast og anden signalform. Center for paspunktet blev indmålt med statisk GPS målinger af minimum 10 minutters varighed. Afstanden fra GNET punktet til paspunkterne er 20-40 meter.

Der er i 2014 foretaget indmåling af batterikasser til GNET stationens strømforsyningsdel. Disse kan indgå i grundlaget som supplement.

Ved afrejse med helikopter blev der i en cirkel taget overlappende billeder ud af vindue med et kamera med fast indre geometri med en tilstræbt afstand/højde på ca. 100 m fra GNET stationen. Herefter blev proceduren gentaget i en tilstræbt afstand/højde på ca. 150 m.

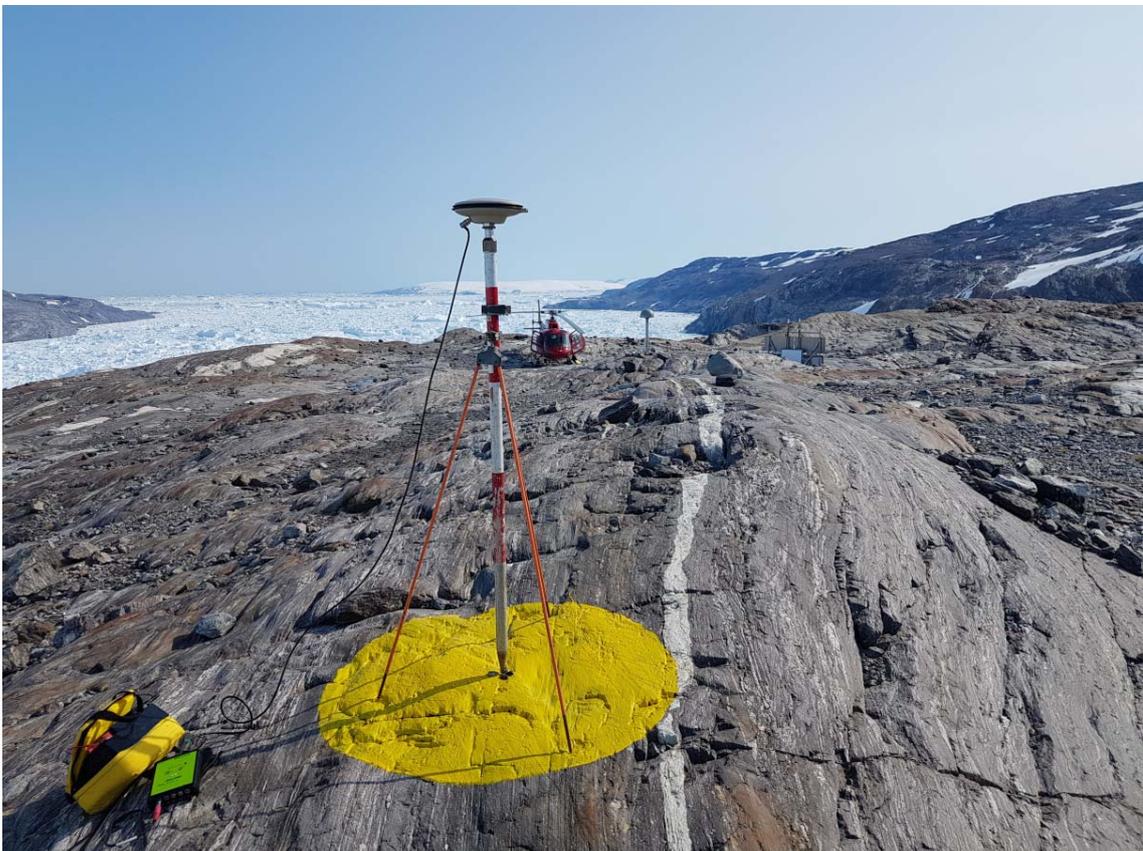
[Rubrik]

[Tekst]

1. GPS opmåling

GPS målinger blev foretaget med to-frekvens modtager af mærket Javad Delta. I paspunkterne blev benyttet stok med libelle i stativ med GNSS antenne af typen NovAtel (NOV702GG uden radome). GNET stationerne er udstyret med følgende typer antenner:

- Trimble chookering GPS antenne med radome
(TRIM29569.00 SCIS)
- Trimble chookering multi-GNSS antenne med radome
(TRIM59800.00 SCIS)
- Leica chookering multi-GNSS antenner med radomer
(LEIAR25.R3 LEIT)
(LEIAR20 LEIM)



Figur 1 Paspunkt ved GNET station i Køge Bugt

Paspunkterne blev målt i mindst 10 minutter med måling hvert sekund.

2. GPS beregning

2.1 Referencekoordinater

Som udgangspunkt for beregningen er der udført Precise Point Positioning (PPP) af de involverede GNET stationer. Der er sendt 24 timers observationer fra hver station fra den 19. august 2019 til beregning på Natural Resources Canadian Spatial Reference System Precise Point Positioning (CSRS-PPP). Se eventuelt <https://www.nrcan.gc.ca/maps-tools-and-publications/tools/geodetic-reference-systems-tools/tools-applications/10925#ppp>.

Den aktuelle geodætiske referenceramme for IGS præcise baner kaldes IGS14. Hermed er der GNET reference stationens koordinater bragt i geometrisk overensstemmelse med de præcise baner der er benyttet ved beregning af vektorer til paspunkterne.

CSRS-PPP benytter IGS produkter for præcise satellitbaner, ur-korrektioner samt jordrotation. Herudover benyttes IGS14 parametre for fasecenter variationer for satellitter og modtager antenner (I14.ATX). Der foretages avanceret modellering af troposfære og ocean loading.

De beregnede geocentriske referencekoordinater ses i tabel 1 nedenfor.

Name	YrMonDd	DecimalYr	X[m]	X[m]	Z[m]	Processing
ASKY	19AUG19	2019.6315	830041.4846	-1341717.0065	6159913.0556	CSRS-PPP
BLAS	19AUG19	2019.6315	1069782.3310	-453538.8110	6250868.7910	CSRS-PPP
DANE	19AUG19	2019.6315	1623660.2615	-597385.1603	6118614.7711	CSRS-PPP
DMHN	19AUG19	2019.6315	1387317.4342	-468385.2297	6187028.6331	CSRS-PPP
DGJG	19AUG19	2019.6315	1734706.2094	-995495.3261	6037702.7584	CSRS-PPP
GROK	19AUG19	2019.6315	1181093.5239	-499004.9398	6228050.6278	CSRS-PPP
DKSG	19AUG19	2019.6315	716356.1279	-1329176.7772	6176684.9279	CSRS-PPP
GMMA	19AUG19	2019.6315	1272561.9579	-454443.7231	6212988.3541	CSRS-PPP
HEL2	19AUG19	2019.6315	2011941.1330	-1584134.9045	5822388.4471	CSRS-PPP
HJOR	19AUG19	2019.6315	2155177.2299	-1883254.1861	5681671.5967	CSRS-PPP
HMBG	19AUG19	2019.6315	1586181.5355	-847976.6598	6100142.3443	CSRS-PPP
HRDG	19AUG19	2019.6315	644572.8919	-633804.4791	6293307.6981	CSRS-PPP
ISOR	19AUG19	2019.6315	2058325.5586	-1665307.6387	5783280.6510	CSRS-PPP
JGBL	19AUG19	2019.6315	743648.6109	-446903.5100	6298426.7649	CSRS-PPP
JWLF	19AUG19	2019.6315	541575.8692	-543846.2362	6310673.9349	CSRS-PPP
KAGA	19AUG19	2019.6315	1464296.0498	-1733658.2997	5940955.0260	CSRS-PPP
KAGZ	19AUG19	2019.6315	493554.7893	-1100930.0025	6242075.1952	CSRS-PPP
KBUG	19AUG19	2019.6315	2024219.4835	-1769422.6701	5764725.6619	CSRS-PPP
KMJP	19AUG19	2019.6315	591676.0592	-389799.1007	6317493.1185	CSRS-PPP
KMOR	19AUG19	2019.6315	433815.5317	-871142.6993	6282526.5255	CSRS-PPP
KSNB	19AUG19	2019.6315	2044690.4381	-1462576.6593	5844021.6913	CSRS-PPP
KUAQ	19AUG19	2019.6315	1957695.8584	-1273906.5433	5916113.9422	CSRS-PPP

LBIB	19AUG19	2019.6315	1426532.6423	-630751.1573	6165273.9571	CSRS-PPP
LEFN	19AUG19	2019.6315	951248.6704	-470001.3794	6268880.2773	CSRS-PPP
LYNS	19AUG19	2019.6315	2108477.6257	-1781679.1038	5730747.3387	CSRS-PPP
MARG	19AUG19	2019.6315	584120.0573	-1293359.3375	6198091.0979	CSRS-PPP
MIK2	19AUG19	2019.6315	2032023.1680	-1242876.4052	5897693.7177	CSRS-PPP
MSVG	19AUG19	2019.6315	1783896.7209	-790993.4631	6052020.7050	CSRS-PPP
NNVN	19AUG19	2019.6315	2152868.9287	-2145447.1212	5591017.4331	CSRS-PPP
NRSK	19AUG19	2019.6315	1146860.6928	-366570.6361	6242817.0988	CSRS-PPP
PLPK	19AUG19	2019.6315	2079880.0590	-1404664.8970	5844060.0603	CSRS-PPP
QAAR	19AUG19	2019.6315	1279061.8804	-1678302.4048	5998840.2620	CSRS-PPP
QAQ1	19AUG19	2019.6315	2170941.8321	-2251830.0320	5539988.5035	CSRS-PPP
RINK	19AUG19	2019.6315	1254672.2226	-1549057.6210	6039712.4019	CSRS-PPP
SENU	19AUG19	2019.6315	2104290.4271	-2267763.5063	5559681.1919	CSRS-PPP
SCBY	19AUG19	2019.6315	547956.3565	-933731.0190	6265058.4606	CSRS-PPP
SRMP	19AUG19	2019.6315	1094652.3673	-1528639.7338	6074674.5601	CSRS-PPP
TIMM	19AUG19	2019.6315	2182030.9972	-1984531.7027	5636567.5610	CSRS-PPP
TIN1	29AUG19	2019.6589	1472583.8222	-1784050.5126	5924492.6042	CSRS-PPP
TREO	19AUG19	2019.6315	2082987.2444	-1834790.7548	5723297.8878	CSRS-PPP
THU2	19AUG19	2019.6315	538093.2182	-1389088.1231	6180979.3463	CSRS-PPP
UTMG	19AUG19	2019.6315	2118494.0201	-1996816.1539	5657599.9999	CSRS-PPP
VFDG	19AUG19	2019.6315	1871345.4279	-1072495.0109	5983619.7329	CSRS-PPP
WTHG	19AUG19	2019.6315	1611820.1844	-728066.9303	6108625.2955	CSRS-PPP
YMER	19AUG19	2019.6315	1268822.6123	-573597.4757	6204511.1502	CSRS-PPP

Tabel 1 Geocentriske referencekoordinater til GNET stationer til vektorberegning

2.2 Vektorberegning

Til vektorberegningen er anvendt free-ware programmet RTKPOST version 2.4.2. I modsætning til CSRS-PPP beregnes koordinaterne til paspunkterne differentielt i forhold til GNET stationen. Hermed udgås en stor del af de systematiske påvirkninger idet disse ved de korte afstande kan antages at virke ens.

Input til RTKPOST er Rinex filer med observationer fra GNET station samt paspunkt. I Rinex filerne sikres at der er korrekt angivelse af antenne typer og radome og antennehøjder. RTKPOST benytter præcise satellitbaner og ur-korrektioner fra IGS samt broadcast baner til ionosfæremodellering. Herudover benytter RTKPOST IGS parametre til fasecenter variationer for satellit- og modtager antenner (I14.ATX).

2.3 Transformation til Greenland 1996(gr96) Datum

Vektorer mellem GNET station og paspunkter er som ovenfor beskrevet beregnet i IGS14 referencerammen til epoken 19. august 2019. Transformationen til gr96 datum sker i princippet ved en translation idet vektorkomponenter adderes til de gr96 koordinater til GNET stationer som er beskrevet i notatet "Koordinater til GNET stationer" der er dokumentation til Ydelsesaftalen mellem Kort & Matrikelstyrelsen og DTU Space, 2012.

Greenland 1996 koordinater til GNET stationerne er gengivet fra ovennævnte rapport i tabel 2 nedenfor.

```

KmsTrans GNSS 3 dim                      Tuesday, January 29, 2013 22:50
Input from   : C:\Divtxt\2012\KMS\GNET\Beregning2011\GNET2011.cart
Output to    : C:\Divtxt\2012\KMS\GNET\Beregning2011\GNET2011_gr96.cart

Input  Coordinate System: Cartesian 3-d coord
      Datum              : IGS08 (IGS)
      Ellipsoide         : GRS80
      Epoch              : 20110914

Output  Coordinate System: Cartesian 3-d coord
      Datum              : Greenland 1996
      Ellipsoide         : GRS80

Official transformation : Greenland
Using Plate Model Velocities: nnr_itrf08

#GL_crt_gr96

ALRT      388 042.87258 m   -740 382.40370 m   6 302 001.88577 m   W
HOFN      2 679 690.14270 m   -727 951.30167 m   5 722 789.30045 m   W
STJO      2 612 631.22949 m   -3 426 807.01854 m   4 686 757.80007 m   W
NYAL      1 202 434.00871 m    252 632.23888 m   6 237 772.60329 m   W
CHUR      -236 438.69811 m   -3 307 616.87813 m   5 430 049.27836 m   W
KELY      1 575 559.26580 m   -1 941 827.94105 m   5 848 076.46602 m   A
QAQ1      2 170 942.26604 m   -2 251 829.96768 m   5 539 988.29975 m   W
SCOR      1 982 096.24369 m   -798 820.96253 m   5 989 464.48641 m   W
THU3      538 093.70733 m   -1 389 088.05955 m   6 180 979.24090 m   W
THU4      538 093.79823 m   -1 389 081.20605 m   6 180 980.77270 m   A
KMOR      433 816.01945 m   -871 142.64766 m   6 282 526.42241 m   A
SCBY      547 956.83894 m   -933 730.96310 m   6 265 058.35018 m   A
KAGZ      493 555.27400 m   -1 100 929.94226 m   6 242 075.08075 m   A
MARG      584 120.54186 m   -1 293 359.28072 m   6 198 090.98145 m   A
DKSG      716 356.60780 m   -1 329 176.71293 m   6 176 684.75390 m   A
ASKY      830 041.95939 m   -1 341 716.93232 m   6 159 912.84960 m   A
KULL      920 855.77217 m   -1 430 371.06507 m   6 126 575.80761 m   A

