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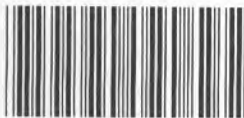
2015 Greenland Season

Property of Konrad Steffen
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3 May - Start of Field Season
 4 May - Arrived in Kangasassuaq
 5 May - Swiss Camp Put-in, 2nd put-in
 6 May - JAR1, DN10 downloaded
 7 May - redrilled JAR1
 8 May - Swiss Camp Snow Radar
 9 May - Swiss Camp AWS, 10m tower download
 11 May - up 15 and up SD GPS data
 13 May - down 10, JAR1 GPS
 13 May - Swiss Camp Radar programming
 13 May - Found GPS at JAR1 buried in snow
 13 May - Snow Survey Swiss Camp
 14 May - JAR1 GPS start-up
 15 May - Used arch &
 16 May - SC pull-out
 17 May - Camp for travel
 18 May - AWS preparation for service
 19 May - Going north to Upernivik
 19 May - NASE-U, NEEH
 20 May - Humboldt, Petermann, NEEH

This Book is manufactured using a paper made from wood-free materials and is acid-free and archive safe.

815250



21 May NEAN - GITS - Tinnu-north

22 May EGRIP, NASA-E, Summit

23 May Summit, Thermistor, Radar

23 May Solar tracker

24 May Bruceq instructions solar tracker

25 May Summit - CP1, Dye-2, Saddle, NASA SE

26 May S-Dome, Dye-2

27 May Shipment to SurferLand

28 May EGRIP location, ERROR!

28 May Microper #37

30 May Klim 11 Fortran code Swiss tower

1 June Flight to Illissit - Climate days

13 Oct Bluntan AWS Para + Hand

11 Jan 2016 Preparing AWS 2016 with

Radar at Swiss Camp

4.5.15

Power requirements

0.2Ah 1 measurement of both radars

~ 384 meas. to 100 Ah battery

We will take 6 x 100 Ah batteries to

Swiss Camp and make a large battery bank in the garage of Swiss Camp.

\rightarrow Forget to get the solar panels from the red container \Rightarrow call Lino!

Bring the whole alien box to Swiss Camp.

Swiss Camp

5/5/15

Second plane arrived with Gus +
Derch and cargo.

Put all Shishas's out and to work.

The garage was filled with snow.

Put all tents up (6) and had
soup at 3pm.

Download AWS and 10 m bures.

According to last years snow (~100cm)
there was 50 cm ice melt in summer
2014 (10 m bures data)

JAR1, Down to

6.5.15

JAR1 69° 29' 38" N

added to google sheet

49° 42' 35" W 857m

DN10 69° 30' 07" N

49° 33' 26" W 1403m

Went to JAR1, still upright but
stopped recording in August 2014
because the power cable was pulled
out (to send mult ~ 4 m surface
lowering!!).

Also down to was ~ 4-5 m
above surface and we used a
ladder to reach.

We are planning to re-deploy JAR1 and
do to bottom

Begins set up

6/5/15

abcd - efgh - 123 (w/ 128 bit pad)
Terminal 92x / Hughes 9250 / 44

Huinau, Chris SLF Medics @ SLF, ch

and it worked in the morning of 7/5.

Got 140 email down.



JAR1

7/5/15

Redrilled JAR1 and Schmidt's snowpit
with 95cm snow.

Drilled two extensions, where the
2nd extension is at the snow surface
(50 cm above the ice)

440 cm into the ice, which is
good for one season (?)

All drills are working, but
humidity looks low. The power
was pulled from the CR1000 in late
fall 2014 (

Swiss Camp

8/5/15

Overcast with some blowing snow

We will set up snow radar today,

Need to ask Jay about continuous

GPS monitoring which will drain

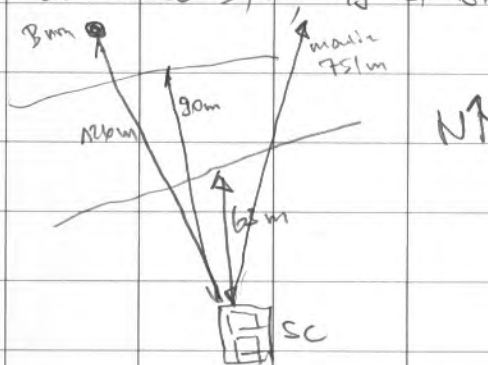
on batteries at the 10, up 50, up 16,

Get Swiss camp might be ok.

