Recommendations for scheduling Effelsberg in VLBI observations

A general guide line for EVN or global VLBI observer is provided by the EVN User Guide. The information given here is meant as a summary of the capabilities and restrictions regarding the use of the Effelsberg antenna in any VLBI array.

- There are two new digital VLBI systems installed at Effelsberg
  - **A DBBC with a Mark5B+ disk recorder**. It provides up to 16 tunable BBCs at upper and lower side band at bandwidth of 1 to 16 MHz and corresponding recording rates. It can be also operated in a poly-phase filter bank mode (PFB) that provides 16 or 32 BBCs at fixed frequencies (8/16 dual or 16/32 single pol. of 32 MHz bandwidth) and a recording rate of 2048 or 4096 Mbps. It is recommended to use the DBBC for any EVN, global VLBI, and geo observations that are correlated in Bonn or JIVE. Projects that are correlated in Socorro might want to use the RDBE instead, however also DBBC data can be correlated at Socorro. The SCHED station code is EFLSBERG.
  - **The NRAOs RDBE with a Mark5C disk recorder**. It can be used in a poly-phase filter bank mode (PFB) that provides 16 BBCs at fixed freqeuncies (8 dual or 16 single pol. of 32 MHz bandwidth) and a recording rate of 2048 Mbps. There is also a digital down converter mode (DDC) that currently provides 4 BBCs at variable bandwidth between 1 and 128 MHz and corresponding recording rates. A version with 8 BBCs will be available later in 2014. The SCHED station code is EB_VLBA
- Since the resolution of the Effelsberg antenna is higher than that of the usual VLBI antennas it is recommended to introduce same gaps for pointing checks in the schedule at least for frequencies of 5 GHz and higher. Gaps of 6-8 minutes on a bright source should be sufficient for a pointing. If the VLBI source itself isn't bright enough 10 minutes are better to allow for a source change.
  At 6cm and 3.6cm a pointing every 4 hours is sufficient, at shorter wavelength a gap every 2 hours is recommended.
- Driving speeds of 25 deg/min in azimuth and 15 deg/min in elevation are the usual settings in the station catalogue from SCHED and produce realistic results.
- Effelsberg has a high frequency agility for its secondary focus receivers. This includes the 6cm, 3.6cm, S/X, 2cm, 1.3cm, and 7mm receivers. Switching between those takes less than 40 seconds. The 18/21cm and 5cm receivers are located in the prime focus and cannot be changed within a single VLBI project. For more details about receivers: Receivers for the Effelsberg 100-m Telescope
- VLBI Friend at Effelsberg is Uwe Bach (ubach at mpifr.de).