```

UPVK	1	055	128.02746	m	-1	571	854.47752	m	6	070	450.20462	m	A
SRMP	1	094	652.83791	m	-1	528	639.64301	m	6	074	674.36586	m	A
RINK	1	254	672.68564	m	-1	549	057.57794	m	6	039	712.23615	m	A
QAAR	1	279	062.35066	m	-1	678	302.34328	m	5	998	840.10169	m	A
KAGA	1	464	296.50335	m	-1	733	658.20721	m	5	940	954.79762	m	A
NNVN	2	152	869.37805	m	-2	145	447.06021	m	5	591	017.22807	m	A
HJOR	2	155	177.68074	m	-1	883	254.13118	m	5	681	671.39846	m	A
TREO	2	082	987.70084	m	-1	834	790.69333	m	5	723	297.68835	m	A
LYNS	2	108	478.07777	m	-1	781	679.04130	m	5	730	747.14005	m	A
HEL2	2	011	941.57314	m	-1	584	134.80258	m	5	822	388.16727	m	A
KSNB	2	044	690.88580	m	-1	462	576.59161	m	5	844	021.43521	m	A
SENU	2	104	290.86152	m	-2	267	763.43530	m	5	559	680.98687	m	A
NUUK	1	725	034.86640	m	-2	186	716.61033	m	5	718	753.87333	m	A
KAPI	1	764	211.47229	m	-2	122	831.24039	m	5	730	774.07236	m	A
HRDG		644	573.37250	m		-633	804.42783	m	6	293	307.57756	m	A
JWLF		541	576.36264	m		-543	846.19089	m	6	310	673.83171	m	A
KMJP		591	676.55120	m		-389	799.05660	m	6	317	493.01985	m	A
JGBL		743	649.09731	m		-446	903.45999	m	6	298	426.64601	m	A
LEFN		951	249.15475	m		-470	001.32300	m	6	268	880.14184	m	A
BLAS	1	069	782.81400	m		-453	538.75634	m	6	250	868.63435	m	A
NRSK	1	146	861.17011	m		-366	570.58656	m	6	242	816.95102	m	A
GROK	1	181	093.99582	m		-499	004.87779	m	6	228	050.47041	m	A
MIK2	2	032	023.60909	m	-1	242	876.32299	m	5	897	693.47576	m	A
KUAQ	1	957	696.29550	m	-1	273	906.44568	m	5	916	113.66697	m	A
VFDG	1	871	345.89731	m	-1	072	494.95183	m	5	983	619.54338	m	A
MSVG	1	783	897.19053	m		-790	993.40732	m	6	052	020.54069	m	A
DGJG	1	734	706.68395	m		-995	495.26426	m	6	037	702.59019	m	A
HMBG	1	586	182.01941	m		-847	976.60328	m	6	100	142.20525	m	A
WTHG	1	611	820.66165	m		-728	066.87299	m	6	108	625.14312	m	A
DANE	1	623	660.73917	m		-597	385.10007	m	6	118	614.62313	m	A
LBIB	1	426	533.11873	m		-630	751.09491	m	6	165	273.82541	m	A
DMHN	1	387	317.91146	m		-468	385.17038	m	6	187	028.49260	m	A
YMER	1	268	823.09227	m		-573	597.41492	m	6	204	511.02365	m	A
GMMA	1	272	562.43189	m		-454	443.66727	m	6	212	988.20877	m	A
NORD		895	580.79169	m		-267	928.16734	m	6	288	177.77914	m	A
ILUL	1	425	039.36624	m	-1	763	597.08830	m	5	941	583.00414	m	A
AASI	1	403	876.67339	m	-1	849	092.65656	m	5	920	733.46879	m	A