SC High Res Sat image Feb 2014

added to google sheet

SC $69^{\circ} 23' 25.34'' N$ $49^{\circ} 21' 13.95'' W$



9/5/15 JARA recording 2015

Powers pulled out 2014-08-07!

until Aug there was 2.7m melt!

all working again - what about the
humidity?

Swiss Camp AWS +10m

9/5/15

Snow height 0.4 to 2.0 = 1.6m

surface lowering and 1.0 m new

snow in winter 2014/15,

There was about 1.0 m snow in
spring 2014 \Rightarrow 0.6 m ice melt!

Max wind of 35 m/s = 105 km/h!

in late fall 2014

Battery did not go below 12.3V

10 m tower - all sensors working!

Swiss Camp 10m tour

Transmitter ID = 8030A1E0 00:47:45

Elevation 207/14

GOES processing:

download all GOES files

copy *.x goes to rawdata

run goes ---

run sort ---

The tower was transmitting at the
last time, but the processing
programs have some errors, in
particular the sort program needs
to be fixed.

Swiss Camp (Sunday)

10.5.15

Stopped snowing, had a long breakfast
with discussions.

Snow radar programming for delay
to fire 12 Volt every 30 min for
15 min. This took me quite
some time because I did not realize
that the old AMP45 was also triggered
by a current, and the times were
cancelling each other when I made a
new Snow scan loop.

Finally got it to work, but not the
RS232 communication which was only
to read the status of the radar

Switch Camp radar on CR1000

Radar connected to CR1000
of 10m tower.

Switch 12 volt: brown

Ground 12 volt: green

C2 (RX) white

Program: 10m tower radar.

Winter programming

1st L. $8 \times 30 = 240$ JD

31st L. $= 30$ JD

IF rTime (9) gc, 240

... 14 30 =

every 4 hours

\Rightarrow stopped GOES
transmission

Radar signal values 12.5 15

Radar connected today

Just read 4 bits of data
in a string, and need to

transmit 1 byte from 0 to F

X1, F0, 07, AE

String to hex function

Example 12 05 FD 1D (string)

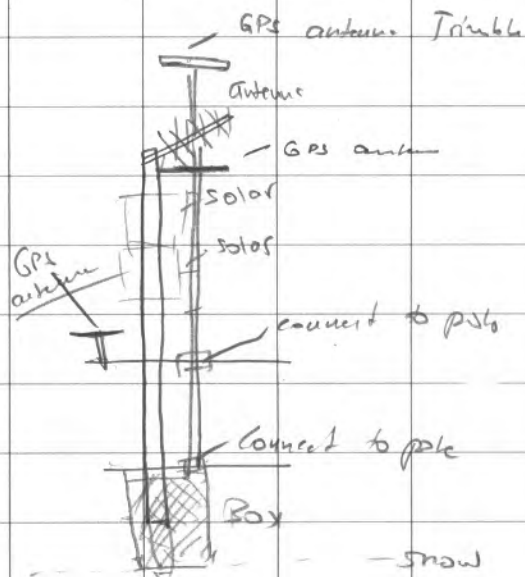
X
5 18 52 81 170

Completed the radar set-up
and connected radar to CR1000
on 10m tower.

Prior to upload new program,
downloaded the AWS data.

GPS JAX 1

13.5.15



Take CR1000 chassis ✓, electric screw ✓
 drill and bolts + 2 clamps
 Antenna + cable, ladder, lose box ✓
 also small to large connector for pole
 - electric re-wiring, straps, zip-ties

Snow Survey SC 2015

2014 AWS 100.7 cm snow

2014 10 m
Box 064 - $\frac{120}{116}$ cm snow
 $\frac{184}{184}$ Box to ice

AWS $\frac{120 \text{ Snow}}{100.7 \text{ cm}} (2014) + \text{Box } 60 = \frac{180}{160.7}$
2015 (240 cm to ice)

