MUSE Data Reduction Workshop- Solutions

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1 Let's look at the data

Remember to take a look at the manual layout here

2 Pre-processing

2.1 Create Master Bias Frame

2.5 minutes
Run as is, shouldn't crash

2.2 Create the Master Flat Field

2.5 sminutes
MASTER_BIAS frame missing from the sof file. This calibration was created in the previous step and needs to be added to the sof file for this recipe. Remember to update the keyword.

2.3 Create the Wavelength Calibration

6 minutes
LINE_CATALOG is missing. look for the correct filename in the xml file and add it to the sof file.

2.4 Create the Master Sky Flat

4 minutes
The raw skyflats are missing. Use the dfits command to identify the filenames of the skyflats and add them to the sof file. Remember to update the keyword.

2.5 Run the muse_scibasic recipe

13 minutes
The illumination flat is missing. Use the dfits command to identify the illumination flat that most closely matches the science data in terms of time and temperature.

3 Post-processing

3.1 Calculate the flux calibration

2 minutes
Standard star pixel tables are missing. Remember that for the post-processing steps you're working with the pixeltables, not the raw frames There is also a typo in the command (the sof file name is incorrect)

3.2 Measure the sky background from a separate image

The sof file is empty. Need to add the LSF_PROFILE, SKY_LINES, EXTINCTION_TABLE, STD_RESPONSE and sky pixel table.

3.3 Run the post-processing on the first exposure

The sof file is empty. Need to add the LSF_PROFILE, SKY_LINES, EXTINCTION_TABLE, STD_RESPONSE, ASTROMETRY_WCS, SKY_CONTINUUM, STD_TELLURIC and the science pixel tables

3.4 Measure the offsets between each exposure

The sof file is empty. Need to add the file names of the white light images

3.5 Combine the pixeltables to create the final datacube

The sof file is empty. Need to add the filenames of the datacubes, offset list from the previous step, and the filter table. In the case of the Jupiter datacube, the combined datacube will be blurred because Jupiter spins too quickly. In this datacube as well you can see Io moving out from behind Jupiter at the top right.

4 Visualizing the Datacube