-1z

KmsTrans GNSS 3 dim

Monday, January 21, 2013 16:01

Input from : C:\Divtxt\2012\KMS\GNET\Beregning2007\GNET2007_1.txt

Output to : C:\Divtxt\2012\KMS\GNET\Beregning2007\GNET2007_lgr96.kar

Input Coordinate System: Cartesian 3-d coord

```

Datum          : ITRF05 ( IERS )
Ellipsoide    : GRS80
Epoch        : 20070926
Output Coordinate System: Cartesian 3-d coord
Datum          : Greenland 1996
Ellipsoide    : GRS80
Official transformation : Greenland
Using Plate Model Velocities: nnr_itrf08
#GL_crt_gr96

ISOR          2 058 326.00752 m -1 665 307.53983 m 5 783 280.39552 m
KBUG          2 024 219.93632 m -1 769 422.57290 m 5 764 725.40882 m
KULU          2 107 682.60793 m -1 596 883.67768 m 5 784 773.39809 m
PLPK          2 079 880.50233 m -1 404 664.81461 m 5 844 059.80203 m
QEQE          1 347 220.33149 m -1 822 147.79395 m 5 942 059.47865 m
TIMM          2 182 031.44011 m -1 984 531.63786 m 5 636 567.32163 m
UTMG          2 118 494.47821 m -1 996 816.08436 m 5 657 599.75382 m
-1z

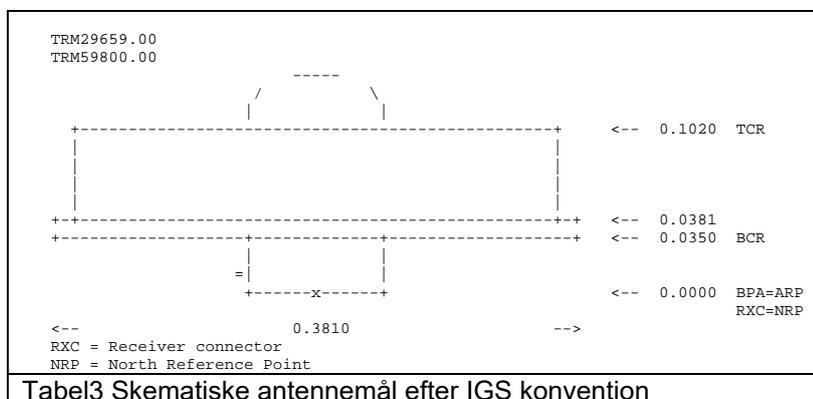
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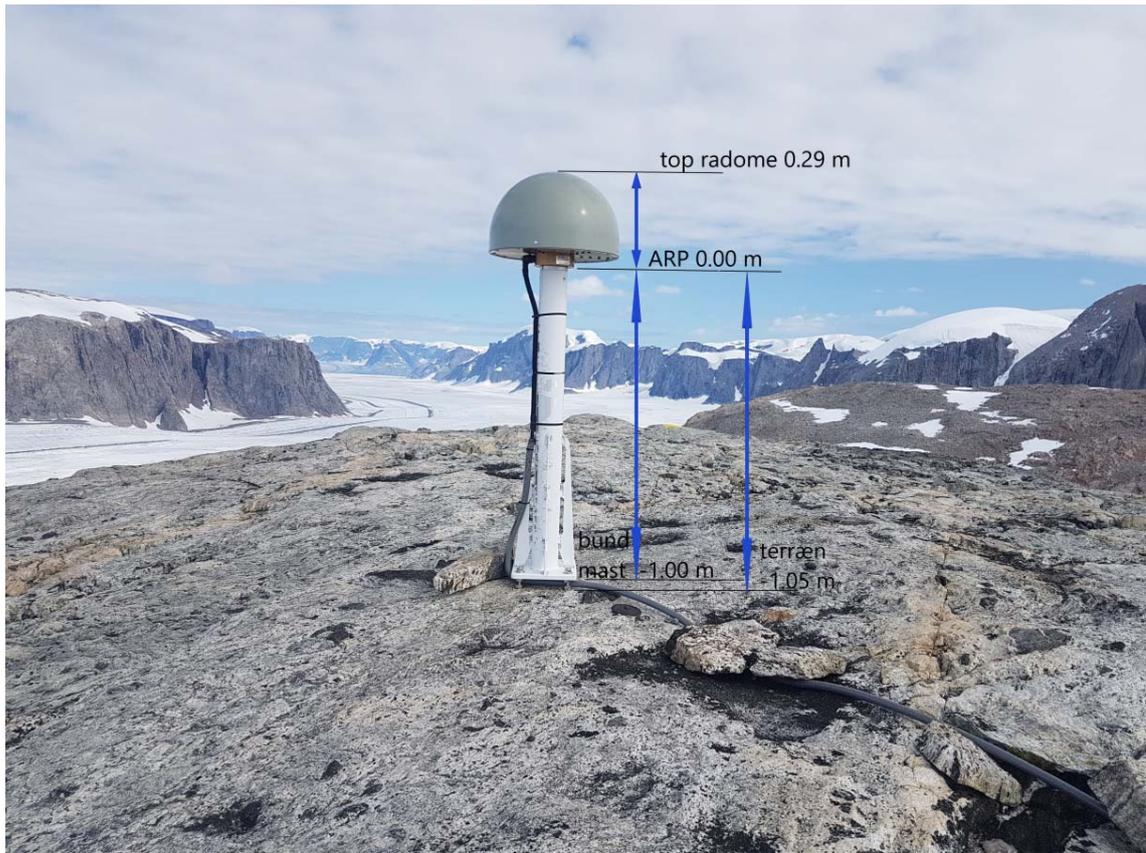
Tabel 2: Greenland 1996 koordinater til GNET stationer

2.4 Fysisk reference til koordinater

Koordinater til GNET stationer er refereret til der i IGS terminologi kaldes Antenna Reference Point (ARP) der i praksis er den nederste fysiske del af antennen dvs. overgangen mellem top af mast og bund af antenne. Figur 2 viser mål fra ARP til fod af antenne samt top af radome. Afstanden fra underkant af antenne til terræn er skønsmæssigt sat til 0.05 m. Tabel 3 viser skematiske antennemål efter IGS konvention. Efter denne er afstanden fra ARP til underkant af antenne (BCR) 0.035 m.

Koordinater til paspunkter er refereret til centerpunkt for paspunkt i terræn idet den målte antennehøjde indgår i vektorberegningen. Ved batterikasser der koordinaterne refereret til center af kassens overflade.





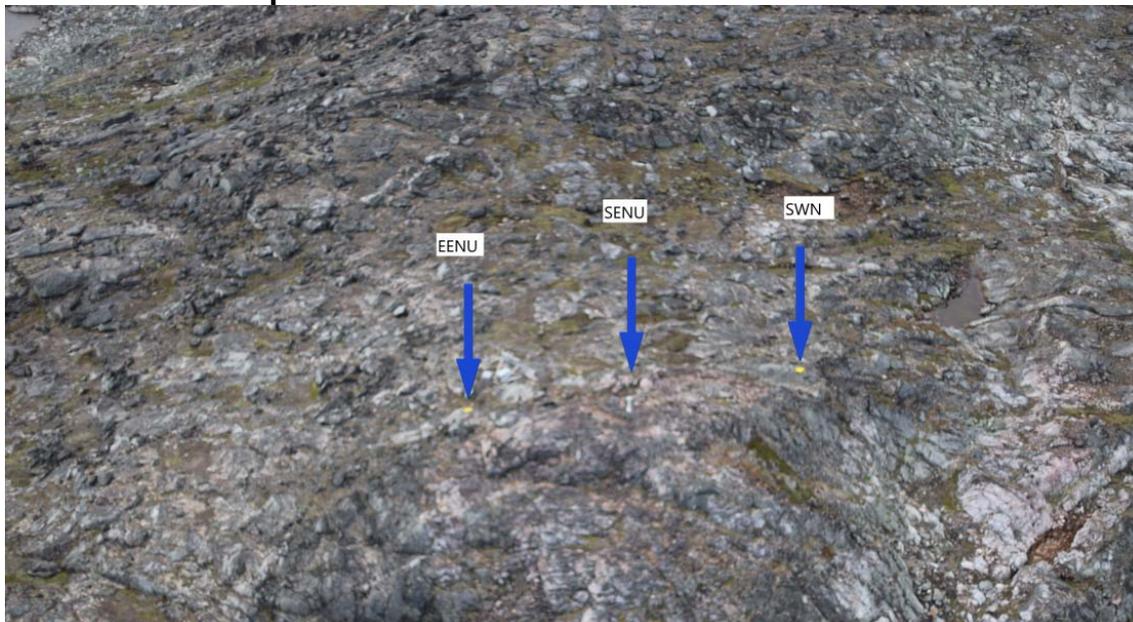
Figur 2 Fysiske mål fra koordinat reference ved GNET station

2.5 Navnekonvention

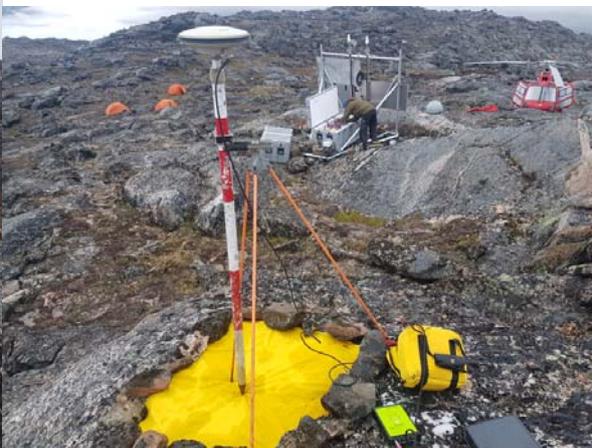
Paspunkterne navngives efter placering i forhold til GNET monumentet. De to første karakterer angive orienteringen mens de to sidste er de to sidste karakterer i GNET stationens navn: EENU angiver således at paspunktet ligger stik øst for GNET monumentet SENU mens SWNU angiver at stationen ligger sydvest for GNET monumentet SENU.

3. Paspunkter ved GNET stationer

3.1 SENU Sermip Nunataa



SWNU

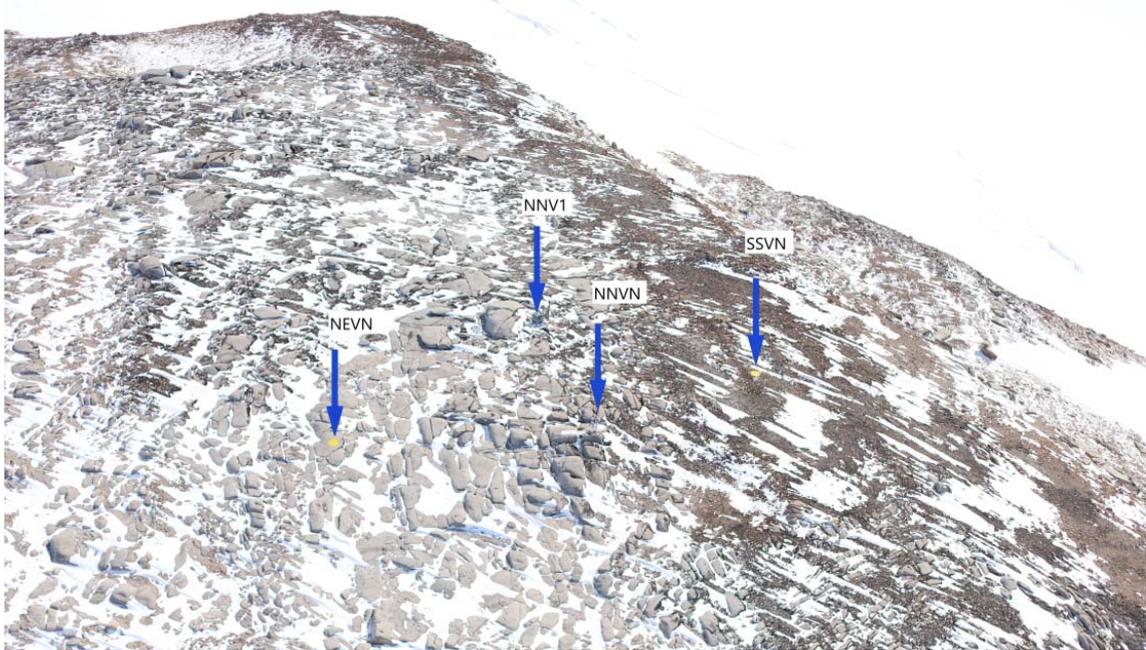


EENU

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	Comment	X/dx	Y/dy	Z/dz
	SENU	2104290,862	-2267763,435	5559680,987	ARP	2104290,427	-2267763,506	5559681,192
	Vector	9,875	10,882	-5,022	senu->eenu	9,875	10,882	-5,022
	EENU	2104300,737	-2267752,553	5559675,964	EENU	2104300,303	-2267752,624	5559676,169
	Vector	2,352	-17,654	-14,539	senu->swnu	2,352	-17,654	-14,539
	SWNU	2104293,214	-2267781,090	5559666,448	SVNU	2104292,779	-2267781,161	5559666,653

Batteri kasse kan ikke bruges.

3.2 NNVN "Nord for" Niviarsiat Nunatak



NNVN

NEVN

NNV1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	Comment	X/dx	Y/dy	Z/dz
NNVN		2152869,378	-2145447,06	5591017,228	ARP	2152868,929	-2145447,121	5591017,433
Vector		20,2398	7,6313	-8,274	nnvn-box			
NNV1		2152889,618	-2145439,429	5591008,954	box			
Vector		12,6345	-12,4279	-12,1203	nnvn-ssvn	12,6371	-12,4215	-12,1252
SSVN		2152882,013	-2145459,488	5591005,108	SSVN	2152881,566	-2145459,543	5591005,308
Vector		-1,2411	22,6638	2,8219	nnvn-nevn	-1,2411	22,6638	2,8219
NEVN		2152868,137	-2145424,396	5591020,05	NEVN	2152867,688	-2145424,457	5591020,255

Brug NEVN forsigtigt !

3.3 UTMG "Upper" Timmiarmiut



EEMG

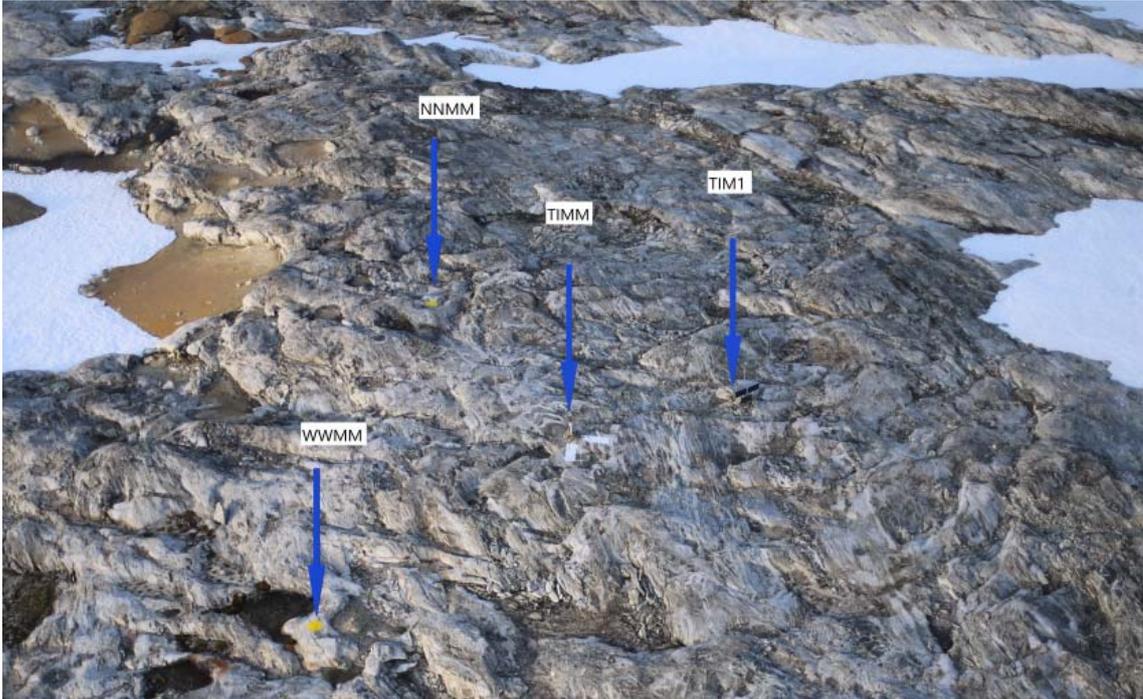


UTM1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	Comment	X/dx	Y/dy	Z/dz
UTMG		2118494,478	-1996816,084	5657599,754	ARP	2118494,02	-1996816,154	5657600
Vector		14,279	-4,6549	-11,5848	utm1-utm1			
UTM1		2118508,757	-1996820,739	5657588,169	box Wside			
Vector		12,1388	-12,7217	-12,4344	utm1-ssmg	12,1388	-12,7217	-12,4344
SSMG		2118506,617	-1996828,806	5657587,319	SSMG	2118506,159	-1996828,876	5657587,566
Vector		22,164	15,9518	-5,8311	utm1-eemg	22,164	15,9518	-5,8311
EEMG		2118516,642	-1996800,133	5657593,923	Circle EEMG	2118516,184	-1996800,202	5657594,169

Intet billed af SSMG

3.4 TIMM Timmiarmiut



NNMM



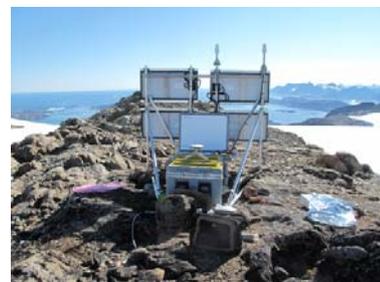
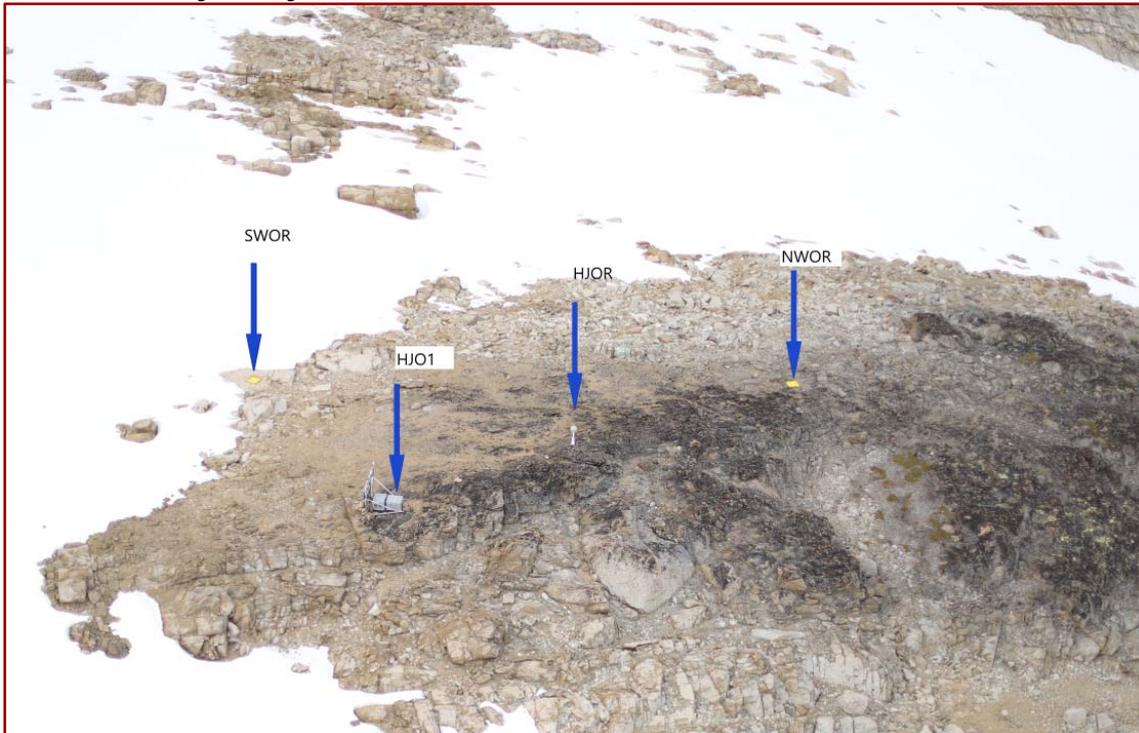
WWMM



TIM1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	Comment	X/dx	Y/dy	Z/dz
TIMM		2182031,44	-1984531,638	5636567,322	ARP	2182030,997	-1984531,703	5636567,561
