

CALLISTO status report #6 of 2004-01-05

To:

| | | |
|--------------------|--------|---------------------------|
| Arnold O. Benz | ETHZ | benz@astro.phys.ethz.ch |
| Tim Bastian | NRAO | tbastian@nrao.edu |
| Richard F. Bradley | NRAO | rbradley@nrao.edu |
| Peter Messmer | TXCORP | messmer@txcorp.com |
| Hansueli Meyer | ETHZ | meyerh@astro.phys.ethz.ch |
| Hanspeter Hächler | ETHZ | haechler@phys.ethz.ch |

From:

| | | |
|--------------------|------|-----------------------------|
| Christian Monstein | ETHZ | monstein@astro.phys.ethz.ch |
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FPU (focal plane unit)

All rusty screws and washers have been replaced by stainless steel parts. Unfortunately, both AVANTEK preamplifiers have been killed by an -up to now- unknown event (probably electrostatic discharges between antenna ground and electronics operating-ground which may have different electrical potential [TBD]).

RCU (receiver control unit)

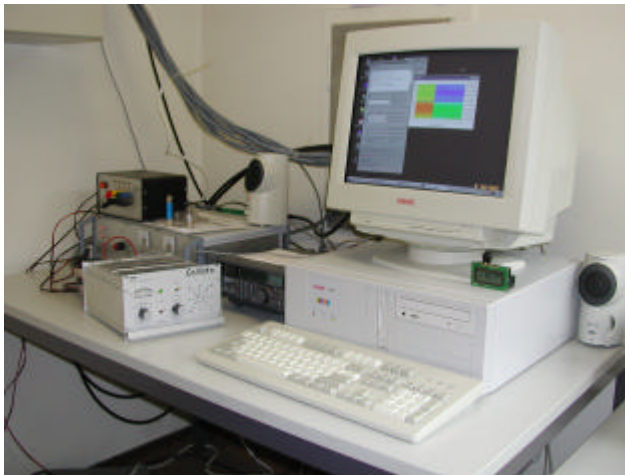
One of our QM lost its internal software (eprom) from an unknown reason. System software could easily be rebuilt via our ATMEL processor design kit STK-500.

RX (receiver)

Not applicable

Host, Server

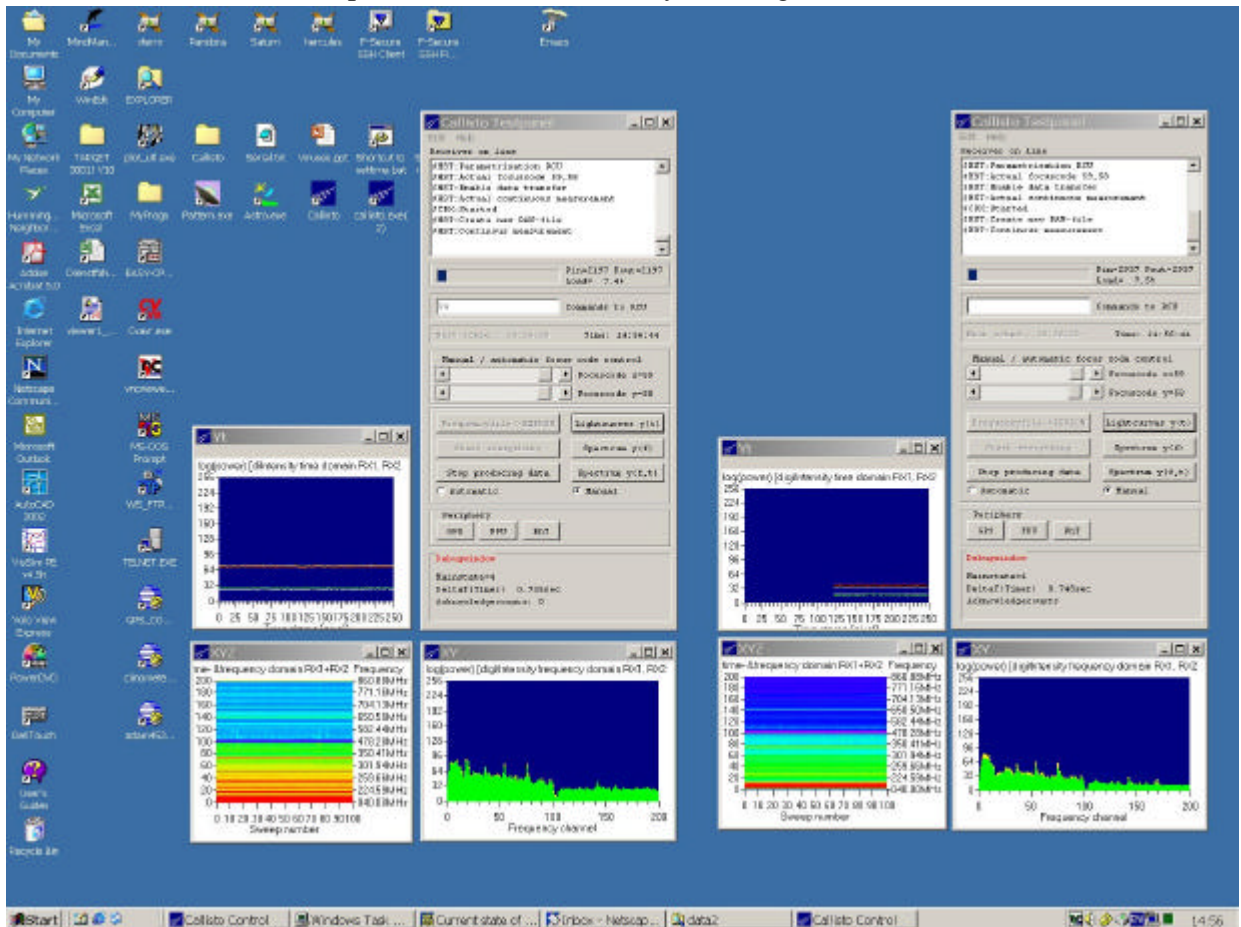
Our test installation at sun-tower building was controlled by an old Pentium-PC with 400MHz clock frequency and 128MByte RAM under MS-Windows95.



