Example Observations (Currently only HBA)

Combining everything found in this chapter, we can provide an example observation. This code block describes initialisation of the station, beamforms using a selected set of RCUs on the I-LOFAR default subbands, then shuts down the station when the observation is complete. Overall we generally use

- A swlevel command to enter level 2,
- A pre-amble block to configure the RSPs to required bitmodes and other states,
- A swlevel command to enter level 3,
- A (or multiple) beamctl commands to perform a block of observations, each of which is manually killed after a specified beam length (beamctl does have a duration flag, but the process does not exit after the beam expires)
- A command to return the station to swlevel 0 for the next user

```
# Observation starting 2021-07-14T06:57, recording to beign at 2021-07-14T07:00
# 2021-07-14T07:00 - 2021-07-14T07:29, 'J0139+3310 [0.43613087285590374, 0.5867200623795394, 'J2000']

bash ./sleepuntil.sh 20210714 065700
echo 'Initialising: SWLEVEL 2'
eval swlevel 2

# Using a preamble that has been passed down through the ages.
# I honestly cannot tell you the benefits / downsides of most of these rspctl commands.
rspctl --wg=0
sleep 1
rspctl --rcuprsg=0
sleep 1

# Swap to 8-bit mode to allow for use of the full bandwidth.
rspctl --bitmode=8
sleep 1
killall beamctl
sleep 3
echo 'Initialising: SWLEVEL 3'
eval swlevel 3
```

```
sleep 2

# Ensure the SEREDES splitter is disabled and datastream is on (should not be needed, just encase
rspctl --splitter=0
sleep 1
rspctl --datastream=1
sleep 3


rcus='0:83,86:159,162:191'
pointing='0.43613087285590374,0.5867200623795394,J2000'
beamctl --antennaset=HBA_JOINED --rcus=$rcus --band=110_190 --beamlets=0:487 --subbands=12:499 --
anadir=$pointing --digdir=$pointing &
bash sleepuntil.sh 20210714 072910
killall -9 beamctl

swlevel 0
```

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