Vector		11,5814	8,6493	-3,5054	timmm-box			
TIM1		2182043,022	-1984522,989	5636563,816	box2015			
Vector		-9,8836	19,2158	8,1604	timmm-nnmm	-9,8836	19,2158	8,1604
NNMM		2182021,557	-1984512,422	5636575,482	NNMG	2182021,114	-1984512,487	5636575,721
Vector		-17,3496	-19,6267	-2,0024	timmm-wwmm	-17,3496	-19,6267	-2,0024
WWMM		2182014,091	-1984551,265	5636565,319	WWMM	2182013,648	-1984551,329	5636565,559

3.5 HJOR Hjørnefeld



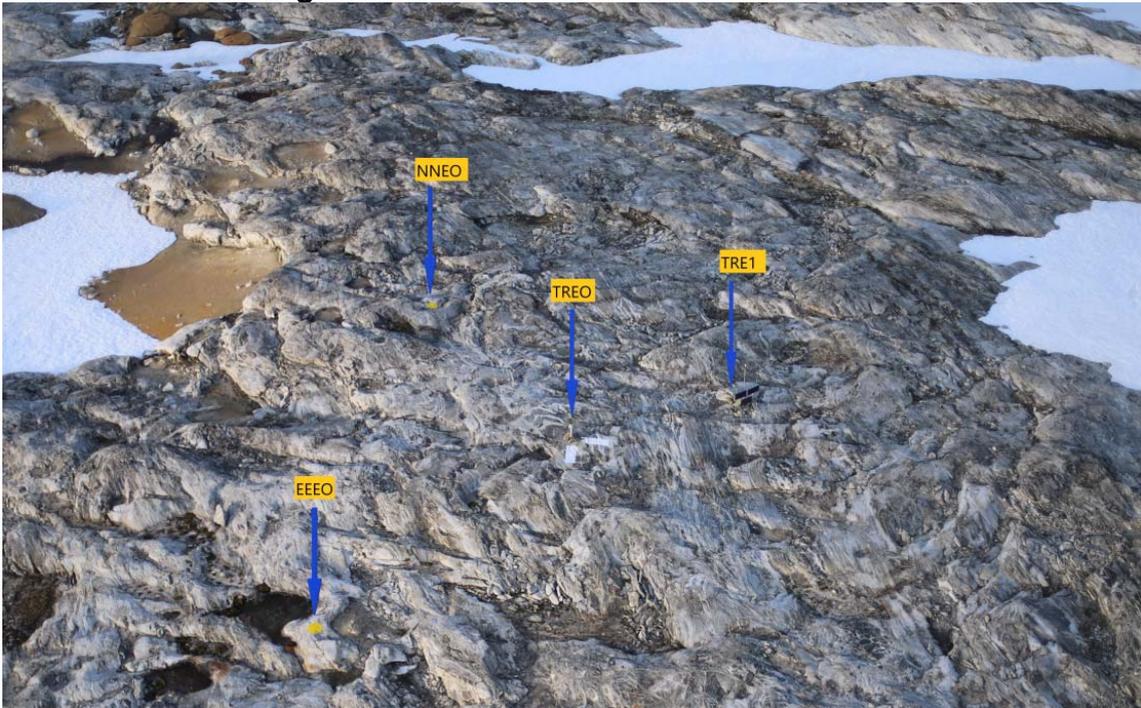
NWOR

SWOR

HJO1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy
HJOR	2155177,681	-1883254,131	5681671,398	ARP	2155177,230	-1883254,186	5681671,597
Vector	13,663	0,922	-2,612	hjr-box			
HJO1	2155191,344	-1883253,209	5681668,787	box2014			
Vector	9,978	-16,514	-17,781	hjr-swor	9,978	-16,514	-17,781
SWOR	2155187,659	-1883270,645	5681653,618	SWOR	2155187,208	-1883270,700	5681653,816
Vector	-22,225	-7,070	-2,826	hjr-nwor	-22,225	-7,070	-2,826
NWOR	2155155,455	-1883261,201	5681668,572	NWOR	2155155,005	-1883261,256	5681668,771

3.6 TREO Trefoldigheden Ø



NNEO



EEEO



TRE1

Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
TREO	2082987,701	-1834790,693	5723297,688	ARP	2082987,244	-1834790,755	5723297,888
Vector	-18,328	-3,999	1,477	vector box(2014)			
TRE1	2082969,373	-1834794,692	5723299,165	TRE1			
Vector	31,012	15,780	-8,593	treo-eeeo	31,012	15,780	-8,593
EEEO	2083018,713	-1834774,914	5723289,095	EEEO	2083018,256	-1834774,975	5723289,295
Vector	-20,959	21,953	6,914	hjør-nneo	-20,959	21,953	6,914
NNEO	2082966,742	-1834768,740	5723304,602	NNEO	2082966,286	-1834768,802	5723304,801

3.7 LYNS Lynæs



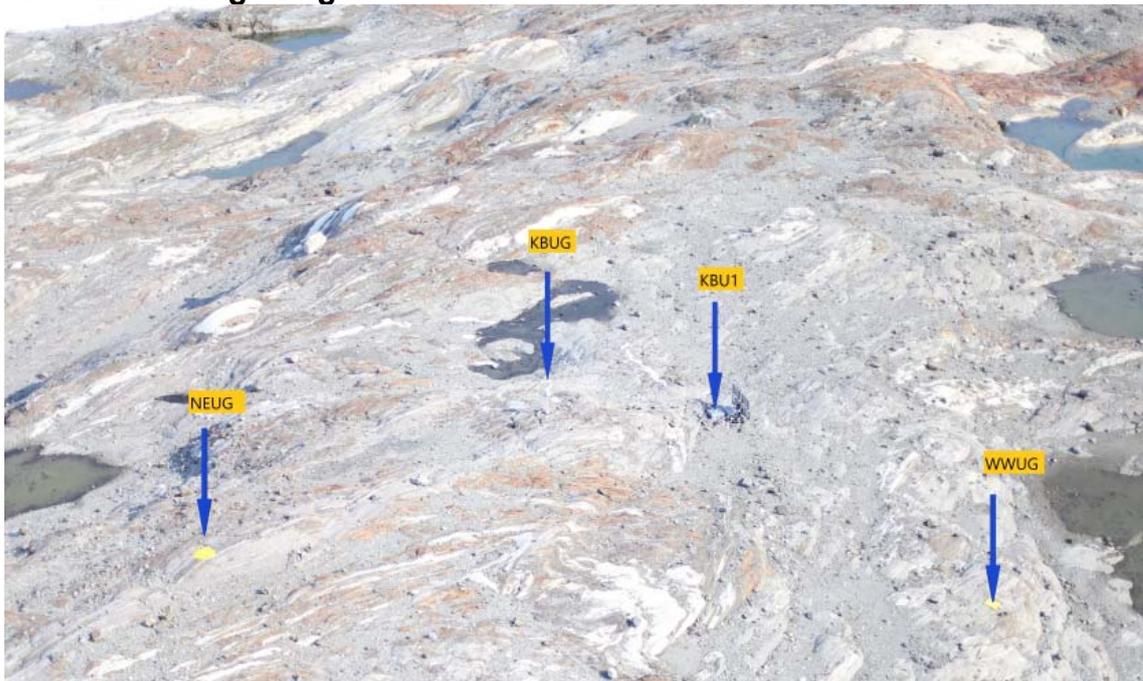
WWNS



NENS

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
LYNS		2108478,078	-1781679,041	5730747,140	ARP	2108477,626	-1781679,104	5730747,339
Vector		-20,161	-21,422	0,024	lyns-wwns	-20,161	-21,422	0,024
WWNS		2108457,917	-1781700,463	5730747,164	WWNS	2108457,465	-1781700,526	5730747,363
Vector		-6,036	21,927	8,240	lyns-nens	-6,036	21,927	8,240
NENS		2108472,042	-1781657,114	5730755,380	NENS	2108471,590	-1781657,176	5730755,578

3.8 KBUG Køge Bugt



WWUG

NEUG

KBU1

Sta-tion	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
KBUG	2024219,936	-1769422,573	5764725,409	ARP	2024219,484	-1769422,670	5764725,662	
Vector		5,501	-6,222	-6,411	kbug-kbu1			
KBU1	2024225,437	-1769428,795	5764718,998	KBU1box				
Vector		-20,720	6,007	8,956	kbug-neug	-20,720	6,007	8,956
NEUG	2024199,216	-1769416,566	5764734,365	NEUG	2024198,763	-1769416,663	5764734,618	
Vector		-7,151	-24,549	-8,308	kbug-wug	-7,151	-24,549	-8,308
WWUG	2024212,785	-1769447,122	5764717,101	WWUG	2024212,333	-1769447,220	5764717,354	

3.9 HEL2 Helheim monument 2



EEL2



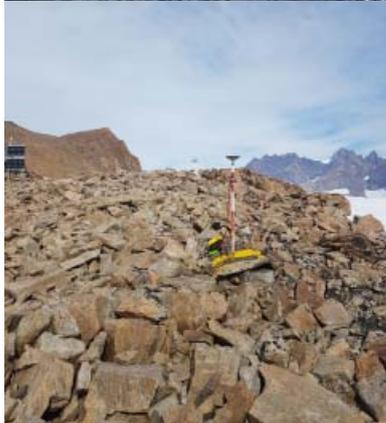
NNL2



HEL3

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
HEL2	2011941,573	-1584134,803	5822388,167	ARP	2011941,133	-1584134,905	5822388,447	
Vector		-12,848	-9,629	-0,318	hel2-hel3			
HEL3	2011928,725	-1584144,432	5822387,850	HEL3 box				
Vector		19,150	11,836	-9,360	hel2-eel2	19,150	11,836	-9,360
EEL2	2011960,723	-1584122,966	5822378,808	EEL2	2011960,283	-1584123,068	5822379,088	
Vector		-11,312	18,999	10,074	hel2-nnl27	-11,312	18,999	10,074
NNL2	2011930,261	-1584115,804	5822398,241	NNL2	2011929,821	-1584115,905	5822398,521	

3.10 KSNB KJV Steenstrup Nordre Bræ



SSNB



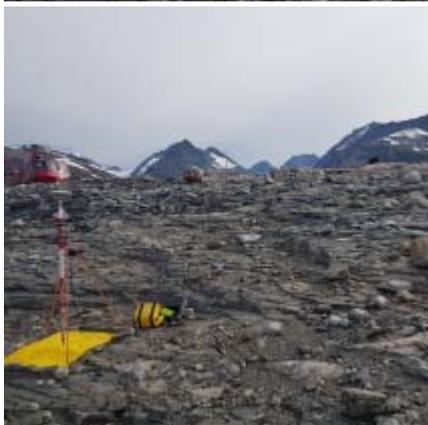
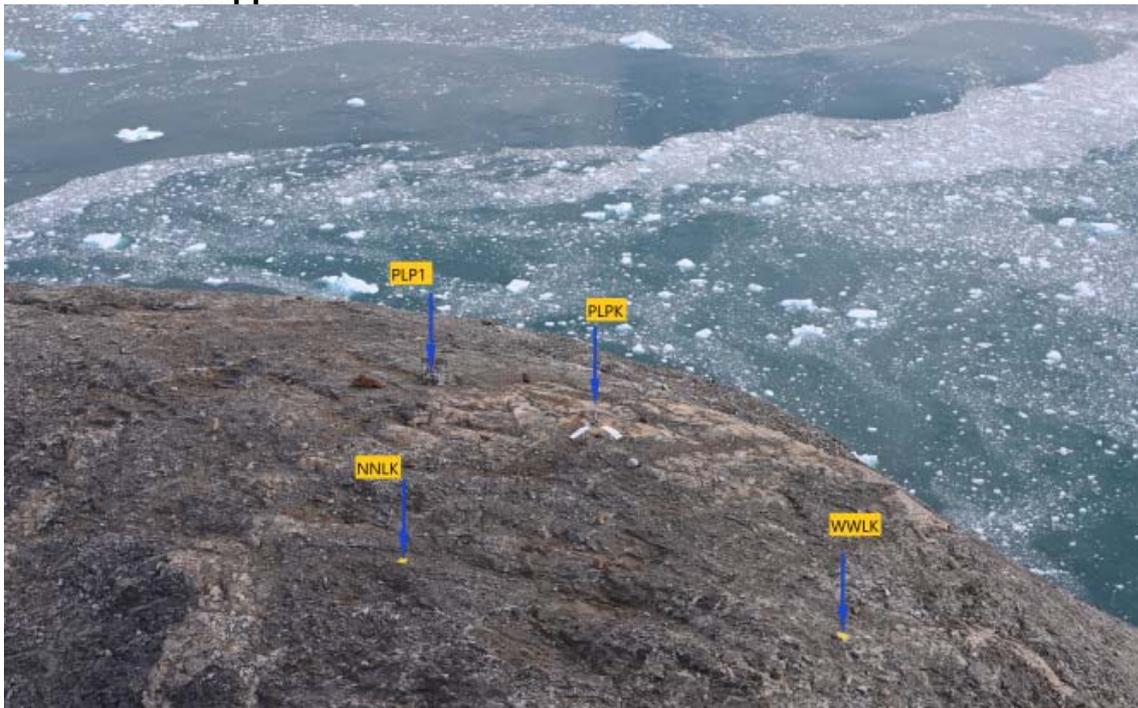
WWNB



KSN1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
KSNB		2044690,886	-1462576,592	5844021,435	ARP	2044690,438	-1462576,659	5844021,691
vector		2,7253	-11,3959	-4,1328	ksnb-ksn1			
KSN1		2044693,611	-1462587,988	5844017,302	KSN1			
vector		21,835	-6,944	-13,355	ksnb-ssnb	21,835	-6,944	-13,355
SSNB		2044712,721	-1462583,536	5844008,080	SSNB	2044712,273	-1462583,604	5844008,336
vector		-15,705	-21,986	-3,474	ksnb-wwnb	-15,705	-21,986	-3,474
WWNB		2044675,181	-1462598,577	5844017,962	WWNB	2044674,733	-1462598,645	5844018,218

3.11 PLPK Pilappik Ø



NNLK



WWLK



PLP1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
PLPK		2079880,502	-1404664,815	5844059,802	ARP	2079880,059	-1404664,897	5844060,060
Vector		16,524	7,799	-6,606	plpk-plp1			
PLP1		2079897,026	-1404657,016	5844053,196	PLP1			
Vector		-7,512	21,589	3,654	plpk-nnlk	-7,512	21,589	3,654
NNLK		2079872,991	-1404643,226	5844063,456	NNLK	2079872,547	-1404643,308	5844063,714
Vector		-31,580	-2,058	5,323	plpk-wwlk	-31,580	-2,058	5,323
WWLK		2079848,922	-1404666,873	5844065,125	WWLK	2079848,479	-1404666,955	5844065,383

3.12 KUAQ Kangerlussuaq Gletscher



NNAQ



EEAQ



KUA1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
