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The pipeline for the GOSSS data reduction

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Abstract

The Galactic O-Star Spectroscopic Survey (GOSSS) is an ambitious project that is observing all known Galactic O stars with $B < 13$ in the blue-violet part of the spectrum with $R \sim 2500$. It is based on version 2 of the most complete catalog to date of Galactic O stars with accurate spectral types (v1, Maíz Apellániz et al. 2004 ;v2, Sota et al. 2008). Given the large amount of data that we are getting (more than 150 nights of observations at three different observatories in the last 4 years) we have developed an automatic spectroscopic reduction pipeline. This pipeline has been programmed in IDL and automates the process of data reduction. It can operate in two modes: automatic data reduction (quicklook) or semi-automatic data reduction (full). In "quicklook", we are able to get rectified and calibrated spectra of all stars of a full night just minutes after the observations. The pipeline automatically identifies the type of image and applies the standard reduction procedure (bias subtraction, flat field correction, application of bad pixel mask, ...). It also extracts all spectra of the stars in one image (including close visual binaries), aligns and merges all spectra of the same star (to increase the signal to noise ratio and to correct defects such as cosmic rays), calibrates in wavelength and rectifies the continuum. The same operations are performed in full mode, but allowing the user to adjust the parameters used in the process.