

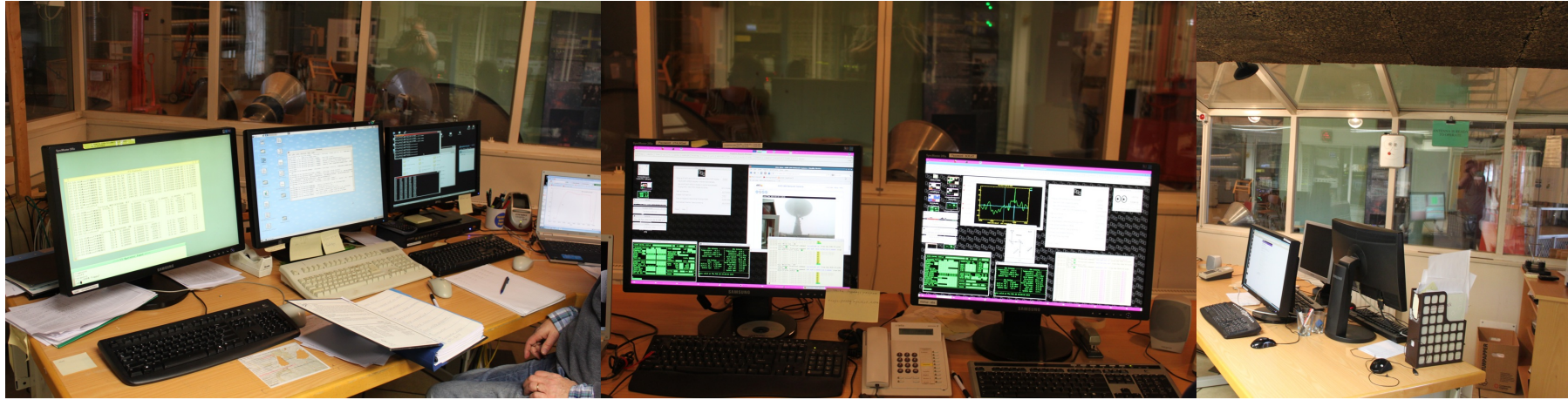
Observing an experiment

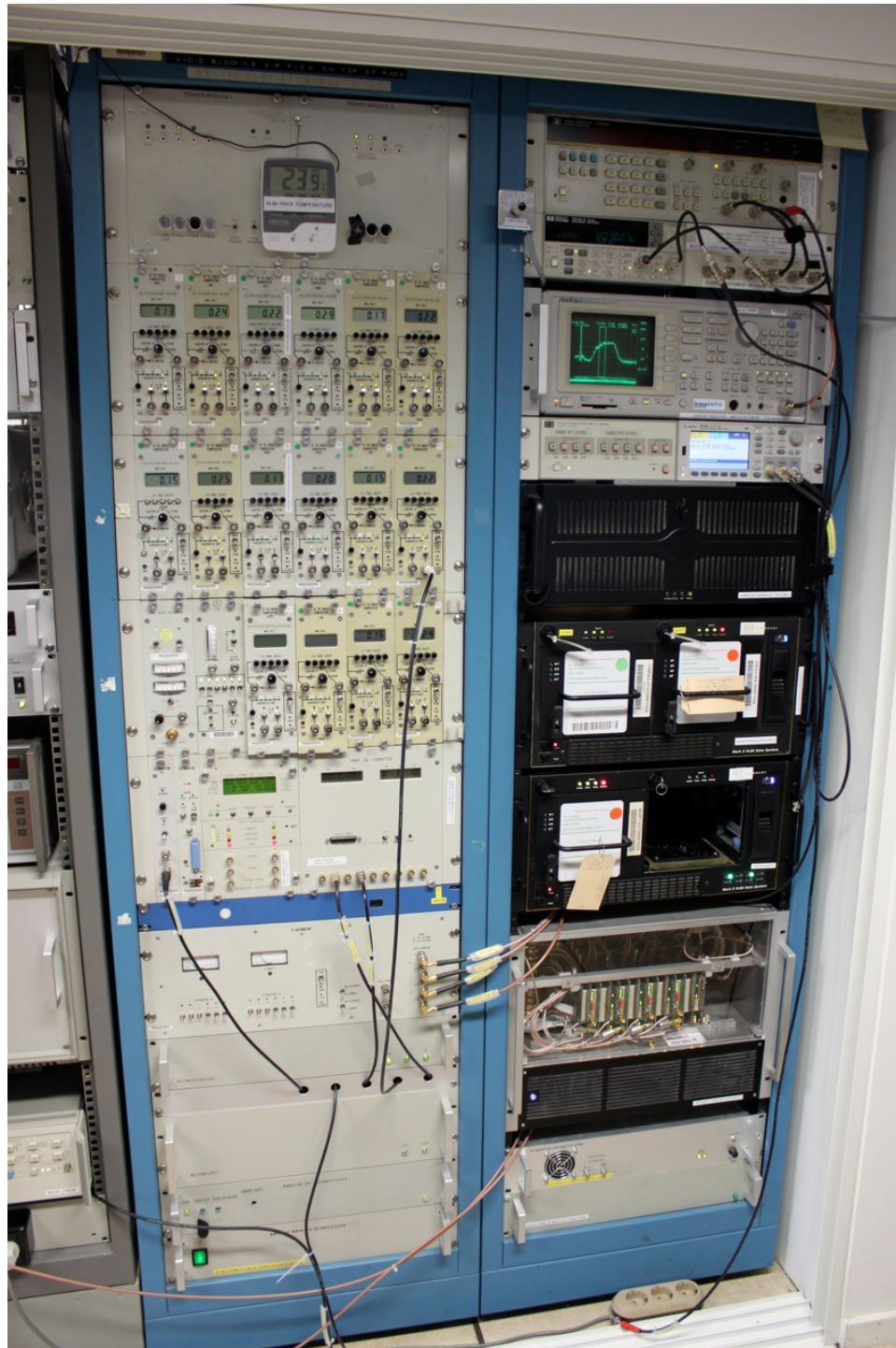
Rüdiger Haas
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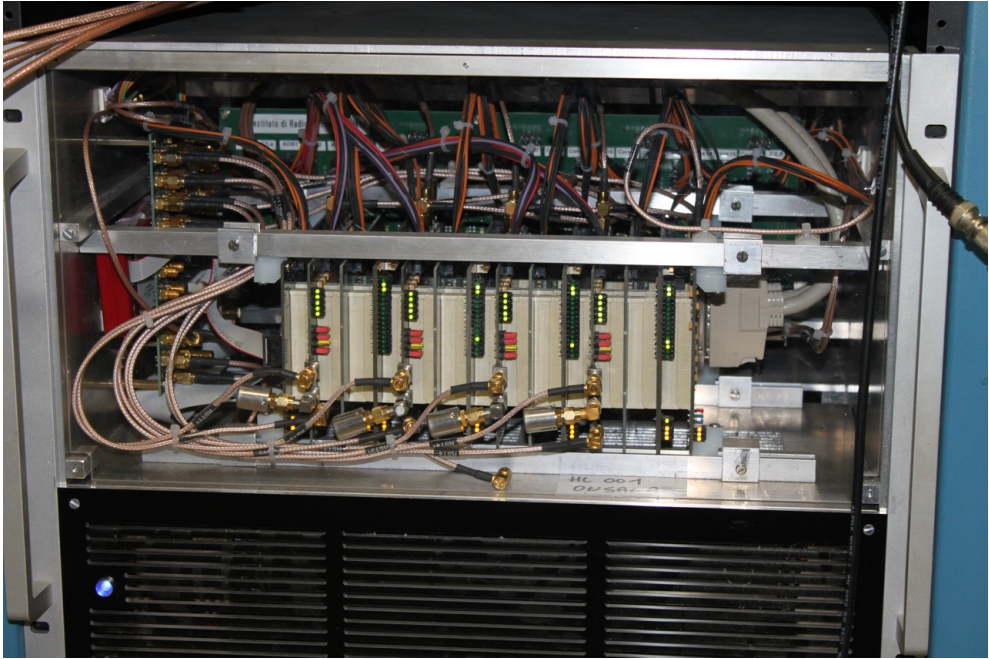
EGU and IVS Training School on VLBI for Geodesy and Astrometry
March 2-5, 2013, Aalto University, Espoo, Finland

Overview

- Experiment preparations
- Experiment pre-checks
- Running the experiment
- Experiment post-checks
- Data transfer to correlator