AWS \Rightarrow 60 cm ice melt

10 m tower: $240 - 184 = \frac{64 \text{ cm ice melt}}$

\Rightarrow 60 - 64 cm ice melt sound 2015

Snow Survey Swiss Camp 13.5

10 m tower

115, 118, 115, 113 cm snow = 115 cm

92.5 cm snow SE to Box + S = 207.5

165 cm to lower arm + S = 280.0

67 cm to lower radar arm

49 cm from radar box to SE

radar pole 112 cm, with 110 cm snow
= 222 cm above the ice

AWS

120, 125, 124, 125 cm snow = 125 cm

115 to Box, 110 to arm $\frac{240 \text{ cm}}{235 \text{ cm}}$
to ice

Snow 2015 115 - 125 cm

Snow 2014 120 cm

18.5.2015 AWS Stations

Northern Travers

NASA 4 (03) no extension R=206

transmitting 2015, 20 102 power was 13.5V

Pressure questionable

NEEM (23) no R=204

no transmitter for 20 101 - 120 ?

how some lines missing but x-wind

Pressure questionable

battery ok

lowe bar at 0.7 in obs shows

maybe extension

EGRP needs radiation instruments

and radiative arm!

V1 not working!

snow 1 only 56 on / above snow.
one with dir opentail!

GIR

no extension

~~wind dir 1 out~~

power 12.6V

Tcar 1.2 out

Petersmann

no extension

~~lowe diff. T_{TC} and T_{TC} T_{car} out (12)~~

~~wind dir 1 strange - sometimes negative~~

power 12.7V

Humboldt

needs extension

power 12.0V

all ok

Tanner V

maybe extension

wind dir 2 out > 30° snow 2 m/s

power 12.3V

Shurt

18.5.11 Nothor Travers Ave

found no extensions

~~V1 not turning~~ Pressure?

~~Snow 2 out~~ 12.3V

~~V1 out~~

~~Temp 3, 4 out~~ 10V

batteries swapped - 2 Glow power
not attached?

NASA-F

needs extension

no transmission

Kanger going north

19 May

In the morning they got Saba Dars
from the ice and we got again
delayed. - Refuel the plane at 2:30,
Pilots call at 3:30 to the hotel to
get their stuff and food, and we
still plan to leave today towards NEEM.

CP1 might no longer be an option
this trip, NASA-U hopefully has
good weather (?).

Left Kanger at 16:00 towards
Upervante, clouds over the ice
sheet, but clear over the ocean.

19.5

Mpernanwe - NASA-U

Landed at 6:45 pm to refuel.

Blue sky but only a few km

before bar. I was overcast.

Leaving at 7:30 pm to NASA-U.

and we hope it is good weather.

Called JP and got connected. They
are expecting us tonight. He gave
me the # 37835, but what is this?

Probably radio frequency?

NASA-U (8:40 pm)

19.5.15

Coordinates: $73^{\circ}50'26.5''N$

added to google sheet

$43^{\circ}31'19.8''W$ 2420m

ca 10m south of station

downloaded data, reconnected pressure

which was out, and lowered

the power cables which were under
pressure.

Density probe by H.S. and H.P.

with triospen and balance.

Ca 30 can accumulation.

Now we try to fly directly to

the DEEM travel team for fuel

and overnight.

They run out of duty hours and have
to go to the travel site

19.8/2015 Traverse C.