KUAQ	1957696,296	-1273906,446	5916113,667	ARP	1957695,858	-1273906,543	5916113,942	
Vector		12,065	-10,436	-9,671	kuaq-kua1			
KUA1	1957708,361	-1273916,882	5916103,996	PLP1				
Vector		12,720	23,528	-4,709	kuaq-eeaq	12,720	23,528	-4,709
EEAQ	1957709,016	-1273882,918	5916108,958	EEAQ	1957708,579	-1273883,016	5916109,234	
Vector		-25,557	10,322	5,487	kuaq-nnaq	-25,557	10,322	5,487
NNAQ	1957670,738	-1273896,124	5916119,154	NNAQ	1957670,301	-1273896,222	5916119,429	

3.13 MIK2 Mikis Fjord (monument 2)



SSK2

WWK2

MIK3

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
MIK2	2032023,609	-1242876,323	5897693,476	ARP	2032023,168	-1242876,405	5897693,718
Vector	-5,144	-13,613	-1,851	mik2-mik3			
MIK3	2032018,465	-1242889,936	5897691,625	MIK3			
Vector	-14,689	-19,563	-0,459	mik2-wwk2	-14,689	-19,563	-0,459
WWK2	2032008,920	-1242895,886	5897693,017	WWK2	2032008,479	-1242895,968	5897693,259
Vector	13,660	-8,952	-10,817	mik2-eeek2	13,660	-8,952	-10,817
SSK2	2032037,269	-1242885,275	5897682,659	SSK2	2032036,828	-1242885,357	5897682,901

3.14 VFDG Vest Fjord Gletscher



NNDG



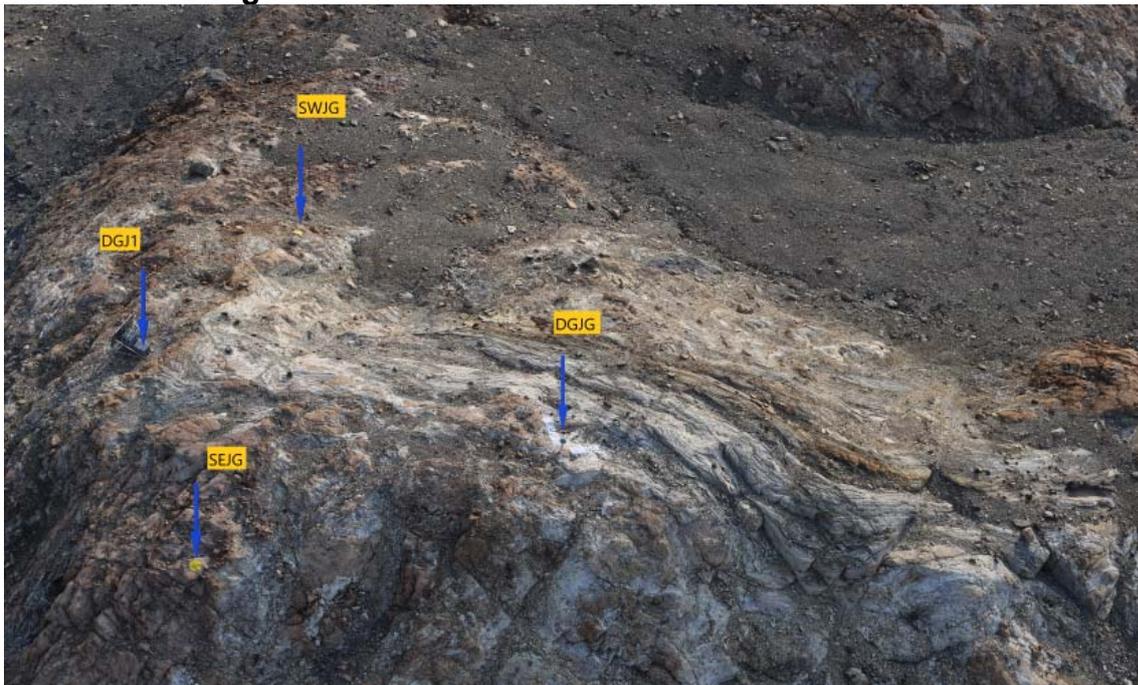
EEDG



VFD1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
VFDG	1871345,897	-1072494,952	5983619,543	ARP	1871345,428	-1072495,011	5983619,733
Vector	-3,757	-18,820	-6,878	vfdg-vfd1			
VFD1	1871342,140	-1072513,772	5983612,665	VFD1 box			
Vector	-21,348	13,304	7,018	vfdg-nndg	-21,348	13,304	7,018
NNDG	1871324,550	-1072481,648	5983626,561	NNDG	1871324,080	-1072481,707	5983626,751
Vector	18,305	14,018	-7,609	vfdg-eedg	18,305	14,018	-7,609
EEDG	1871364,202	-1072480,934	5983611,935	EEDG	1871363,733	-1072480,993	5983612,124

3.15 DGJG Daugaard Jensens Gletscher



SEJ



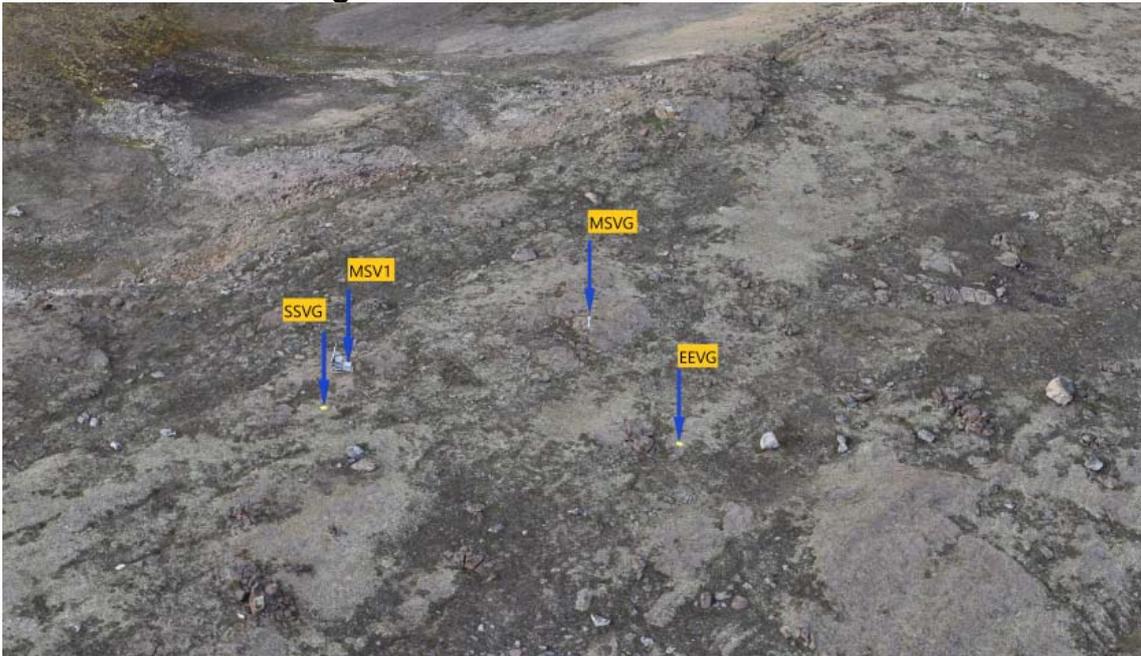
SWJG



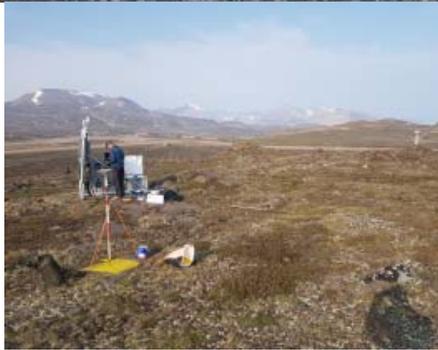
DGJ1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
DGJG		1734706,684	-995495,264	6037702,590	ARP	1734706,209	-995495,326	6037702,758
Vector		24,448	-7,258	-11,550	dgjg-dgj1			
DGJ1		1734731,132	-995502,522	6037691,040	box			
Vector		20,508	9,745	-6,731	dgjg-sejg	20,508	9,745	-6,731
SEJ		1734727,192	-995485,519	6037695,859	SEJG	1734726,718	-995485,581	6037696,027
Vector		13,686	-20,863	-14,077	dgjg-swjg	13,686	-20,863	-14,077
SWJG		1734720,370	-995516,127	6037688,513	SWJG	1734719,896	-995516,189	6037688,681

3.16 MSVG Mestersvig



MSV1



SSVG



EEVG

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
MSVG		1783897,191	-790993,407	6052020,541	ARP	1783896,721	-790993,463	6052020,705
Vector		24,279	7,128	-7,298	msvg-msv1			
MSV1		1783921,470	-790986,279	6052013,243	box			
Vector		26,227	13,900	-7,665	msvg-ssvg	26,227	13,900	-7,665
SSVG		1783923,417	-790979,507	6052012,876	SSVG	1783922,948	-790979,563	6052013,040
Vector		-8,005	18,231	1,831	msvg-eevg	-8,005	18,231	1,831
EEVG		1783889,186	-790975,176	6052022,371	EEVG	1783888,716	-790975,232	6052022,536

3.17 HMBG Hamberg Gletscher



NWBG



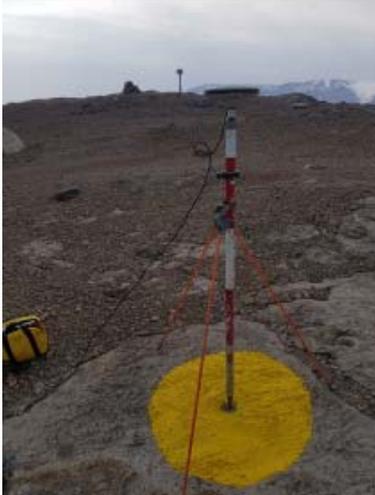
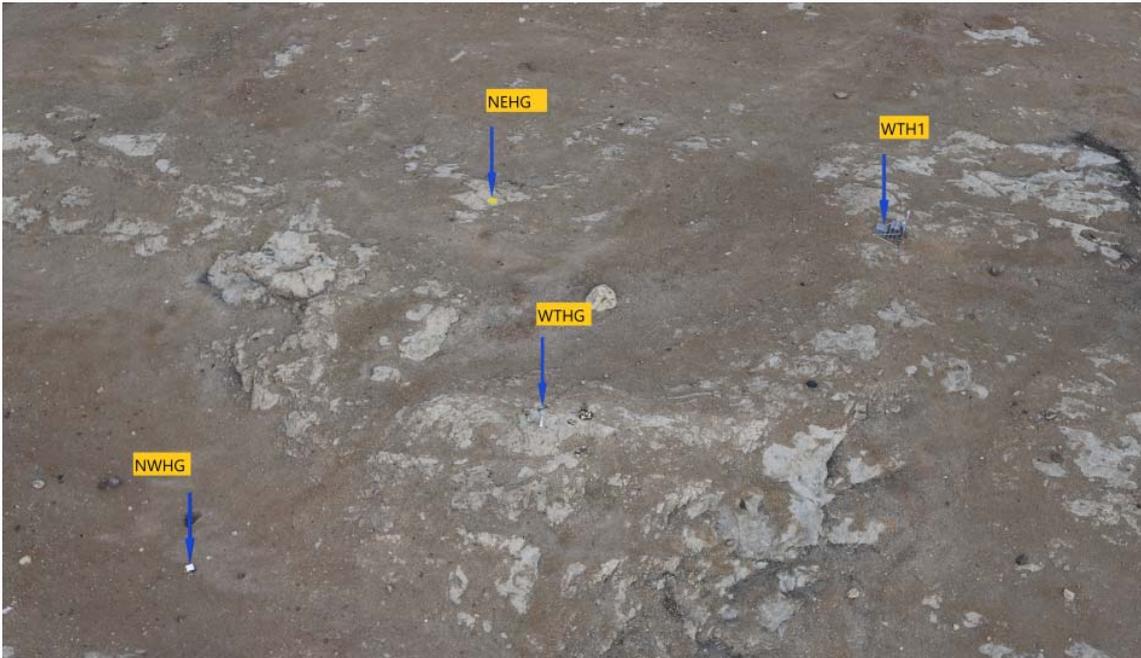
NEBG



HMB1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
HMBG		1586182,019	-847976,603	6100142,205	ARP	1586181,536	-847976,660	6100142,344
Vector		14,967	10,419	-7,227	hmbg-hmb1			
HMB1		1586196,986	-847966,184	6100134,978	box			
Vector		-7,149	29,056	1,642	hmbg-nebg	-7,149	29,056	1,642
NEBG		1586174,871	-847947,547	6100143,847	NEBG	1586174,387	-847947,604	6100143,986
Vector		-18,429	-0,096	0,310	hmbg-nwbg	-18,429	-0,096	0,310
NWBG		1586163,591	-847976,699	6100142,515	NWBG	1586163,107	-847976,756	6100142,655

3.18 WTHG Waltershausen Gletscher



NEHG



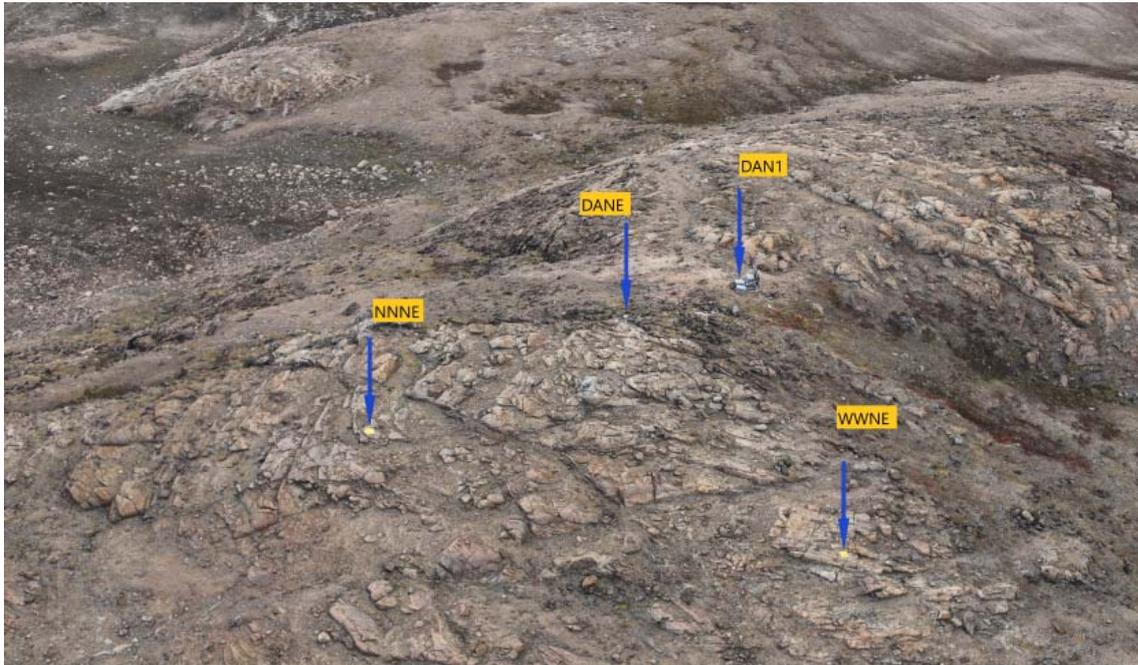
NWHG



WTH1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
WTHG		1611820,662	-728066,873	6108625,143	ARP	1611820,184	-728066,930	6108625,296
Vector		20,438	26,822	-5,731	wthg-wth1			
WTH1		1611841,099	-728040,051	6108619,413	rear box			
Vector		-5,907	22,753	1,184	wthg-nehg	-5,907	22,753	1,184
NEHG		1611814,755	-728044,120	6108626,327	NEHG	1611814,277	-728044,177	6108626,479
Vector		-19,495	-10,618	-1,440	wthg-nwhg	-19,495	-10,618	-1,440
NWHG		1611801,167	-728077,491	6108623,703	NWHG	1611800,690	-728077,549	6108623,856

3.19 DANE Daneborg



EENE



NNNE



DAN1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
DANE	1623660,739	-597385,100	6118614,623	ARP	1623660,262	-597385,160	6118614,771
Vector	17,221	1,561	-9,336	dane-dan1			
DAN1	1623677,960	-597383,539	6118605,287	rear box			
Vector	-24,325	5,808	4,607	dane-nnne	-24,325	5,808	4,607
NNNE	1623636,415	-597379,292	6118619,231	NNNE	1623635,937	-597379,352	6118619,379
Vector	-8,783	-26,923	-6,884	dane-wwne	-8,783	-26,923	-6,884