This old machine (picture left) is rather overloaded due to different applications like antenna-control, FPU-control, virus-scanner, software-firewall etc.

On the other hand we were successful to control two different CALLISTO spectrometers with one single PC. This computer was a Dell 1,8GHz-PC with Intel Celeron processor and 512MByte RAM. Both spectrometers were controlled via an individual USB-RS232-converter, see screenshot below.

Screenshot: Two Callisto spectrometers controlled by one single office PC.



QM (qualification model)

We made a test installation at sun-tower in Zurich together with a test FPU on our 5m parabola. A new crossed log-per antenna was also installed to supply the FPU with two linear polarizations. The FPU was controlled by APRAXOS hard- (power supply and RS484/Rs232-converter) and software.

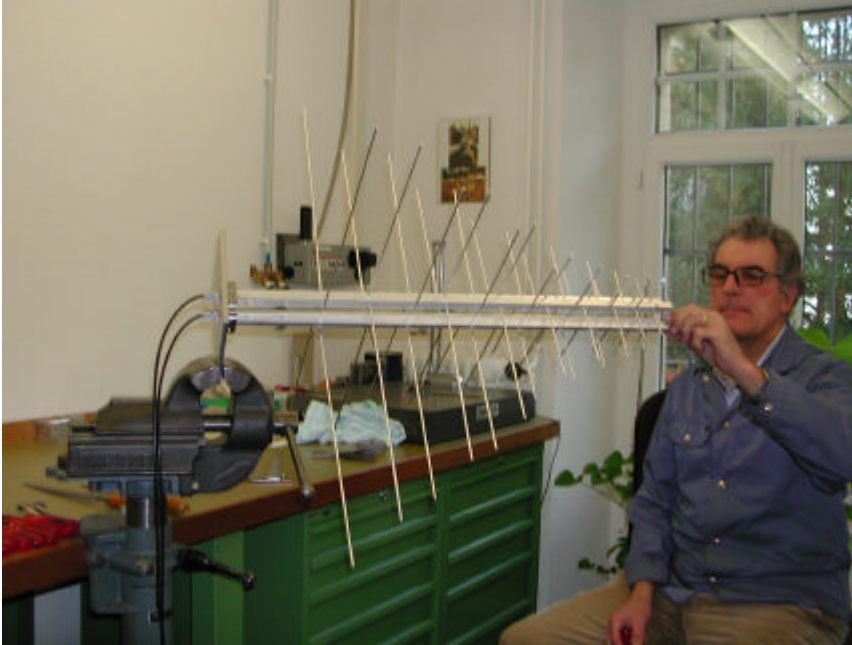
FM (flight model)

Non conformance NC0034 (wiring error) could be solved. Both apparatus are now waiting to be used as they are at the moment or to be tested in more detail.

AOB

Software progress:

Non conformance NCR0038 frequency file reader in a separate thread is now solved. Some other minor NCR's are also solved. The whole RCU control software did run pretty stable during Xmas-time. Unfortunately there was only very little solar radio activity.

New antenna:

Final work on the new crossed log-per by our senior mechanic Frieder Aebersold.

The antenna operating frequency is from about 170MHz up to about 1,4GHz.