① Wed: • NEEM
20/5 HUM 181
PET 180
NEEM 360

Traverse C. ✓

③ Sat
Thurs. Traverse C. ~~Daneborg~~ NEEM T

23/5 Turn - N Nam E
NAAE EGRB

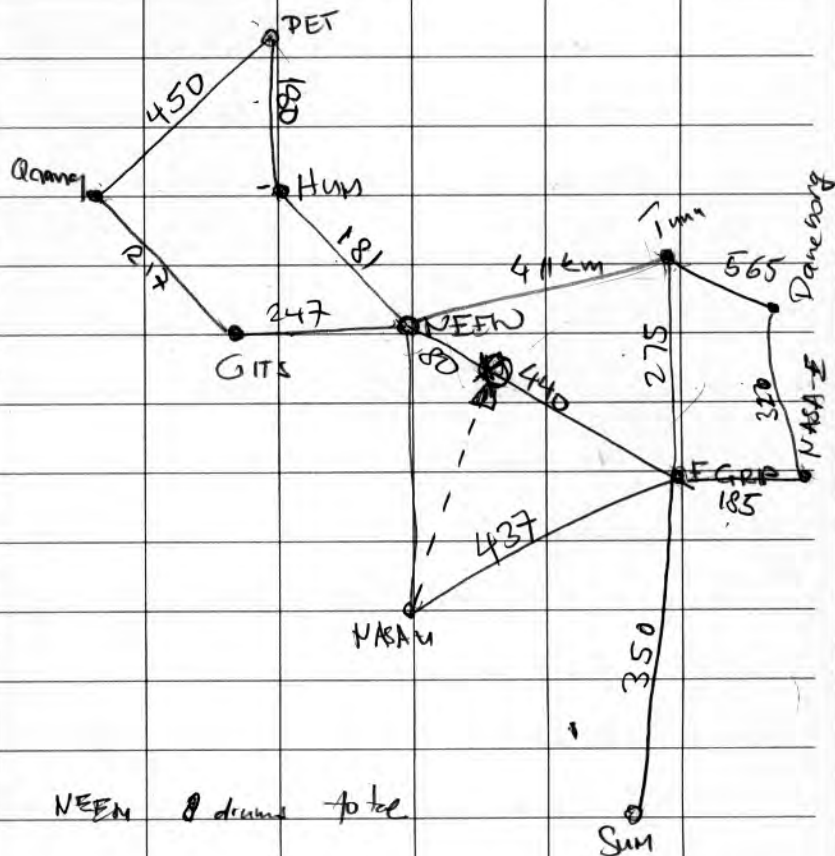
Traverse C. Summit

② Thurs.
21/5 Traverse C.
NEEM

22/5 GIT S
Turn - N
~~Daneborg~~ (2 nights) ?
Daneborg NEEM T

Sun. Trav. - Summit
24/5

Flight Plans out of 19.5.15
NEEM Traverse Camp



NEEM 8 drums to be

NEEM - Turn - Daneborg 976 km

Daneborg - Nam E, EGRB Sum 855 km

19/20 May

NEEN Traverse Camp

NEEN

20.5.15

Arrived at 11pm a camp and
got nice dinner from Arthur and
JP. Slept in the black dome
until 6:30 and then activity
started again.

20. May Traverse team left by 10cm
we had to wait until 12:00 because
of early time for pilots!!
Horton and Co. did an extensive
snow study on site.

77° 07' 09.4" N

48° 10' 34.4" W 2708m

77° 26' 31.4" N

51° 04' 55.8" W

2461m a.s.l.

added to google sheet

downloaded, all worked well.

There has only one solar panel
and JP Jefferson removed snow from
the panel in early season - that night
to the rear. it did not turn with

both sunrise as was gray, but the
we have to extend.

left after filling 3 drums (8 total at NEEN)
at 2:15pm.

20.5

Humboldt

15:00

Petersons ELA

20. May 15

Coordinates: $78^{\circ} 31' 40.2'' N$ 213mCoordinates: $80^{\circ} 05' 44.9'' N$

added to google sheet

 $56^{\circ} 50' 25.1'' W$

added to google sheet

 $58^{\circ} 07' 56.4'' N$ 924m

Extended tower, all channels working
but time was off!

Downloaded data and it seemed that not
all data was on the memory chips

18/2/2015 instead of 20/5/2015

From 2014-01-20 to 2015-03-10

 \Rightarrow 3 months and 2 days off!

But the display showed the correct time/date

Also true when I was downloading
the data. The memory chips did
not work at all. Had to delete it
and insert a new one. Chances
with cable.

Downloaded the data with Targit60k
and all data came down including 5/20/2015

Power cable extended for at least
one more extension.

Both Teas were not working?

Perfect weather no wind
and snow started M.S.

Battery drained in mid winter and
was below 10V ~ 5 Jan for two months!

Power below 9V per part of
Jan.

21.5.

NEEM Transfer Camp

Another beautiful morning.

We would like to visit GITS

and Tunn-N today, but

Quincy is down due to clouds.

We should fly GITS - Tunn-N

with refueling at NEEM (5 drums)

and then fly to Base log (Spirit Cove)

for over night, and return to

USA-E, NGRP - Submit it that

works in case flight.

GITS

21.5

Coordinates: $77^{\circ} 08' 13.6'' N$

added to google sheet

 $61^{\circ} 02' 31.6'' W$ 188)

Download of all data worked well.

Had to extend power cable because
too much snow obstruction.The power cable was pulled from the
multiplexer, hence no TC air measurements
lately, now working again.Hispan measurements and snow depth
by H.S.Battery went below 10V in spring
and no measurements for a while.