WWNE	1623651,956	-597412,023	6118607,739	WWNE	1623651,479	-597412,084	6118607,887

3.20 LBIB L. Bidstrup Bræ



LBIB

NEIB

NWIB

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
LBIB	1426533,119	-630751,095	6165273,825	ARP	1426532,642	-630751,157	6165273,957
Vector	1,869	-5,063	-1,691	lbib-lbi1			
				cross hair/brss plate			
LBI1	1426534,987	-630756,158	6165272,135				
Vector	-11,350	15,157	0,305	lbib-neib	-11,350	15,157	0,305
NEIB	1426521,768	-630735,937	6165274,131	NEIB	1426521,292	-630736,000	6165274,262
Vector	-10,616	-21,578	-9,522	lbib-nwib	-10,616	-21,578	-9,522
NWIB	1426522,503	-630772,673	6165264,303	NWIB	1426522,026	-630772,735	6165264,435

3.21 DMHN Danmarkshavn



SSHN



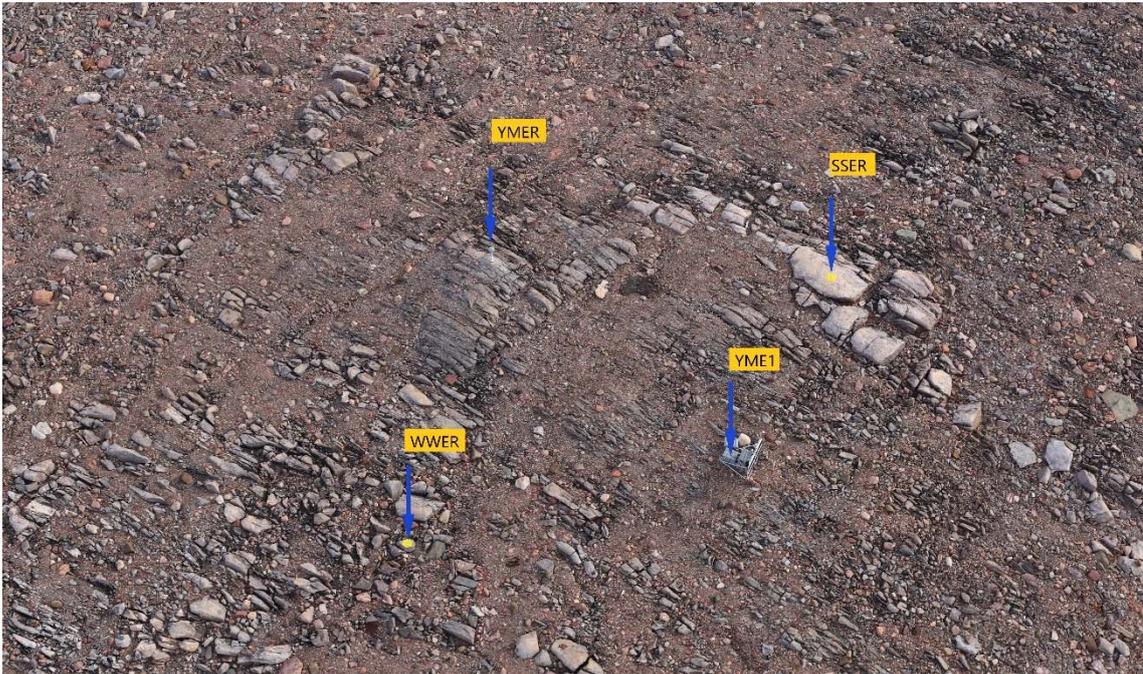
EEHN



DMH1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
DMHN	1387317,911	-468385,170	6187028,493	ARP	1387317,434	-468385,230	6187028,633
Vector	-30,394	37,972	12,280	dmhn-dmh1			
DMH1	1387287,517	-468347,199	6187040,772	mid top roof			
Vector	-11,488	-25,649	-2,048	dmhn-eehn	-11,488	-25,649	-2,048
EEHN	1387306,423	-468410,819	6187026,445	EEHN	1387305,946	-468410,878	6187026,586
Vector	22,910	-14,566	-9,433	dmhn-dmsshn	22,910	-14,566	-9,433
SSHN	1387340,822	-468399,736	6187019,060	SSHN	1387340,344	-468399,796	6187019,200

3.22 YMER Ymer Nunatak



WWER

SSER

YME1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
YMER		1268823,092	-573597,415	6204511,024	moment	1268822,612	-573597,476	6204511,150
vector		11,768	-17,608	-7,616	ymer-yme1			
YME1		1268834,860	-573615,023	6204503,408	rear box			
vector		-9,272	-18,962	-3,897	ymer-wwer	-9,272	-18,962	-3,897
WWER		1268813,820	-573616,376	6204507,126	WWER	1268813,340	-573616,437	6204507,253
vector		21,072	-4,332	-7,343	ymer-sser	21,072	-4,332	-7,343
SSER		1268844,165	-573601,747	6204503,681	SSER	1268843,685	-573601,808	6204503,807

3.23 GMMA Gamma Ø



NEMA

SEMA

GMM2

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
GMMA		1272562,432	-454443,667	6212988,209	ARP	1272561,958	-454443,723	6212988,354
Vector		10,375	-20,733	-9,157	gmma-gmm2	10,375	-20,733	-9,157
GMM2		1272572,807	-454464,400	6212979,052	rear box (2019)	1272572,333	-454464,456	6212979,197
Vector		-9,140	23,471	-1,374	gmma-nema	-9,140	23,471	-1,374
NEMA■		1272553,292	-454420,197	6212986,835	NEMA■	1272552,818	-454420,252	6212986,980
Vector		24,411	5,042	-10,500	gmma-sema	24,411	5,042	-10,500
SEMA●		1272586,843	-454438,626	6212977,709	SEMA●	1272586,369	-454438,682	6212977,854

3.24 GROK Grønne Nunatak



SSOK



WWOK



GRO1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
GROK		1181093,996	-499004,878	6228050,470	ARP	1181093,524	-499004,940	6228050,628
vector		-1,877	-16,127	-1,396				
GRO1		1181092,119	-499021,004	6228049,075	rear box			
vector		15,305	-10,595	-10,458	grok-ssok	15,305	-10,595	-10,458
SSOK ●		1181109,301	-499015,473	6228040,012	SSOK ●	1181108,829	-499015,535	6228040,169
vector		-16,856	-23,606	-0,053	grok-wwok	-16,856	-23,606	-0,053
WWOK ●		1181077,139	-499028,484	6228050,417	WWOK ●	1181076,668	-499028,546	6228050,574

3.25 NRSK Norske Øer

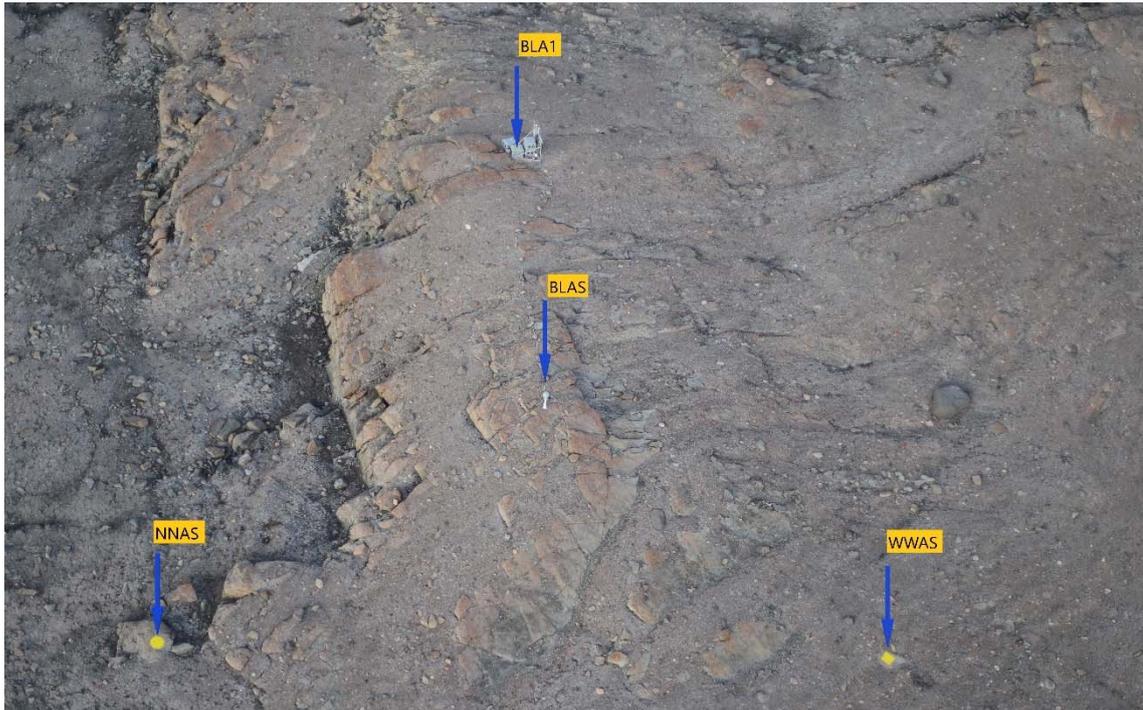


SWSK

NRS1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
NRSK		1146861,170	-366570,587	6242816,951	ARP	1146860,693	-366570,636	6242817,099
Vector		10,064	-6,398	-4,244				
NRS1		1146871,234	-366576,985	6242812,707	rear box			
Vector		4,976	25,958	-3,784	nrsk-nesk	4,976	25,958	-3,784
NESK ●		1146866,147	-366544,629	6242813,167	NESK ●	1146865,669	-366544,679	6242813,315
Vector		8,899	-16,830	-5,595	nrsk-swsk	8,899	-16,830	-5,595
SWSK ■		1146870,069	-366587,416	6242811,356	SWSK ■	1146869,592	-366587,466	6242811,504

3.26 BLAS Blåsø



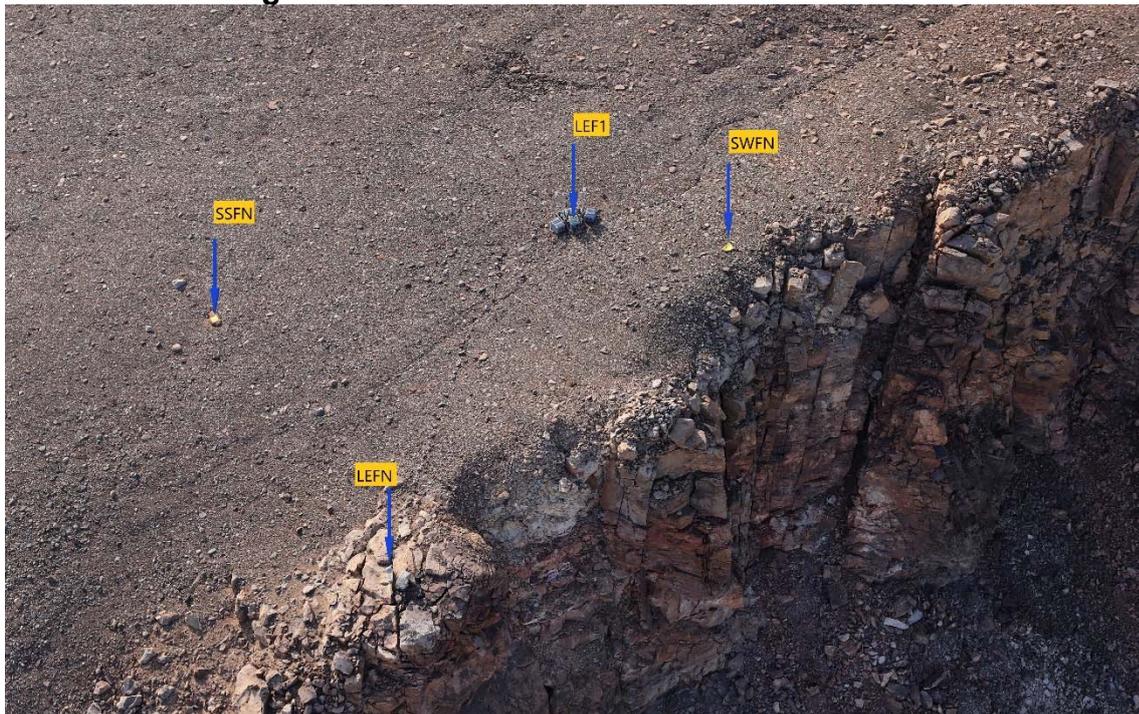
NNAS

WWAS

BLA1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
BLAS	1069782,814	-453538,756	6250868,634	ARP	1069782,331	-453538,811	6250868,791
vector	13,491	22,946	-2,157	blas-bla1			
BLA1	1069796,305	-453515,811	6250866,478	rear box			
vector	-26,992	-1,014	0,109	blas-nnas	-26,992	-1,014	0,109
NNAS ●	1069755,822	-453539,771	6250868,744	NNAS ●	1069755,339	-453539,826	6250868,900
vector	6,291	-23,410	-7,671	blas-wwas	6,291	-23,410	-7,671
WWAS ■	1069789,105	-453562,167	6250860,964	WWAS ■	1069788,622	-453562,221	6250861,120

3.27 LEFN Leffingwell Nunatak



SSFN



SWFN



LEF1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
LEFN	951249,155	-470001,323	6268880,142	ARP	951248,670	-470001,379	6268880,277	
Vector		11,842	-29,596	-2,641	lefn-lef1			
LEF1	951260,996	-470030,919	6268877,501	LEF1				
Vector		25,700	-7,770	-8,784	lefn-ssfn	25,700	-7,770	-8,784
SSFN■	951274,855	-470009,093	6268871,358	SSFN■	951274,371	-470009,149	6268871,493	
