# X-Shooter post-observations and data reduction

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## Extracting information about the observations from the header

- **How do I get the information about the position angle of the slit during the observations?**

  **Answer:** The position angle of the slit during the observations can be determined from the HIEARCH ESO ADA POSANG value in the header. This value is the opposite in sign to the angle specified by the user. If the user specified parallactic angle (9999), this will be the opposite as the parallactic angle at preset/acquisition, which is slightly different than the parallactic angle at start of the acquisition, reported in HIERARCH ESO TEL PARANG START.

- **How do I know at which position along the slit the target was located?**

  **Answer:** This information is reported in the header with the keyword HIERARCH ESO SEQ CUMOFF Y, or SEQ.CUMOFF.Y, which reports the distance of the location of the target from the center of the slit in arcsec.

## Reduction of X-Shooter data

- **How can I reduce nodding-mode data in stare mode?**

  **Answer:** In the EDPS workflow system, go to the Raw Data tab and set the workflow parameter process_nodding_as_stare to TRUE. Alternatively, in ESO Reflex, you can change the OCARuleFile in the top part of the workflow to xsh_wkf_stare.oca. To be specific, this is one of the Global Parameters you find above the Step 4 of the reduction modules.

- **How can I correct the spectra from the telluric lines in the UVB arm?**

  **Answer:** There is no need to correct for telluric absorption in the UVB arm. Looking for example at Smette et al. (2015), Fig. 1, one sees that there is no telluric absorption features between 0.3 and 0.5 micron, with the only feature being the broad O3 band, which is corrected for by the pipeline. This is the reason why the workflow is only available in the VIS and NIR arms.

- **How can I find the calibration files from the Science Verification run?**

  **Answer:** the observations for the programs Pr.Id. 60.A-94nn(A) were taken in the Science Verification runs of X-Shooter. You can find information about these dataset and their associated calibrations here: https://www.eso.org/sci/activities/vltsv/xshootersv.html

- **How can the data obtained during Science Verification run 2 (26-29 Sept 2009) be flux calibrated?**

  **Answer:** The only flux standard star observed during SV2 (BD+17 4708) is not supported anymore in the pipeline. This causes an error in the reduction, and it can be solved only by using another standard star obtained close in time with the same instrument. No major interventions have been executed on the instrument in that period, therefore a standard star observed within a couple of weeks from the observations should correct for most of instrument-related effects. Please search on the archive for STD,FLUX stars (ECHELLE,SLIT) observed with X-Shooter within about two-three weeks before or after the SV2 run. You will find data for GD71, for example, which was observed on 2009-10-18T08:52:17.333. You can download those data, remove the ones of BD+17 4708 from the folder, and run the pipeline

again.

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