21 May

TANK-N

Coordinates 78° 01' 06.5"N 2067

added to google sheet

33° 58' 10.3"W

Raised the arms by about 1m,
reducing the solar panels, antenna,
radiation.

All channels are working and everything
worked well.

Snow microscope and pin by H.S

Still the wind direction is zero, but

I did not see a loose wire.

NEET Tracker Camp

22 May

Final night at the working hotel.

It was great to be in this camp on an
winter house for refueling, dining, and
sleeping. It's probably more practical, even though
we used a lot of fuel 4+6+4 drums
and 8 drums at NEET ~ 22 drums total.

Today we wish to go to EGRIB, NASA-E,
and then Summit where we will stay
1-2 days to fix solar tracker, install
snow radar, and service the AWS.

Still need to call Summit, with cell
phone* from Dorth.

We should approach EGRIB from SE
directions, and leave the same way.

22.5.11

EGRIB

37' given in 2014

Coordinates: 75° 35' 36.3" N 2686 m

35° 50' 19.7" W

added to google sheet

EGRIB azimuth for antenna ~ 219

V speed 1 is 2000 (upper)

V dir 2 is offset (reversed) (lower)

Should we add radiation instruments?

* check!

dir 2 ✓ 90 ✓ correct directiondir 1 ~~200~~ needs correction

One wind propeller (V1) was missing!

75.59 N - 36

29° decl.

Antenna should be ~ 218°reset antenna to 210°was 230°VASA-E

22.5.15

Coordinates: 75° N,

GOES 8030E2EX

226/7 00:18:10

Is there a GOES transmitter? did

Extended the tower and reset the transmitter

which was not working.

All channels except upper wind was working
at the time.Repacked the data logger box but did
not exchange the wind. The cables looked
ok.Tower good for 3-4 years and power
cable enough length for next extension.
Tc snow cable was still ok for that
extension.

22/5 Sunsumit Ave

Arrived at 5 pm in ice fog,
lost the long runway help to land.

We plan to stay for 2 days and
leave Monday morning to CP1, longer.

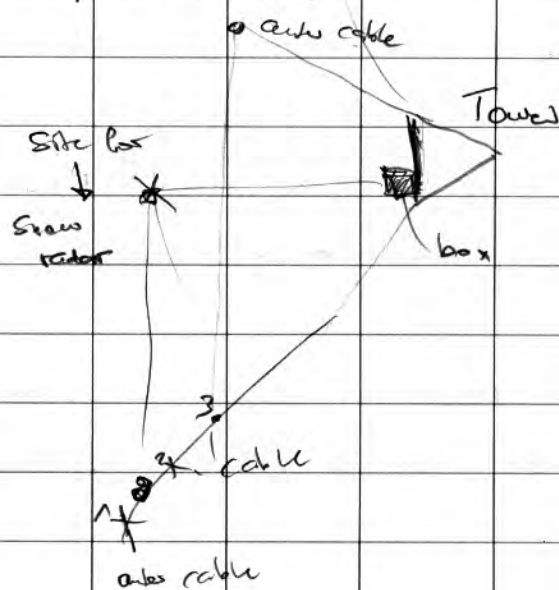
Down Gade Sunsumit Ave and at
workshop (pressure is uncertain).

I had removed a solar panel last
year for EGR10 and therefore the
CR100 battery had no recharge. The
remaining solar panel was on the X-axis,
now command the two battery boxes
⇒ need a new 20W solar panel
for Sunsumit Ave for EGR10

Therminator cable

23/5

from 2009 photo



25/5

Leaving Summit - CP1

leaving summit at 1030 local
with low clouds around camp.
Fly to CP1 to download and
reactivate the sat transmitter.

Azimuth of Antenna = $\boxed{210}$ / 13 elevation

Upload Sat program again ✓

Coordinates: $69^{\circ} 52' 28.5'' N$ (P3)
47 01' 21'' W

added to google sheet

(old 2014 $69^{\circ} 52' 30.2'' N$, $47^{\circ} 01' 03.8'' W$)

re-aligned antenna, was 200 to far to
the right; re-initiated sat transmitter
- down local etc, OK download

CP1

25/5

Battery stopped 2014.8, power
went down and recording stopped
until Jan 2015.

What happened with the battery?

Oct 21 stopped - 6 Feb start again

Battery dropped within two days.

⇒ need new battery pack!

