MEGARA Data Reduction Pipeline.

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Abstract

The data reduction software for MEGARA, \texttt{megaradrp}, is an open source (GPLv3) Python package.

\begin{itemize}
  \item Devel: \url{https://github.com/guaix-ucm/megaradrp}
  \item Issues: \url{https://github.com/guaix-ucm/megaradrp/issues}
  \item Docs: \url{https://megara-drp.readthedocs.io/}
  \item PyPI: \url{https://pypi.org/project/megaradrp/}
\end{itemize}

The \texttt{megaradrp} package can be used both as a standalone program or as a component of the GTC control system. The same pipeline processes MEGARA images during the observation and offline, although using different reduction strategies. \texttt{megaradrp} provides two methods for extraction:

\begin{itemize}
  \item \texttt{TraceMap} is fast, well suited for online extraction at the telescope. The peak of the spectra are detected in halogen lamp images and then a fixed extraction window is applied to images with the same instrumental configuration. The window is half the distance between peaks.
  \item \texttt{ModelMap} is slow, as it models the PSF as a bivariate Gaussian along the spectral and spatial direction of halogen map images. At different positions along the dispersion axis, the algorithm fits iteratively the 600 peaks. Then, a spline is fitted to the parameters to recover the model for all the original image.
\end{itemize}

SP acknowledges financial support from the Spanish Ministry of Economy and Competitiveness (MINECO) under grant number AYA2016-75808-R, which is partly funded by the European Regional Development Fund (ERDF). (See poster)