Experiment preparations

- Get the schedule file from IVS-server to Field System (FS) computer
- Drudg the schedule file, i.e. extract the station-specific procedures and commands
 - Creates procedure library for the experiment
 - Creates the snap-file of the experiment
- Example
 - Schedule file: r1572.skd
 - Summary/description: r1572.txt
 - Procedure library: r1572.prc
 - Snap-file: r1572.snp

e.g. r1572.skd

```
$EXPER R1572
$PARAM
DESCRIPTION IVS-R1
SKED_VERSION 2012Nov19
SKED_CREATE_DATE 2013/01/31 16:15:33
SCHEDULER NASA CORRELATOR BONN START 2013043170000 END 2013044170000
CALIBRATION 10 CORSYNCH 3 DURATION 196
EARLY 0 IDLE 0 LOOKAHEAD 20
MAXSCAN 600 MINSKAN 43 MINIMUM 0
MIDTP 10 MODULAR 1 MODSCAN 1 PARITY 100
SETUP 20 SOURCE 5 TAPETM 1 WIDTH 0
CONFIRM Y VSCAN Y
DEBUG N KEEP_LOG N VERBOSE N
PRFLAG YNNN SNR AUTO
FREQUENCY SX PREOB PREOB MIDOB MIDOB POSTOB POSTOB
ELEVATION _ 5.0
TAPE_MOTION _ START&STOP
TAPE_TYPE Ke Mark5B Kk Mark5B Ny Mark5B On Mark5A Tc Mark5B Ts K5 Wf Mark5B
TAPE_TYPE Wz Mark5A Yg Mark5B
```

...

e.g. r1572on.snp

```
" R1572      2013 ONSALA60 T On
" T ONSALA60 AZEL  .0000 144.0   20  340.0  740.0  60.0   20    5.0   85.0 20.0 On 02
" On ONSALA60  3370606.04502   711917.49406  5349830.72571 72137701
" 02   ONSALA   Mark5A
" drudg version 2013Jan23 compiled under FS  9.11.01
" Rack=Mark4      Recorder 1=Mark5A      Recorder 2=none
scan_name=043-1700b,r1572,On,54,54
source=OJ287,085157.23,201758.6,1950.0,neutral
ready_disk
setupsx
!2013.043.16:59:50
preob
!2013.043.17:00:00
disk_pos
disk_record=on
disk_record
data_valid=on
midob
!2013.043.17:00:54
data_valid=off
disk_record=off
disk_pos
postob
```


e.g. r1572on.prc

```
...
define ifdsx          13043162905x
ifd=31,15,nor,nor
if3=18,in,2,2,,,on
lo=
lo=lo1,8080.00,usb,rcp,1
lo=lo2,2020.00,usb,rcp,1
lo=lo3,8580.10,usb,rcp,1
patch=
patch=lo1,1l,2l,3h,4h
patch=lo2,9l,10h,11h,12h,13h,14h
patch=lo3,5h,6h,7h,8h
enddef
...
```

e.g. r1572.txt

```
...
Key:      Ke=KATH12M   Kk=KOKEE       Ny=NYALES20   On=ONSALA60
          Tc=TIGO
          Ts=TSUKUB32   Wf=WESTFORD    Wz=WETTZELL   Yg=YARRA12M
% obs. time:      Ke   Kk   Ny   On   Tc   Ts   Wf   Wz   Yg   Avg
% cal. time:      4    3    5    4    1    6    2    5    3    4
% slew time:     11   17   22   23    2   24    7   12   10   15
% idle time:     28   22   16   12   60   23   67   35   38   34
total # scans:   345  277  403  356  105  508  147  389  284  312
# scans/hour :   14   12   17   15    4   21    6   16   12   13
Avg scan (sec):  139  179  122  146  296   78  139  105  146  149
# data tracks:   16   16   16   16   16   16   16   16   16
# Mk5 tracks:    16   16   16   16   16   16   16   16   16
Total GBytes:   1726 1787 1766 1871 1120 1424  734 1474 1494 1488
Total GB(M5):   1534 1589 1570 1663  996 1266  653 1310 1328 1323
# of tapes :    1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.0
tape change times (hhmm):
```

...