Did not fit a GPS fix while waiting at
CP1 - Schmitt fix was also slow for
Compass! Hope this did the job to
reset the sat. transmission.

25/5/15 Southern Traverse

Dgc-11 (08) plenty high (single beds)

Hum (2) ant

SNOW (1) noisy or ant

Saddle (16) plenty high (beds)

Tcar (1) ant

V (1) ant

NASA-SE (15) plenty high (beds)

Tcar (1,2) to warm \Rightarrow ant

\Rightarrow much pleaser ant? YES re-works

is also too low

S-Pome (11) extension needed
needs new battery box? \checkmark

All sensors seem to work

NASA-SE

25/5

Coordinates: $66^{\circ} 28' 41.7'' N$ 2388

added to google sheet

$42^{\circ} 25' 46.1'' W$

Downloaded data, Tcar too warm

as reference Temp sensors too warm

Air temp was only $-4^{\circ}C$, Ref was $+5^{\circ}C!$

Snow profile with very hard layer at $\sim 30cm$
which was probably the permanent horizon

\rightarrow Possibly extension next year, point
of poles can also be done easier

CIRFS snow compaction station, just

50m to the side

25/5

SaddleCoordinates: 65° 59' 58.6" N

added to google sheet

44° 30' 06.1" N 2435

Vogelstränge! no data on memory card

→ card reader did not work!

Replaced - card reader did not work

But - only a few days of dataon CR1000 but recording worked
and transmission had some data
from satellite.

Why was that?

Re-loaded the CR1000 program!

Data should be on CR1000,

I have downloaded only the

newest data instead of all data.There is also a snow collection
station (Wolfe's group)Kanger

Wind Turbine

26/5

Hag from Kase how to check the wind turbine:

Ausdrückkasten 6 Schrauben (take picture)

3 sind miteinander verbunden

Der Widerstand sollte für alle 3 Aeste

3.5 Ω sein

⇒ Ich habe den Gleichrichter (Flachglaskasten)

im Lagerschrank oder an der Turbine

im Kanger ⇒ Sollte das noch 2H bringen

Kann man den ablesen?

26.5

South DomeCoordinates: $63^{\circ} 08' 56.6'' N$

290.1m

 $44^{\circ} 49' 00.9'' W$

added to google sheet

Redirection from True North: $25^{\circ} W$ Antenna Azimuth $213/18^{\circ}$ ✓ $63^{\circ} 08' N$, $44^{\circ} 49' W$ 290m

Extended in 2013, new battery box 2011

Check battery power (seems ok from
 + ran sensors). Only 4 years old probably
 does not need a new box. Battery looks ok
 2011-2014

Snow acc (2005-11) ~ 1.5m/y

Extended (drilled new hole with 2 extensions)

Now on full extension above the

Snow. Extended power cable very long!

May snow measurements by the SAT pump

Reset transmitter and set clock to

UTC on Delta Express

Dye-II

26.6

Coordinates $66^{\circ} 28' 53.6'' N$

added to google sheet

 $46^{\circ} 17' 22.8'' W$ 2080m

DH(2) needs replacement but I did not

-° all channels are working, remove some

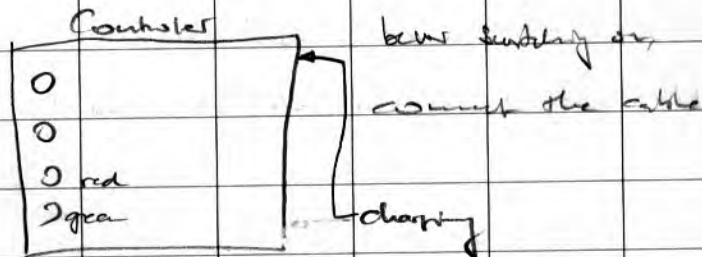
Now in the box (1cm from melting)

SAT power for 2 more years.

END OF A VERY GOOD

FIELD SEASON

29/5

Micropen #37

for 50-100 measurements
has internal battery, when low it
will stop! Additional battery connect
to the drive plug

For charging battery, need stable female
connector. Two spare batteries

29.5/15

Start the controller (green switch, !)
because it blocks the red. Better we
remove the screw with black head.

Hit green button left down - proceed.

red O-ring needs to be in the groove
prevents that the water enters the tube
Head which can be screwed in or out

To leave the DRIVE menu, push the
red button.