Actual scheduler:

```

/*-----*/
/* (C) Copyright Institute of Astronomy ETHZ 8092 Zuerich Switzerland */
/*-----*/
/* File: SCHEDULER.CFG Revision: 04, 12.12.2003 Chr. Monstein */
/*-----*/
/* Time-scheduler describes what has when to be done on CALLISTO */
/*-----*/

```

```

/* Created by: Chr. Monstein 29.10.2002 initial experients
/* Updated by: Chr. Monstein 07.11.2002 reviewd version
/* Updated by: Chr. Monstein 03.02.2002 reviewd version
/* Updated by: Chr. Monstein 19.09.2003 some minor text changes & focuscode added
/* Updated by: Chr. Monstein 12.12.2003 polarization measurement STS Zürich

```

```

/* Each schedule-entry is composed of:
/* - Starttime hh:mm:ss (UT) + delimiter
/* - focuscodes decimal (63...00) individual code for every receiver module
/* - Planned measurement-mode (0...Z) + delimiter
/* - Number of integration steps + delimiter
/* - Frequencytable as an ASCII-filename + delimiter
/* - additional comment + delimiter
/* each entry will be repeated automatically every day
/* empty lines are allowed to separate diffent task

```

```
// scheduler explicitly for parallel measurement mode (2 tuner at the same time)
```

```

\begin{scheduler}
03:00:00,63,62,C,01,frq00201.cfg, // cold sky LHC&RHC parallel
03:00:30,63,62,0,01,frq00201.cfg, // stop
03:01:00,63,62,0,01,frq00201.cfg, // security stop

10:00:00,63,62,3,01,frq00201.cfg, // swc= 0, LHC&RHC parallel

12:00:00,56,56,2,01,frq00201.cfg, // swc= 5, 50 ohm termination RHC
12:00:25,57,57,2,01,frq00201.cfg, // swc= 4, 50 ohm termination LHC
12:00:50,50,50,2,01,frq00201.cfg, // swc= 9, Noise-10dB RHC isolated
12:01:15,51,51,2,01,frq00201.cfg, // swc= 8, Noise-10dB LHC isolated
12:01:40,45,45,2,01,frq00201.cfg, // swc=11, Noise-10dB RHC input
12:02:05,46,46,2,01,frq00201.cfg, // swc=10, Noise-10dB LHC input
12:02:30,41,41,2,01,frq00201.cfg, // swc=14, Noise LHC isolated
12:02:55,40,40,2,01,frq00201.cfg, // swc=15, Noise RHC isolated
12:03:20,36,36,2,01,frq00201.cfg, // swc=16, Noise LHC input
12:03:45,35,35,2,01,frq00201.cfg, // swc=17, Noise RHC input
12:04:10,63,62,H,01,frq00201.cfg, // hot sky, LHC&RHC
12:04:40,63,62,0,01,frq00201.cfg, // stop

12:05:00,63,62,3,01,frq00201.cfg, // swc= 0, LHC&RHC parallel

15:00:00,59,58,0,01,frq00201.cfg, // stop
15:05:00,59,58,0,01,frq00201.cfg, // security stop

\end{scheduler}

```

Actual configuration:

```

/*-----*/
/* (C) Copyright Institute of Astronomy ETHZ 8092 Zuerich Switzerland */
/*-----*/
/* Programmname: callisto.cfg */
/* */
/* Revision: V1.0 Date: 21.10.2003 Autor: Chr. Monstein */
/* */
/* Purpose: Configuration file Radiospectrometer CALLISTO */
/* */
/* Editor: Notepad or any other ASCII-Editor */
/*-----*/

```

```

// Created by: Chr. Monstein 05.05.2003
// Updated by: Chr. Monstein 28.08.2003 all COM-definitions via this file
// Updated by: Chr. Monstein 29.09.2003 default frequency file
// Updated by: Chr. Monstein 21.10.2003 new: obs-mode, clocksource

```

```

// Keep line width below 120 bytes, otherwise you'll get unexpected
// results (buffer overflow)!

```

```

// RCU, receiver control unit
[rxcomport]=COM2 // COM1 .... COM8, office Monstein=COM3, Laptop=COM1
[sw-version]=1.03 // to be updated...
[observatory]=12 // CALLISTO=12

```

```
[observationmode]=7 // parallel measuring L&R
[integration]=1 // constant 1...50
[timesource]=1 // Host-level: 1=BIOS, 2=DCF77, 3=GPS
[clocksource]=1 // RISC-level: 0=software, 1=internal, 2=external
[filetime]=900 // time periode for one single raw-file (in seconds)
[frqfile]=frq00201.cfg // default frequency program
[mpps]=200 // number of measurement points per second (default)
[nsps]=2 // number of sweeps per second (default)

// FPU, focal plane unit
[fpucomport]=COM7 // COM1 .... COM8; Office Monstein=COM4, Laptop Kallistor=COM5
[...] to be implemented

// GPS, global positioning unit (external)
[gpscomport]=COM8 // COM1 .... COM8; Office Monstein=COM6, Laptop Kallistor=COM?
[...] to be implemented

// HygroWin Sensor (external)
[hygcomport]=COM8 // COM1 .... COM8; Office Monstein=COM1, Laptop Kallistor=COM?
[...] to be implemented
```