

EVN TOG video meeting

May 5th, 2020



This presentation has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730562 [RadioNet]

Continuous Calibration

- Hartebeesthoek and SRT joined the list of cont_cal capable stations.
- In total 11 stations (Ef, Jb, Hh, Mc, Mh, Nt, On, Sr, T6, Tr, and Ys) are using continuous calibration.
- The remaining stations are mostly developing new receiver or backend hardware for cont. cal. as well.

DBBC2 News

- Reliable 1 Gbps firmware V105/V106 in use for many years.
- V107 beta3 firmware with up to 2 Gbps in use for session 2, 2019. Good VLBI performance, but issues with `cont_cal`.
- V107 beta4, `cont_cal` issue is solved, timing problems occurred.
- V107 beta5, `cont_cal` issue is back (rarely), calibration can change when changing DBBC settings.

Fila10G News

- Latest firmware V4_1 version from “November 2018”
- A number of the GPS modules have not survived the GPS week roll over in April 2019
- Sync via NTP still possible.
- VLBI Lab in Bonn has found new firmware and will provide replacement modules for stations.
 - Stations should check there modules
 - Stations send faulty modules to Bonn and will receive an updated exchange module
 - GPS modules can be removed from the DBBC2/Fila10G independently of the Fial10G functionality.

Fila10G News

Good modules:



NV08C-CSM

Problematic modules:



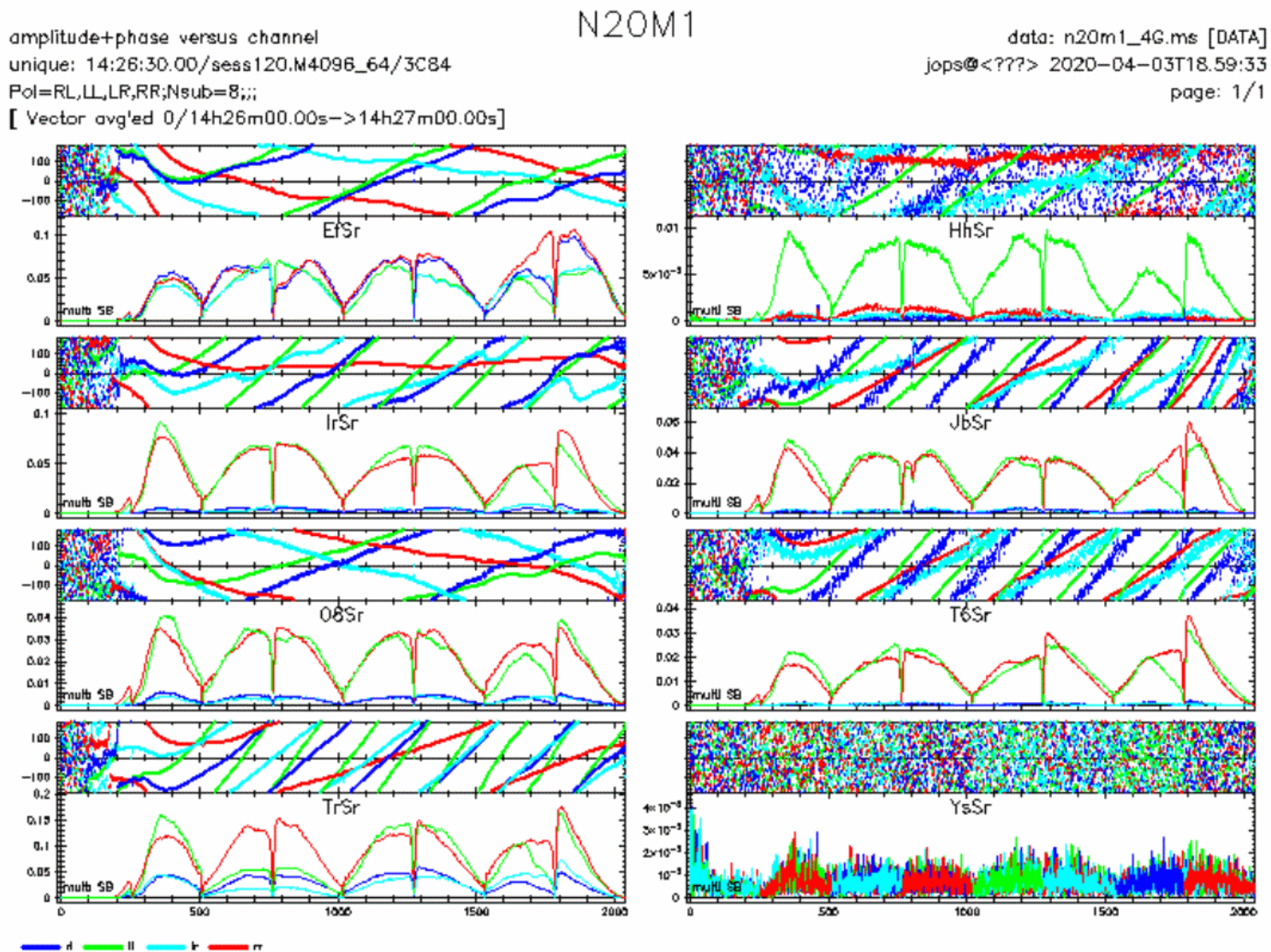
NavSync

Media requirements

- 2 x 250 TB goal for 2 Gbps recordings
Roughly achieved by many stations (~460 TB).
- The CBD has decided to double the disk space capacity again by 2021 to allow an increased recording rate of 4 Gbps.
- 4 Gbps require a Flexbuff or Mark6 at the station. Mark5 recorders cannot do 4 Gbps.
- And 4 Gbps require 512 MHz of bandwidth at each polarization.

4 Gbps recording rate

- First tests done at C-band: 4.5-5.0 and 6.4-6.9 GHz



VLBI Equipment

VLBI backend	Recorder	2 Gbps	4 Gbps	Stations
DBBC2	Flexbuff/Mark6	yes	yes	Ef, Ir, Hh, Jb1/2, Mc, Mh, Km, Nt, On, Sr, T6, Ur, Wb, Ys
OCTAD	Mark6	yes	yes	KVN
R1002M	Mark5B+	yes	no	Kvazar
NRAO RDBE	Mark6	yes	yes	Arecibo, VLBA
WIDAR	Flexbuff	(maybe)	no	eMERLIN