Settings: The early data is on the
memory card + 2000 x 2m measurements

Make test measurements and to place the
head with the finger a few times (from the
front only), then stop by press red
button. Check the screen for drift

of 0-line

→ to leave this screen, press red again.

20k CHF for WSL

40k for external

Things to do

• Windows 10

1.7.2016 email on

For next year's experiments

• Toughbook CF-A3

80 GB + Windows + 40 = 120 GB

Ed! gpl, programs + software,

Thursday, June 1 20 min

16:30 - 16:50 Frankfurt ice sheet

change in morning dusk

Thursday, June 5

15 min

15:45 - 16:00 Climatology of Santa Cruz

1981 - 2015

30.5

Klim-15

New Fortran program to read
the new 10 m Sunda Tower
data now from CR1000.

22 direction including first column

x data (22 directions)

count (integer)

duration (integer)

year (i)

3d (i)

h

+ a - midst

10.5 - 13.2

-10.88 12

-12.13 2013

-12.0

Greenland

1.2% of Earth Surface

7.36 m SLE

2.854 km³

2,850,000 km³ / 365 km³

= 7.808 times

Summit 06

SL: winter: -23 to -18.5 4.5

23 years

0.2/y

= 2 / decade

Summer

-2 to +1 = 3° 0.13/a

Spring -16 to -14.2 0.08

Fall -12.3 to -11.5 = 0.03

11.1.16 Aus visit 2016

Swiss Camp (01) X-unit, working

1.11.16 no extension ✓

Crookwell Point (02) no x-unit

snow height 1.5m

need battery box, battery stopped before
needs extension

NASA - 4 (03) no home page transmit

but x-unit ok ✓

extension needed

GITS (04)

needs extension

x-unit worked, needs new snow
happened several

Humboldt (05)

no extension needed

stopped x-unit 3D 340 (Dec 6)

battery was 9.0V, needs battery box

Samud (06)

x-unit ok

pressure not working, needs 2nd star panel

needs extension

TUNU N (07)

no extension needed

all working → no need to visit

Dgc-II (08)

x-unit ok, pressure not working

no extension needed

11.1.2016 Aus View 2016

JAR (09) unit ok
redrilling needed

Scotch (10) no house pg. transit
transit ok but dot it off?
no picture?
no extension needed

South Down (11)
unit stopped, but no dot
logging \rightarrow it is -6999
but power was 13.5V at 20 286!
no extension needed
new power box?

NASTE (12) no unit from homepage
no extension needed

NASA SE (15) no unit
walked to end of year, $V=12.6$
and is jumping briefly
needs 2nd solar panel
needs extension (can be corrected)

Petermann (21)
maybe redrilling into the ice
Stopped unit 30NDV, \Rightarrow power was 8.1V
 \Rightarrow needs new Battery box

NEEM (23) unit ok
needs extension

11.1.2016 AWS unit 2016

EGRIP (24)

needs extension

Aut archive

2015 all transferred data passed

PE blue uniting!

PE-green uniting!

PE-air uniting!

Total meteoric 2016

12.1.2016

Extensions (8)

CP, NASA-U, GITS, Summit, JAR1
NASA-SE, NEEM, EGRIP (8 total)

(Petersmann - thin extension)

Belted boxes (4)

CP1, Hum, South Dome (?), Petersmann

Extensions 8 total (7 thick, 1 thin)

Southern Traverse (1)

NASA-SE

Northern Traverse (4) + (1)

NASA-U, GITS, NEEM, EGRIP, Petersmann

Other Summit, JAR1 (2)

ACEPROJECT@EPFL.CH

Length 24 cm = 180 km

0.75 km

ORDER From Boulder

Extension spax : 2015 Dec

Survey Camp 2 + 2 skewers for

(J201, CP1) for 2016

need 6 new extensions } ORDER 2016

need 3 new skewers

Battery box repair (need 4)

3 boxes as on the batteries } need empty box

2 batteries

ORDER 2016

May 2016 expedition

For NE Gorge

6 new extensions

3 new skewers

1 empty battery box

1 complete box

with skews
+ skewers

+ batteries + box

31. 1. 2016

ORDER AWS spec parts

- ✓ 3 CE 1000 data logger
- ✓ 3 CE 1000 Card recorders
- ✓ 4 Li-cox radiometers / mounts?
- ? 4 new T/A sensors *
- ✓ 4 new water sensors *
- ? net radiometer
- ? pressure sensor
- ✓ 6 TC temperature sensors
- ✓ 2 AKOS transmitters
- ✓ 2 ARGOS antenna
- ✓ 1 Large AWS box
- ✓ 2 tarp-hum solar grids (large one)
- ✓ 2 new snow height sensors + mounts