Experiment preparations

- Establish communication between FS-computer, telescope-computer, VLBI-rack
- Analogue system (e.g. Mk4/Mk5A):
 - Do the IF-patching
- Digital system (e.g. DBBC/Mk5B+)
 - Start up and condition the DBBC
 - Load DBBC configuration-file
- Start-up telescope
 - Connect correct receiver (e.g. S/X)
 - Load pointing model (e.g. X-band)

Experiment pre-checks

- Check receiver status (cold?)
 - Station specific monitoring
- Check system temperature
 - Start-up FS
 - Load schedule-file: e.g. "schedule=r1572on,#1,1"
 - Load experiment setup: Run "setupsx"
- Adjust attenuation
 - Analogue system: additional attenuators and attenuation setting in "ifdsx" procedure
 - Digital system: taken care of by AGC (automatic gain control)
- Check system temperature
 - Point the telescope somewhere on the sky and run "caltsys"

20m Telescope Data Logger

www.oso.chalmers.se/oso/20m/cryo/

Mest besökta Kom igång SurfTheChannel ... Senaste nytt Apple Yahoo! Google Maps YouTube Wikipedia Nyheter Populära Bokmärken

Inaktivera Kakor CSS Formulär Bilder Information Övrigt Konturera Byt storlek Verktyg Visa källkod Inställningar

CHALMERS
Onsala Space Observatory

20m Telescope - Cryo & Temperature Logger

This page has been moved to [here!!!](#)

Real time readouts from the HP34970 Cabin Data Acquisition/Switch Unit.
 Black number indicates a normal value.
 Red number indicates too high or too low value.
 Blue number indicates a frozen fix value over the last 30 minutes.

SLOT	2012-12-14 12:33:00 UTC	
101	Cabin Roof Temperature	18.025 C
102	Inclinometer Temperature	1.569 C
103	NAC Temperature	20.572 C
104	Cabin Front Temperature	3.773 C
105	Cabin Rear Temperature	18.356 C
106	Cabin Floor Temperature	18.028 C
107	Platform Air Temperature	-4.394 C
108	Water Return Temperature	3.895 C
109	Water Supply Temperature	-3.670 C
110	S/X ColdHead Temperature	16.457 C
111	PLL Temperature	16.754 C
112	Cabin Humidity	38.535 %
113	Helium Supply Pressure	12.428 bar
114	Helium Return Pressure	0.153 bar
115	Helium gas Flow	41.665 slpm
301	New SIS Mixer Temperature	6.030 K
302	New SIS (4.5K stage)	4.210 K
303	New SIS (15K stage)	12.300 K
304	New SIS (70K stage)	55.500 K
305	New SIS (spare)	0.000 K
309	Multiband HEMT 18-26 GHz	35.100 K
310	Multiband HEMT 26-36 GHz	34.100 K
311	Multiband HEMT 36-50 GHz	465.000 K
312	Multiband HEMT (70K stage)	100.000 K
313	Multiband HEMT (15K stage)	29.200 K
314	New S/X (20K stage)	19.600 K
315	New S/X (70K stage)	18.300 K
316	New S/X (spare)	0.000 K
404	SIS Vacuum	2.932E-08 mbar
405	Multiband Vacuum	1.430E-07 mbar
406	S/X Vacuum	1.580E-05 mbar

Last modified: 13 March 2012
 Responsible for this page: [Mikael Lerner](#)