Vector		1,350	-33,527	0,884	lefn-swfn	1,350	-33,527	0,884
SWFN●	951250,505	-470034,850	6268881,026	SWFN●	951250,021	-470034,906	6268881,161	

3.28 JGBL Jørgen Brøndlund Fjord



SSBL



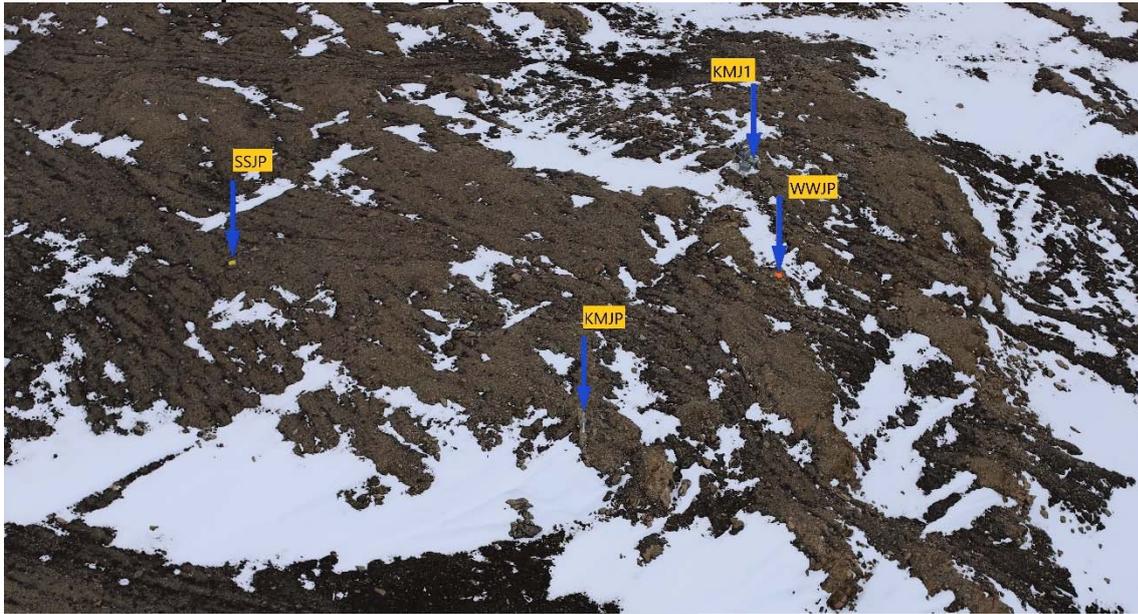
WWBL



JGB1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
JGBL		743649,097	-446903,460	6298426,646	ARP	743648,611	-446903,510	6298426,765
vector		17,587	15,739	-2,557	jgbl-jgb1			
JGB1		743666,685	-446887,721	6298424,090	JGB1			
vector		23,179	-3,986	-4,805	jgbl-ssbl	23,179	-3,986	-4,805
SSBL ■		743672,276	-446907,446	6298421,841	SSBL ■	743671,790	-446907,496	6298421,960
vector		-9,712	-24,118	-1,299	jgbl-wwbl	-9,712	-24,118	-1,299
WWBL ■		743639,385	-446927,578	6298425,347	WWBL ■	743638,899	-446927,628	6298425,466

3.29 KMJP Kap Morris Jessup



WWJP



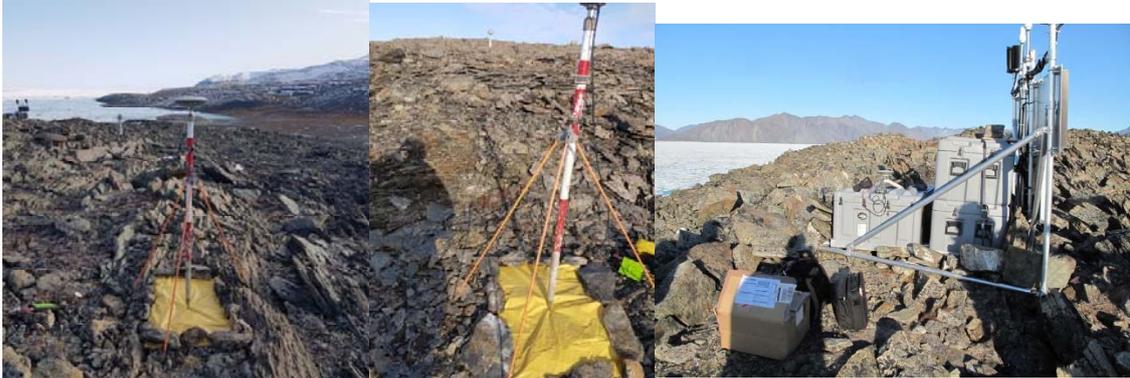
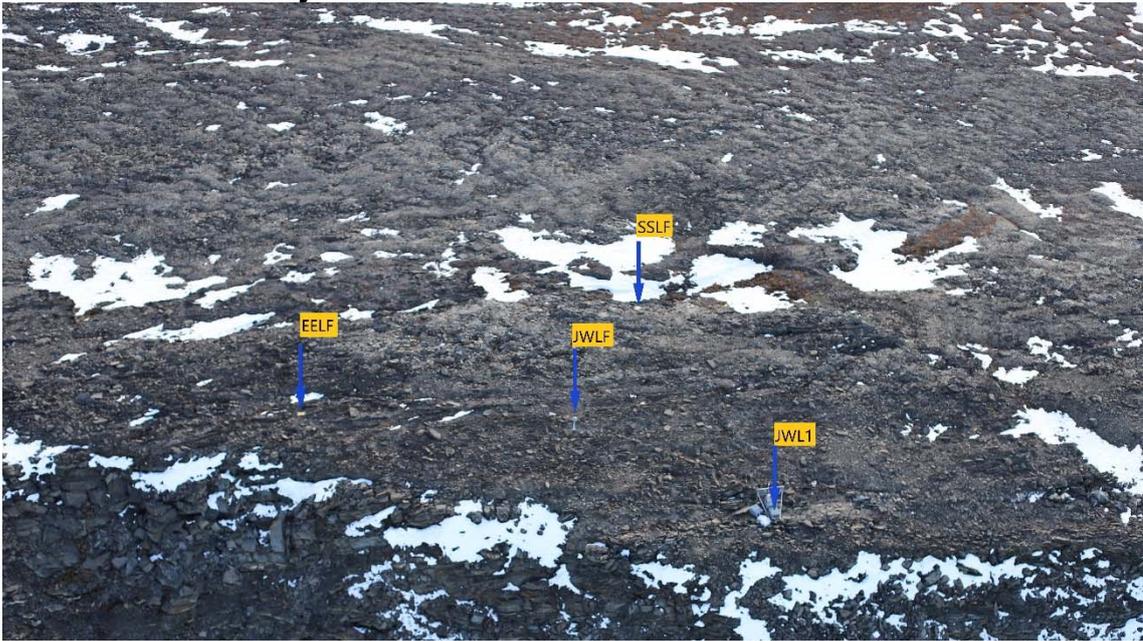
SSJP



KMJ1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
	Name	X/dx	Y/dy	Z/dz	Comment	X/dx	Y/dy
KMJ1	591676,551	-389799,057	6317493,020	ARP	591676,059	-389799,101	6317493,119
Vector	-10,275	-38,767	-1,833	kmjp-kmj1			
KMJ1	591666,276	-389837,824	6317491,187	rear box			
Vector	-13,440	-23,049	-1,969	kmjp-wwjp	-13,440	-23,049	-1,969
WWJP■	591663,111	-389822,105	6317491,051	WWJP■	591662,619	-389822,149	6317491,150
Vector	29,491	-12,239	-1,206	kmjp-ssjp	29,491	-12,239	-1,206
SSJP■	591706,042	-389811,296	6317491,814	SSJP■	591705,550	-389811,340	6317491,913

3.30 JWLF Jewell Fjord



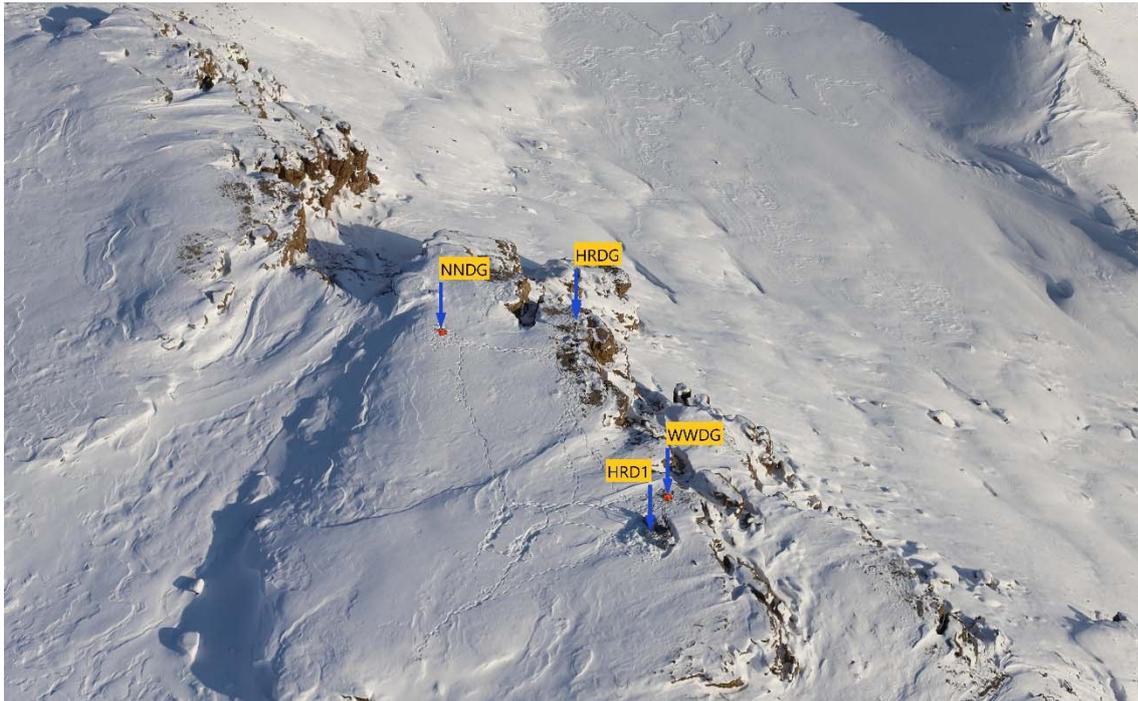
EELF

SSLF

JWLF1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
JWLF	541576,363	-543846,191	6310673,832	ARP	541575,869	-543846,236	6310673,935
HRDG	644573,373	-633804,428	6293307,578	ARP	591676,059	-389799,101	6317493,119
vector	-103015,400	89957,325	17366,740	hrdg-jwl1			
JWLF1	541557,972	-543847,103	6310674,318	JWLF1			
vector	18,025	13,263	0,153	jwlf-eelf	18,025	13,263	0,153
EELF ■	541594,387	-543832,928	6310673,985	EELF ■	541593,894	-543832,973	6310674,088
vector	6,500	-20,918	-6,170	jwlf-sslf	6,500	-20,918	-6,170
SSLF ■	541582,862	-543867,109	6310667,662	SSLF ■	541582,369	-543867,154	6310667,765

3.31 HRDG Harder Gletscher



NNDG



WWDG



HRD1

Very strong winds circle photos not possible!

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
HRDG		644573,373	-633804,428	6293307,578	ARP	644572,892	-633804,479	6293307,698
Vector		-23,584	-9,774	1,130	hrdg-hrd1			
HRD1		644549,789	-633814,201	6293308,707	HRD1			
Vector		-4,321	11,390	1,784	hrdg-nndg	-4,321	11,390	1,784
NNDG■		644569,052	-633793,038	6293309,361	NNDG■	644568,571	-633793,089	6293309,482
Vector		-19,016	-10,676	-0,129	hrdg-wwdg	-19,016	-10,676	-0,129
WWDG■		644554,357	-633815,103	6293307,448	WWDG■	644553,876	-633815,155	6293307,569

3.32 KMOR Kap Morton



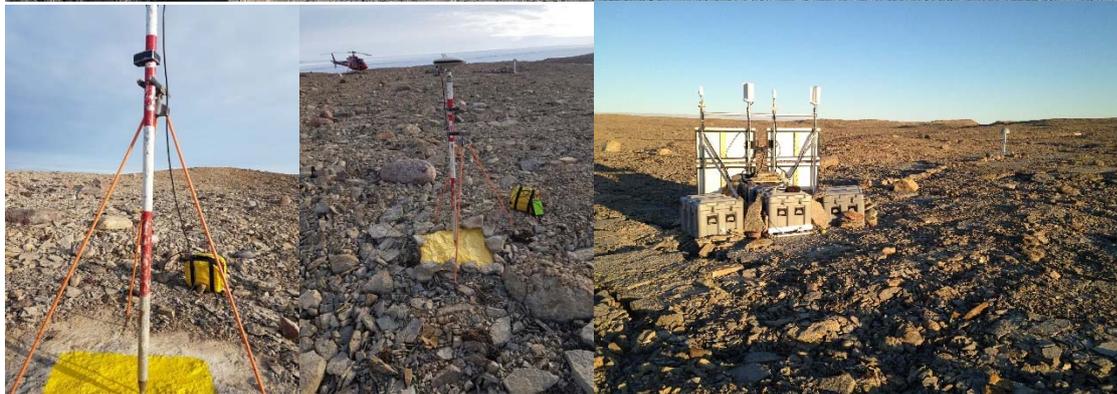
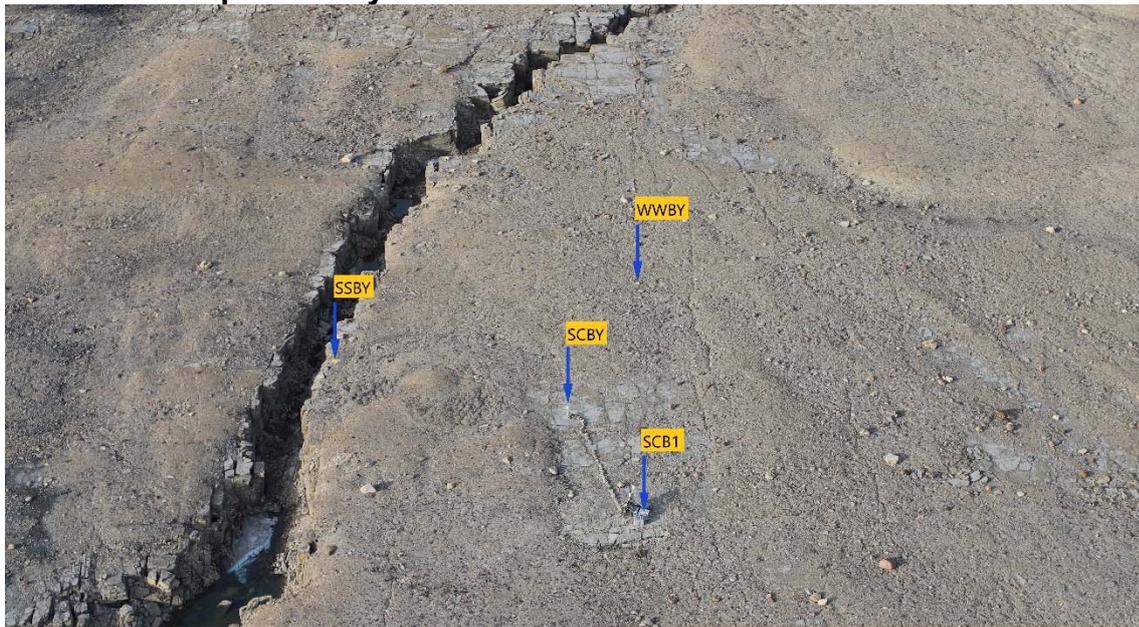
NNOR

EEOR

KMO1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
KMOR		433816,019	-871142,648	6282526,422	ARP	433815,532	-871142,699	6282526,526
vector		-6,556	-25,339	-3,482	kmor-kmo1			
KMO1		433809,463	-871167,987	6282522,940	KMO1			
vector		-3,671	26,035	0,956	kmor-nnor	-3,671	26,035	0,956
NNOR	■	433812,348	-871116,613	6282527,379	NNOR	433811,861	-871116,664	6282527,482
vector		26,964	5,300	0,141	kmor-eeor	26,964	5,300	0,141
EEOR	●	433842,984	-871137,347	6282526,564	EEOR	433842,496	-871137,399	6282526,667

3.33 SCBY Kap Schouby



SSBY

WWBY

SCB1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
SCBY		547956,839	-933730,963	6265058,350	ARP	547956,357	-933731,019	6265058,461
vector		3,415	17,510	1,456	scby-scb1			
SCB1		547960,254	-933713,454	6265059,806	SCB1			
vector		12,925	-22,864	-6,454	scby-ssby	12,925	-22,864	-6,454
SSBY■		547969,764	-933753,827	6265051,896	SSBY■	547969,281	-933753,883	6265052,007
vector		-21,911	-19,044	-1,553	scby-wwby	-21,911	-19,044	-1,553
WWBY■		547934,928	-933750,008	6265056,797	WWBY■	547934,446	-933750,063	6265056,908

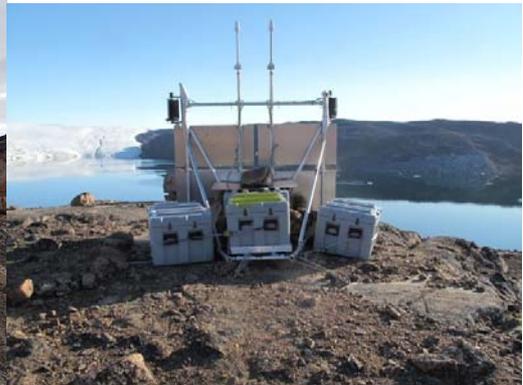
3.34 KAGZ Kap Agassiz



SSGZ



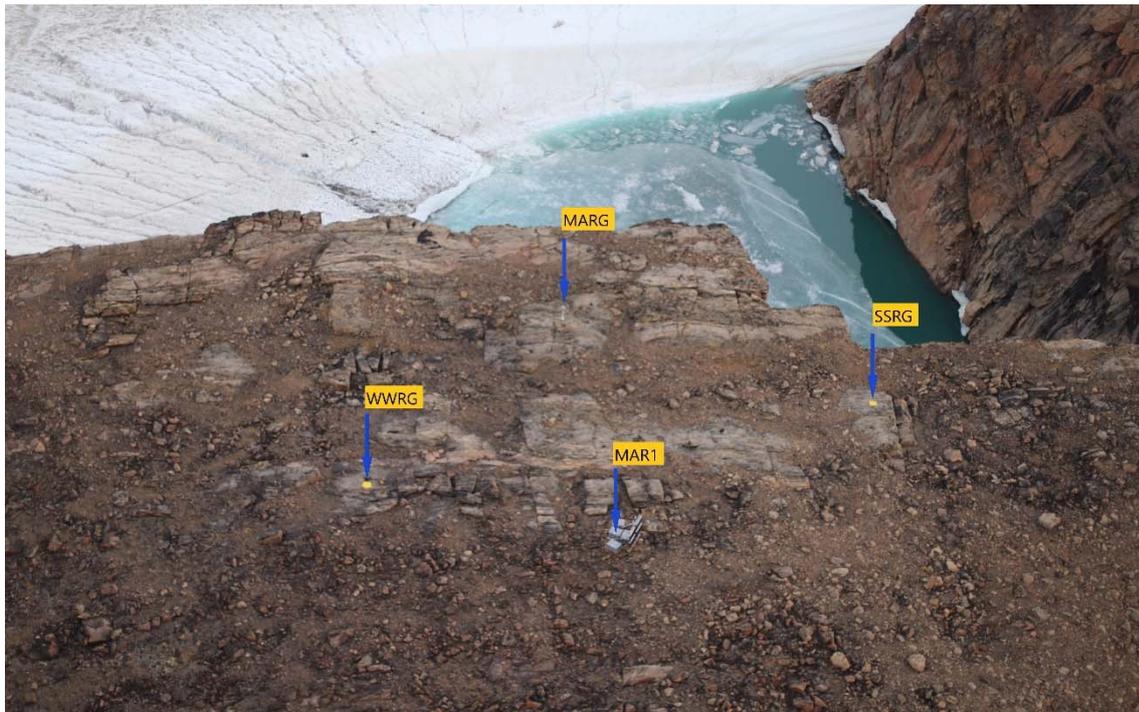
WWGZ



KAG1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
KAGZ		493555,274	-1100929,942	6242075,081	ARP	493554,789	-1100930,003	6242075,195
vector		4,659	-20,699	-4,788	kagz-kag1			
KAG1		493559,933	-1100950,641	6242070,293	KAG1			
vector		21,934	-18,897	-7,758	kagz-ssgz	21,934	-18,897	-7,758
SSGZ ●		493577,208	-1100948,839	6242067,323	SSGZ ●	493576,724	-1100948,900	6242067,438
vector		-20,277	-17,559	-7,139	kagz-wwgz	-20,277	-17,559	-7,139
WWGZ ■		493534,997	-1100947,502	6242067,942	WWGZ ■	493534,513	-1100947,562	6242068,056

3.35 MARG Merie Gletscher



Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