Possible 4 Gbps observing bands

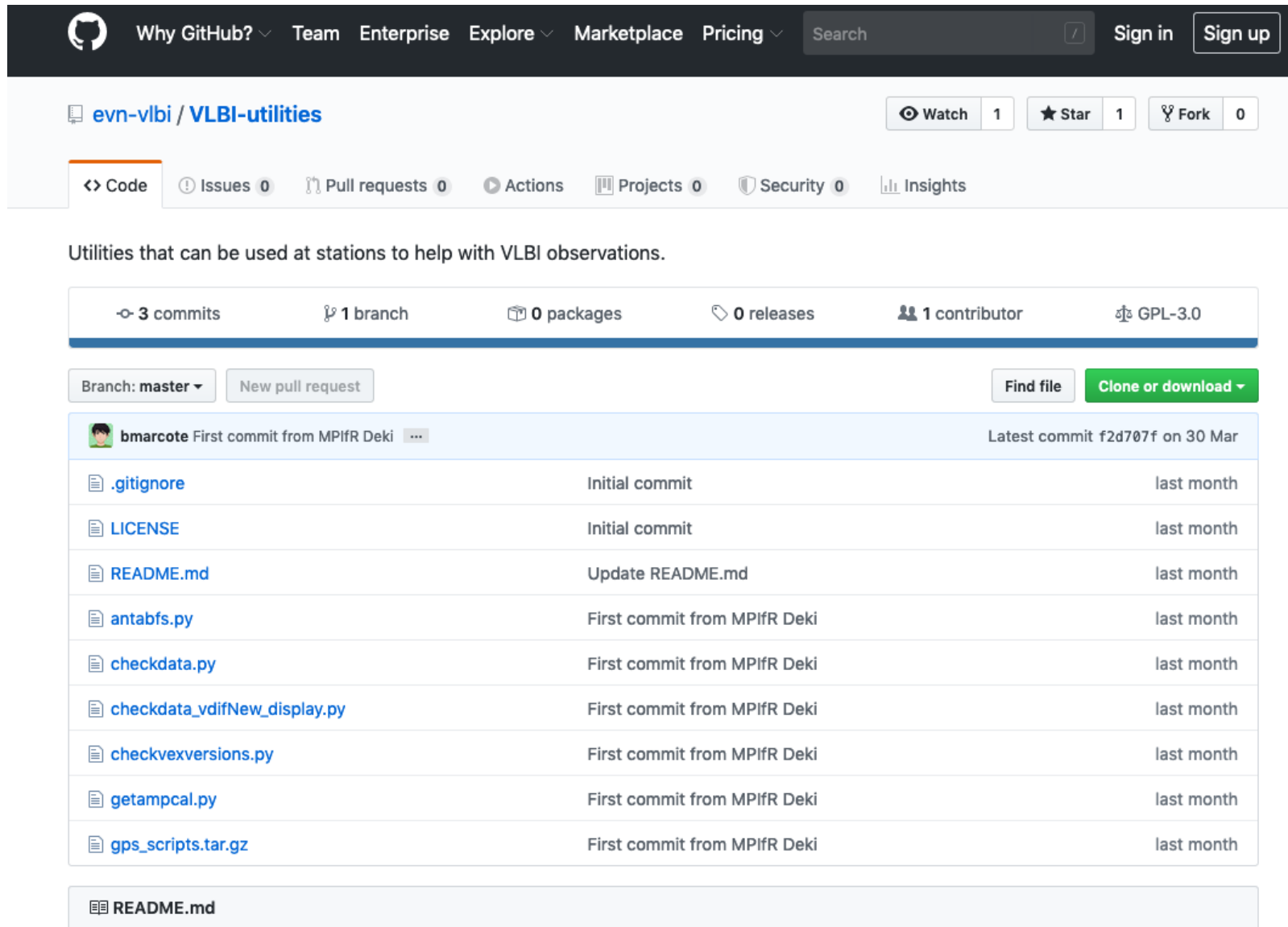
Station	C-band	M-band	X-band	K-band	Q-band
Ar	(yes)	(yes)	(yes)	-	-
Ef, Ir, Mc, Nt, On, T6, Ys	yes	yes	yes	yes	(yes)
Mc, Nt*	yes (400)	yes (*400)	yes	yes	-
Jb2, Tr	yes	yes	-	yes	-
eMERLIN	no (backend)	no (backend)	-	no (backend)	
Hh	yes	no (150)	yes	yes	-
Km	yes	yes	yes	-	-
Mh	-	-	yes	yes	yes
Ro	-	-	yes	no (70)	no (70)
Sr	-	yes	-	yes	-
KVN	-	-	-	yes	yes
Kvazar	no (backend)	-	no (backend)	no (backend)	-
Ur	yes (390)	-	yes	yes	-
Wb	no (160)	no (160)	no (160)	-	-

Even higher recording rates

- An 8 Gbps fringe test at X-band has been performed, FT036. Fringes were found between Ef, On, T6 using DBBC2 in wastro mode with 32x64 MHz. Plots in Harros talk.
- No further test with DBBC3 because of firmware development and required upgrades of DBBC3 hardware.

EVN Software Repository

- <https://github.com/evn-vlbi>



The screenshot shows the GitHub repository page for `evn-vlbi / VLBI-utilities`. The repository is currently on the `master` branch. It has 3 commits, 1 branch, 0 packages, 0 releases, 1 contributor, and is licensed under GPL-3.0. The repository description is "Utilities that can be used at stations to help with VLBI observations." The commit history shows the following files and their commit details:

File	Commit Message	Commit Date
<code>.gitignore</code>	Initial commit	last month
<code>LICENSE</code>	Initial commit	last month
<code>README.md</code>	Update README.md	last month
<code>antabfs.py</code>	First commit from MPIfR Deki	last month
<code>checkdata.py</code>	First commit from MPIfR Deki	last month
<code>checkdata_vdifNew_display.py</code>	First commit from MPIfR Deki	last month
<code>checkvexversions.py</code>	First commit from MPIfR Deki	last month
<code>getampcal.py</code>	First commit from MPIfR Deki	last month
<code>gps_scripts.tar.gz</code>	First commit from MPIfR Deki	last month

The repository also includes a `README.md` file.

EVN Wiki page updates

Receiver frequency ranges:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Frequency_ranges_for_2%2F%2F4_0

Disk inventory:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Disk_Inventory

Recorder/Flexbuff status (2 pages):

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Mark6%2F%2FFlexbuff_status

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Recorders_EVN_status

2 Gbps status:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/2Gbps

eVLBI status:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/e-VLBI_Status

EVN Spare parts

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/EVN_spare_parts



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