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e.g. caltsys

```
2013.043.16:09:33.46;caltsys
2013.043.16:09:33.46&caltsys/tpi=formvc,formif
2013.043.16:09:33.46&caltsys/ifd=max,max,*,*
2013.043.16:09:33.46&caltsys/if3=max,*,*,*,*,*
2013.043.16:09:33.46&caltsys/!+2s
2013.043.16:09:33.46&caltsys/tpzero=formvc,formif
2013.043.16:09:33.46&caltsys/ifd=old,old,*,*
2013.043.16:09:33.46&caltsys/if3=old,*,*,*,*,*
2013.043.16:09:33.46&caltsys/calon
2013.043.16:09:33.46&caltsys/!+2s
2013.043.16:09:33.46&caltsys/tpical=formvc,formif
2013.043.16:09:33.46&caltsys/tpdiff=formvc,formif
2013.043.16:09:33.46&caltsys/caloff
2013.043.16:09:33.46&caltsys/caltemp=formvc,formif
2013.043.16:09:33.46&caltsys/tsys=formvc,formif
2013.043.16:09:33.95/tpi/1d,6828,2u,6053,3u,6488,4u,4543,i1,7993
2013.043.16:09:33.95/tpi/9u,7353,au,7489,bu,4223,cu,4392,du,4760,eu,4277,i2,5591
2013.043.16:09:33.95/tpi/5u,6378,6u,6255,7u,5540,8d,5693,i3,3898
2013.043.16:09:34.01/if3/nak,*alarm*i3(#95)^G^G
2013.043.16:09:36.50/tpzero/1d,675,2u,1507,3u,2903,4u,111,i1,933
2013.043.16:09:36.50/tpzero/9u,620,au,794,bu,157,cu,127,du,163,eu,122,i2,703
2013.043.16:09:36.50/tpzero/5u,875,6u,967,7u,1016,8d,400,i3,112
2013.043.16:09:36.56/if3/nak,*alarm*i3(#95)^G^G
2013.043.16:09:36.56&calon/" rx=*,*,*,*,*,on
2013.043.16:09:36.56&calon/sy=/usr2/proc/noisediode_sx on &
2013.043.16:09:39.06/tpical/1d,9485,2u,7864,3u,7900,4u,6189,i1,10967
2013.043.16:09:39.06/tpical/9u,9790,au,9563,bu,5624,cu,5623,du,6276,eu,5675,i2,6135
2013.043.16:09:39.06/tpical/5u,8124,6u,8204,7u,7323,8d,7845,i3,5327
2013.043.16:09:39.06/tpdiff/1d,2657,2u,1811,3u,1412,4u,1646,i1,2974
2013.043.16:09:39.07/tpdiff/9u,2437,au,2074,bu,1401,cu,1231,du,1516,eu,1398,i2,544
2013.043.16:09:39.07/tpdiff/5u,1746,6u,1949,7u,1783,8d,2152,i3,1429
2013.043.16:09:39.07&caloff/" rx=*,*,*,*,*,off
2013.043.16:09:39.07&caloff/sy=/usr2/proc/noisediode_sx off &
2013.043.16:09:39.08/caltemp/1d,20.516,2u,17.719,3u,24.206,4u,22.506,i1,24.768
2013.043.16:09:39.08/caltemp/9u,91.463,au,88.195,bu,84.508,cu,86.066,du,88.662,eu,86.578
2013.043.16:09:39.08/caltemp/i2,87.105
2013.043.16:09:39.08/caltemp/5u,13.930,6u,13.930,7u,13.930,8d,13.930,i3,13.930
2013.043.16:09:39.08/tsys/1d,47.5,2u,44.5,3u,61.5,4u,60.6,i1,58.8
2013.043.16:09:39.08/tsys/9u,252.7,au,284.7,bu,245.3,cu,298.2,du,268.9,eu,257.3
2013.043.16:09:39.08/tsys/i2,782.7
2013.043.16:09:39.08/tsys/5u,43.9,6u,37.8,7u,35.3,8d,34.3,i3,36.9
```

Experiment pre-checks

- Check pointing and sensitivity
 - Load procedures for pointing tests: e.g. "proc=pnt-sx"
 - Initialize: run "initp_geo"
 - Track a strong source (e.g. CasA)
 - Check pointing: Run "fivepoint"
 - Check SEFD: Run "onoff"
- Cable sign (adding additional cable)
- Check pressure sensor