✓ David Lab

What is needed for Summit Camp for 2016

- 1 Pearson sledge
- 1 2600 generator
- 1 drum of oil (no propane)

Kitchen new bowls, kitchen paper, plastic bags
wine glasses

C130 going north
19, 25 April

C130 going south

3 June cp

6, or 8, 9 June base

27/5

Storage in Red Container

+ 2 chairs

- | | | |
|--|-----------|---|
| Tripod with all extensions + 8 ft + long | 2 | Large white cooling boxes for food |
| Screws to attach skewers + densely hit + balance | 2 | Large Milwaukee drills + 4 x 20 Volt bars |
| 3 AWS Skewers | 3 | 18V lithium 3 Ah for the kite |
| 2 Pet Extensions + 1 Skewer | 1 | 4 Ah battery charger |
| 4 GORE antennas | 2 | 4 Ah lithium for 10 W solar antenna |
| 1 Wind generator | 3 | 4 Ah lithium for antenna + receiver |
| 3 Battery boxes with 2 x 100 Ah | 1 | Mountable Hologram tent |
| 2 100 Ah without box | 2 | FEDAK to cover wind boxes |
| 6 10 W Solar panels (large 2 x 2 ft) | 3 | Small Campbell enclosures |
| 1 20 W Solar panel | | |
| 3 LW radiometers | | |
| | 32553 F3 | 32555 F3 |
| | 30610 F3 | |
| 2 Skidoo batteries (Liquid missing) | | |
| 1 12 battery charger | | |
| | 4 L / 10 | |
| 1 Small Edak w metal | 11 L / 15 | 0 / 2 |
| 6 large pipes + some tower flanges | | |
| 2 drills (blue + red box) | | large + med |
| 1 drill in black box for poles | | |

2015

SC	65° 33' 27"N	49° 21' 27"W	1082m
dnd	65° 30' 07"N	49° 33' 26"W	1003m
JAR1	69° 29' 38"N	40° 42' 35"W	897m
NASAU	73° 50' 26.5"N	49° 31' 10.0"W	2470
NEEH	77° 26' 31.4"N	51° 04' 55.8"W	2461
Huh	78° 31' 40.2"N	56° 50' 29.1"W	2023
PET	80° 05' 44.9"N	58° 07' 56.4"W	924
GITS	77° 08' 13.6"N	61° 02' 31.6"W	1881
Tinu-V	78° 01' 06.5"N	33° 58' 10.3"W	2067
EGPB	75° 35' 36.3"N	35° 59' 15.7"W	2686
NASA E	73° 50' 25"N	45° 30' 25"W	
CP1	65° 52' 28.5"N	47° 01' 21"W	1931
asa-SE	66° 28' 41.1"N	42° 29' 46.1"W	2388
Saddle	65° 55' 58.6"N	44° 30' 06.1"W	2435
S-Rome	63° 08' 56.6"N	40° 49' 00.9"W	2901
yc 2	66° 78' 53.6"N	46° 17' 22.8"W	2080

added to google sheet

Expedition PermitC15-3

Start of Expedition 4 May 2015
to jrcc@jrcc.gc

Home page for magnetic declination:
www.ngdc.noaa.gov/geomag-web/

Phone Numbers 2015

CPS ranges 88 163 145 97 37

CPS Mobile 299 52 42 18

" " 299 52 97 84

Medical Asst. (866) 611 - 0377

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SC2 + 88 - 163 - 140 - 0042

SC3 + 88 - 162 - 141 - 0877

Nanna +1 719 238 0119

Jay mbs +1 240 476 - 1280

→ Leon airport +88 167 77 87834

NEEM travel 1: +88 16 234 93272

15:00 - 16:00; 21:22:00

" 2: +88 16 929 48507

NEEM dome: +88 16 234 93253

? 37 830

Pilots: +299 ~~52 42 18~~ Kiddy
53 78 90

Koni Set plower 88 163 256 072

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[Summit at 88 163 164 0730]✓

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