Tigre newsletter

This is the first edition of the TIGRE newsletter. With this newsletter a new platform is introduced to inform the TIGRE users about important news of TIGRE. These newsletters will be send only for important news to the currently registered TIGRE users. Furthermore, all newsletters will be put at the TIGRE web page.

After more than two month of development, the version 2 of the TIGRE data reduction pipeline is working now! At the moment, the data from last December to are being reduced and will be available as soon as possible. Next, the important differences to to the version 1 of the pipeline are described:

1. The calculation of the wavelength solution is changed. In the version 1, the wavelength solution was estimated via a cross correlation of the ThAr spectra with a master spectrum. In the new version the single ThAr spectra of the corresponding calibration set (one taken in the evening and one taken in the morning) are co-added to obtain a high S/N ThAr spectrum for each calibration set. After this, the mean shift of this high S/N ThAr compared to a master ThAr is estimated via cross correlation. This value is listed in each spectrum header. To calculate the daily wavelength solution, the line positions in the both daily high S/N ThAr spectra are estimated with a Gaussian. These line positions are averaged and used to calculate the new wavelength solution. Furthermore, a daily mean spectral resolution and the standard deviation are calculated and listed in each spectrum header.

2. The merging procedure is upgraded. Here, a bug was removed which produced artifacts in low S/N merged spectra. Furthermore, the handling of low S/N spectra is improved. Also, the error calculation is slightly changed. Now, the S/N of the blaze is considered in the estimation of the error of the merged spectrum. In general, the contribution of the error of the blaze in the total error budget of the merged spectrum is small.

3. The handling of low S/N spectra is changed. In the version 1 of the pipeline, all spectra were reduced in the same way. This is changed in the new version. Here, two categories of spectra are defined: high S/N and low S/N spectra. The threshold is defined at S/N 15. For high S/N spectra, the spectra reduction doesn't change in comparison to version 1. In the case of low S/N spectra, the spectra are reduced in the non optimal mode. Furthermore, the background of the low S/N spectra is estimated with a new and more robust procedure. In the case that it is not possible to estimate the background for a high S/N spectrum, the spectrum is then automatically reduced like a low S/N spectrum.

4. For the red channel, the dark master image is subtracted from the science images. The reason is the very strong memory effect.

5. In the header of the spectra, some additional keywords are listed (e. g. Mean Resolution). A list with the description of the keywords will be available soon on the web page.

6. Two new pages are included on the TIGRE user web page. The first page (Spectrograph Info/Reduction Info) gives you information about the reduction for individual observation nights. The second page (Spectrograph Info/Long-term stability) shows plots to monitor the long-term stability of the spectrograph. These two pages includes only the data reduced by the version 2 of the pipeline.

7. For the users of python and the both converting procedures, new procedures are necessary to read in the data reduced with pipeline version 2. These procedures are already on the web page.

On March 10th, a lightning destroyed the diesel generator in its generator part. In November, the maintenance team found a faulty lightning protection at one phase conductor. This fault was not repaired until now. Therefore we decided to cut-off the local power supply system from the public network during bad weather periods until the lightning protector will be repaired.

Finally, it is planned a service trip to La Luz for mid May. The mean task will the replacement of the FLI camera by the repaired Andor camera in the red channel of the spectrograph.

If you do not want to receive this newsletter, please let us know.

The TIGRE team