e.g. "fivept"

```
...
2013.043.16:13:57.98#fivpt#tsys 291.881 65.603 60.048 0.2318
2013.043.16:14:16.24#fivpt#lat 1 58451. -0.2239 1.061 0.259
2013.043.16:14:34.51#fivpt#lat 2 58469. -0.1679 -0.005 0.136
2013.043.16:14:52.77#fivpt#lat 3 58488. -0.1119 0.915 0.242
2013.043.16:15:11.05#fivpt#lat 4 58506. -0.0560 8.944 0.296
2013.043.16:15:29.31#fivpt#lat 5 58524. 0.0000 16.216 0.259
2013.043.16:15:47.59#fivpt#lat 6 58542. 0.0560 10.968 0.173
2013.043.16:16:05.86#fivpt#lat 7 58561. 0.1119 1.730 0.346
2013.043.16:16:24.12#fivpt#lat 8 58579. 0.1679 -0.362 0.160
2013.043.16:16:42.39#fivpt#lat 9 58597. 0.2239 -0.382 0.268
2013.043.16:16:42.39#fivpt#latfit 0.00647 0.1260 16.7766 -0.1237 -0.0072 6
2013.043.16:16:42.39#fivpt#laterr 0.00228 0.0060 0.6246 0.3132 0.0046 0.6216
2013.043.16:17:00.66#fivpt#lon 1 58616. -0.5403 -0.213 0.192
2013.043.16:17:15.68#fivpt#lon 2 58631. -0.4052 -0.072 0.317
2013.043.16:17:30.71#fivpt#lon 3 58646. -0.2701 2.028 0.265
2013.043.16:17:45.75#fivpt#lon 4 58661. -0.1351 9.259 0.527
2013.043.16:18:00.77#fivpt#lon 5 58676. 0.0000 15.799 0.132
2013.043.16:18:15.79#fivpt#lon 6 58691. 0.1351 9.716 0.264
2013.043.16:18:30.83#fivpt#lon 7 58706. 0.2701 1.543 0.153
2013.043.16:18:44.79#fivpt#lon 8 58720. 0.4052 0.092 0.275
2013.043.16:18:59.82#fivpt#lon 9 58735. 0.5403 0.573 0.285
2013.043.16:18:59.82#fivpt#lonfit 0.00041 0.1281 15.9111 -0.0035 0.0033 5
2013.043.16:18:59.82#fivpt#lonerr 0.00349 0.0038 0.3694 0.1882 0.0034 0.3699
2013.043.16:18:59.82#fivpt#perform 0.707 1535.2 0.344 5.725
2013.043.16:19:04.20#fivpt#offset 293.8714 65.2087 0.00041 0.00647 1 1
2013.043.16:19:04.20#fivpt#xoffset 293.8714 65.2087 0.00017 0.00647 0.00146 0.00228 1 1
...
```


Experiment pre-checks

- Prepare recording units and modules
 - Erase Mk5-modules
 - Start-up the Mark5A or dimino program
- Optional: prepare piggy-back recording on a PC-EVN for offline data transfer
 - Convert snap-file to file for PC-EVN recording
- Optional: prepare real-time data transfer with PC-EVN and real-time tsunami
 - Convert snap-file to file for tsunami-transfer
 - Prepare real-time tsunami on receiving server, e.g. Toki at GSI

Running the experiment

- Operator checks regularly
 - FS output
 - Onsource?
 - Weather readings
 - Cable readings
 - Scan_check OK
 - No red lights on VLBI-rack (or DBBC)
 - GPS-Fmout stable (DBBC-Mk5B stable)
- Optional for real-time experiments
 - Check fringes and results on webpage

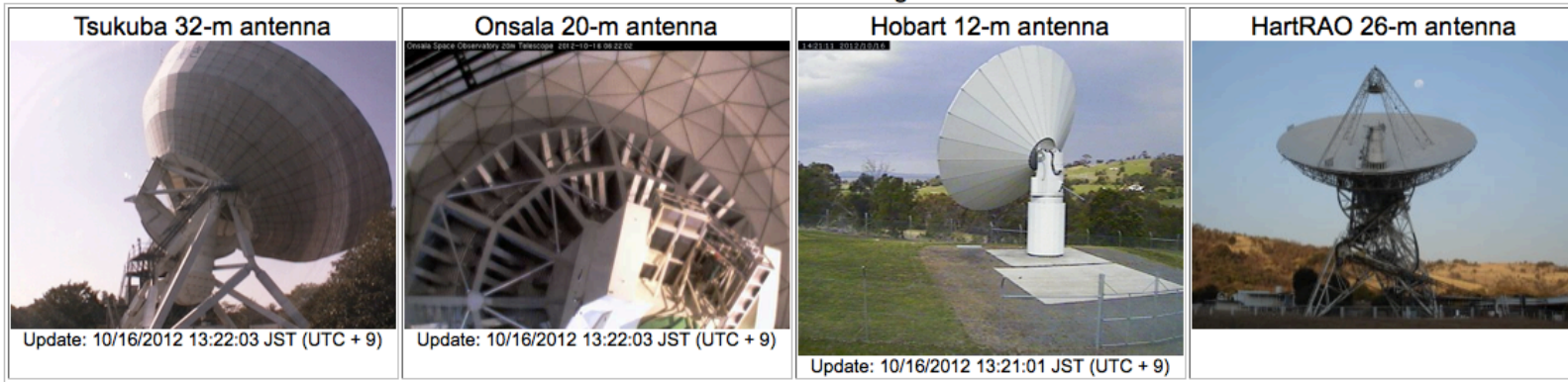
R1555 Ultra-rapid EOP-observation during a regular 24h IVS-session