MARG		584120,0573	-1293359,338	6198091,098	ARP	584120,057	-1293359,338	6198091,098
Vector		-23,195	-7,473	-2,004	marg-wwrg	-23,195	-7,473	-2,004
WWRG ●		584096,862	-1293366,811	6198089,094	WWRG ●	584096,862	-1293366,811	6198089,094
Vector		15,726	-19,572	-7,578	marg-ssrg	15,726	-19,572	-7,578
SSRG ■		584135,784	-1293378,910	6198083,520	SSRG ■	584135,784	-1293378,910	6198083,520

3.36 DKSG Döcker Smith Gletscher



WWSG



NNSG



DKS1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
DKSG	716356,608	-1329176,713	6176684,754	ARP	716356,128	-1329176,777	6176684,928
vector	12,447	12,619	1,219	dksg-dks1			
DKS1	716369,055	-1329164,094	6176685,973	rear box			
vector	-16,719	-12,272	-6,428	dksg-wwsG	-16,719	-12,272	-6,428
WWSG■	716339,889	-1329188,985	6176678,326	WWSG■	716339,409	-1329189,049	6176678,500
vector	-18,123	16,826	5,170	dksg-nnsg	-18,123	16,826	5,170
NNSG●	716338,485	-1329159,887	6176689,924	NNSG●	716338,005	-1329159,952	6176690,098

3.37 ASKY Astrup Kystland



Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
ASKY	830041,959	-1341716,932	6159912,850	ARP	830041,485	-1341717,007	6159913,056
vector	6,478	25,993	3,932	asky-ask1			
ASK1	830048,437	-1341690,939	6159916,781	ASK1			
vector	21,890	-1,916	-6,346	asky-seky	21,890	-1,916	-6,346
SEKY ●	830063,849	-1341718,848	6159906,504	SEKY ●	830063,375	-1341718,922	6159906,710
vector	-8,372	-18,943	-6,758	asky-swky	-8,372	-18,943	-6,758
SWKY ●	830033,587	-1341735,875	6159906,092	SWKY ●	830033,113	-1341735,949	6159906,298

3.38 SRMP Sermip Nunataa (Upernavik)



EEMP



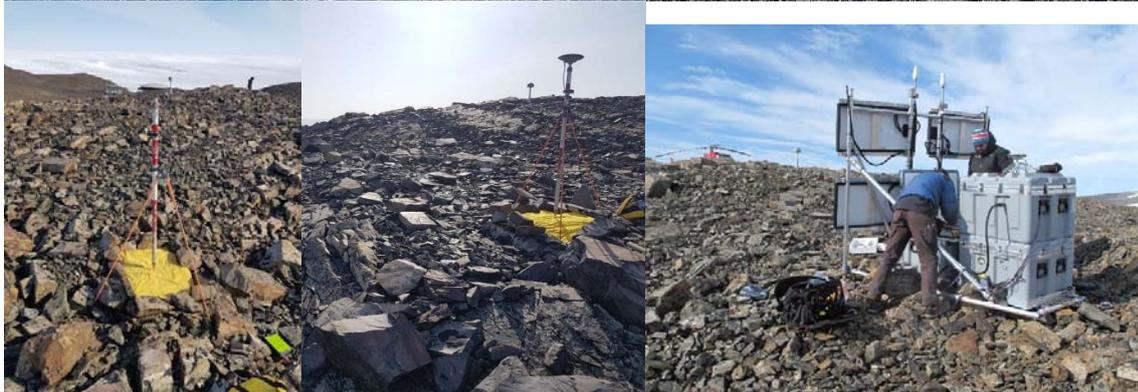
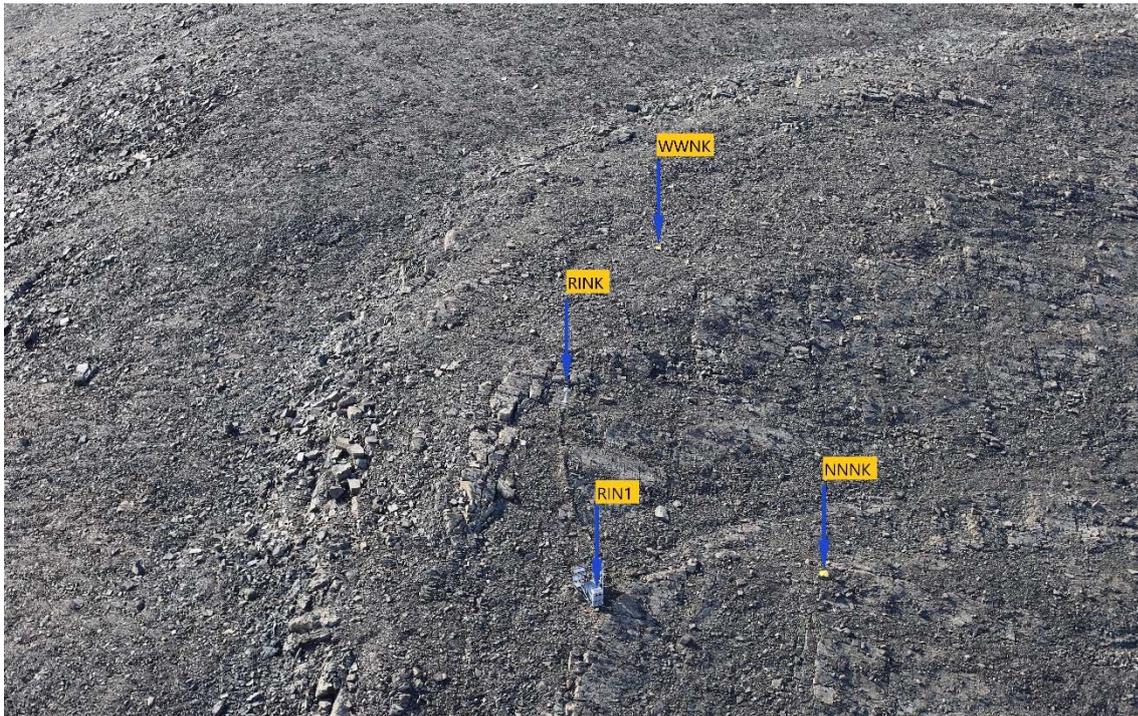
SSMP



SRM1

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
SRMP	1094652,473	-1528639,691	6074674,487	ARP	1094652,367	-1528639,734	6074674,560
vector	-5,050	-21,152	-5,941	srmp-srm1			
SRM1	1094647,423	-1528660,843	6074668,546	SRM1			
vector	22,045	6,398	-5,913	srmp-eemp	22,045	6,398	-5,913
EEMP ●	1094674,518	-1528633,293	6074668,574	EEMP ●	1094674,412	-1528633,336	6074668,647
vector	2,458	-23,810	-10,313	srmp-ssmp	2,458	-23,810	-10,313
SSMP ●	1094654,931	-1528663,501	6074664,174	SSMP ●	1094654,825	-1528663,544	6074664,247

3.39 RINK Rink Isbræ



WWNK

NNNK

RIN1

Strong winds!

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector		
Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
RINK	1254672,325	-1549057,605	6039712,345	ARP	1254672,223	-1549057,621	6039712,402
vector	7,337	18,230	0,340	rink-rin1			
RIN1	1254679,662	-1549039,375	6039712,685	RIN1			
vector	-18,195	-16,043	-0,151	rink-wwnk	-18,195	-16,043	-0,151
WWNK■	1254654,130	-1549073,648	6039712,194	WWNK■	1254654,028	-1549073,664	6039712,250
vector	-8,671	21,954	3,741	rink-nnnk	-8,671	21,954	3,741
NNNK■	1254663,654	-1549035,651	6039716,086	NNNK■	1254663,552	-1549035,667	6039716,143

3.40 KAGA Kangia



NNGA

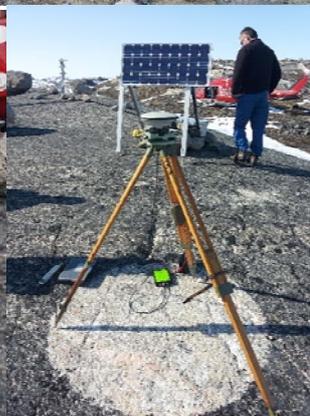
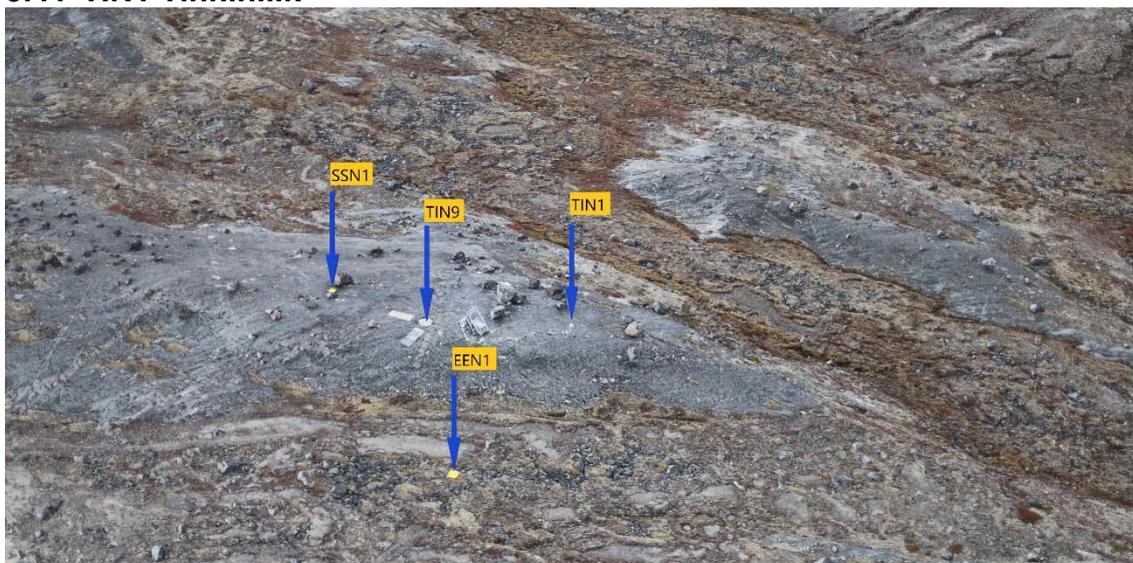
EEGA

KAG1

KAG2

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
KAGA		1464296,144	-1733658,267	5940954,950	ARP	1464296,050	-1733658,300	5940955,026
vector		-18,554	-8,002	1,367	kaga-kag1			
KAG1		1464277,590	-1733666,269	5940956,317	KAG1			
vector		-8,135	-11,946	-2,318	kaga-kag2			
KAG2		1464288,009	-1733670,213	5940952,632	KAG2			
vector		-15,975	20,035	8,483	kaga-nnga	-15,975	20,035	8,483
NNGA		1464280,169	-1733638,232	5940963,433	NNGA	1464280,075	-1733638,264	5940963,509
vector		15,046	9,890	-5,503	kaga-eeega	15,046	9,890	-5,503
EEGA		1464311,190	-1733648,377	5940949,447	EEGA	1464311,096	-1733648,410	5940949,523

3.41 TIN1 Tinninilik



EEN1

SSN1

TIN9

Station	Coordinates (GR96)/vector				Coordinates (IGS14)/vector			
	Name	X/dx	Y/dy	Z/dz	comment	X/dx	Y/dy	Z/dz
TIN1		1472583,916	-1784050,480	5924492,528	ARP	1472583,822	-1784050,513	5924492,604
KAGA		1464296,503	-1733658,207	5940954,798	ARP	1464296,050	-1733658,300	5940955,026
Vector		8299,5004	-50393,6110	-16466,6103	kaga-tin9			
TIN9		1472596,004	-1784051,818	5924488,187	TIN9			
Vector		9,309	16,151	-1,500	tin1-een1	9,309	16,151	-1,500
EEN1		1472593,226	-1784034,329	5924491,028	EEN1	1472593,132	-1784034,362	5924491,104
Vector		19,033	-5,758	-9,588	tin1-ssn1	19,033	-5,758	-9,588
SSN1		1472602,950	-1784056,238	5924482,940	SSN1	1472602,856	-1784056,270	5924483,016

Gr96 koordinater for TIN1 beregnet from KAGA (vector KAGA-TIN1 fra Tabel1, Gr96 koordinater for KAGA fra tabel2)

Reference

[Efternavn, fornavn]([årstal]): [Titel på publikation], Side [xx-xx], udkommet på [trykkeri/sted].

Bilag A [Overskrift]

A.1. [Overskrift]
[Tekst]

Tak til

[Navn], [Titel], [Tilhørsforhold]
[Tekst]

[Navn], [Titel], [Tilhørsforhold]
[Tekst]