Last update: 10/12/2012 02:20:07 JST (UTC + 9)

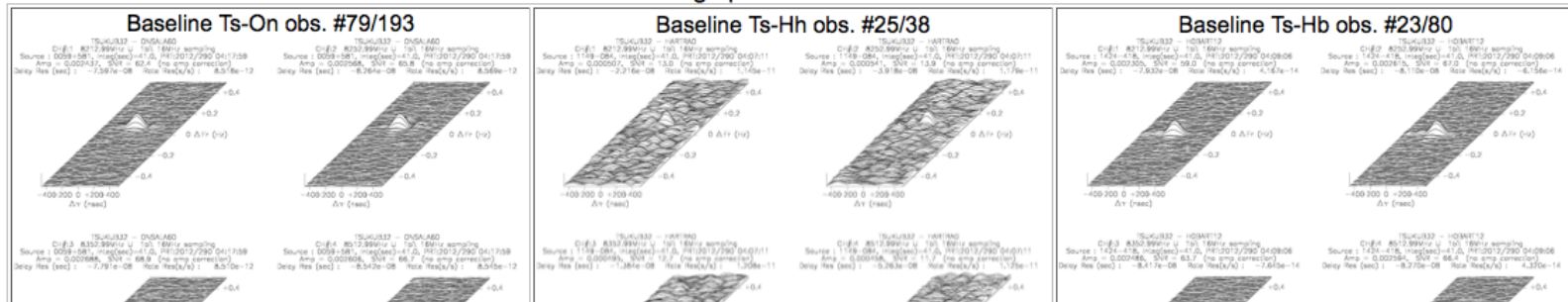
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Antenna webcam images



3-D fringe plots of X-band 1-4 ch

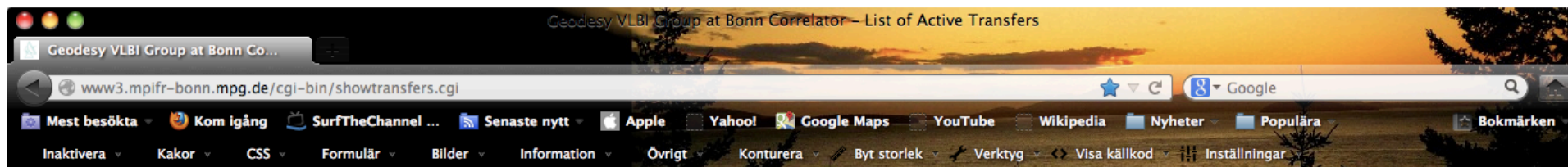


Experiment post-checks

- Cable sign
- Pointing check (if time allows)
- Send log-file to IVS, e.g. cddisin

Data transfer to correlator

- Offline Tsunami-transfer
 - Check tsunami-transfer page
 - Do the transfer
- (Shipping Mark5 modules)



List of Active Transfers for VLBI

List of Active Data Transfers

Started at	Sent from	Sent to	Raid	Experiment Name	Preset Transfer Rate	Port	Serial Number
2013-02-28 08:25:44	ai	bonn	data11	t2088	100m	46226	20130228082544
2013-02-27 10:24:08	ft	Bonn	sneezy1	r1574	225m	default	20130227102408
2013-02-27 09:39:14	hb177	Bonn	data10	r1574	100m	52100	20130227093914

Bonn Storage Information

Raid	Via Server	Size	Free	Note
/data3	io03	19.1 TB	919.2 GB	
/data10	io10	36.4 TB	8.8 TB	
/data11	io11	81.9 TB	4.5 TB	38 TB for e-transfer!!!
/sneezy1	sneezy1	18.2 TB	7.6 TB	
/sneezy2	sneezy2	7.5 TB	6.9 TB	

Haystack Storage Information

Raid	Via Server	Size	Free	Note
/raid3	evlbi1	3.6 TB	1.5 TB	
/raid2	evlbi1	3.6 TB	2.8 TB	