



Technical memo number 9—October 12, 2004

SPECTRA EXTRACTIONS WITH IRAF

Michael Koppelman, University of Minnesota

(If you use information or advice from this memo, please acknowledge it and the net site <http://etacar.umn.edu/> in any resulting publications; thanks)

1. Introduction

While the HST Treasury Program on Eta Carinae has developed tools to perform spectrum extractions¹, there may still exist a desire by some professionals to use the Image Reduction and Analysis Facility (IRAF)² to extract spectra from the database archive. This note addresses some specific parameter issues that must be taken into account when doing extractions with IRAF. Specifically we address doing simple extractions with tasks such as `apsum`.

2. IRAF Extractions

While the IRAF package `stdas` is designed for working with STIS spectra, the data from the HST Treasury Program on Eta Carinae has already been processed by the Treasury Program's version of CALSTIS. It may no longer be convenient or even possible to make a 1-D extraction from the Treasury Program spectra with `stdas` packages.

It is possible to do extractions using the IRAF packages for generic 1-D and 2-D spectra. These packages include `specred`, `onedspec` and `twodspec`. When using these tasks it is imperative that certain parameters be set in a specific manner. This is because the Treasury Program spectra have been flux and wavelength calibrated, so the pixels are in units of flux and wavelength. However, the `GAIN` and `READNOISE` headers are still in units of counts. This creates a situation where extractions which are using CCD noise statistics to optimize the extraction **don't work**. To correct this situation the `weights` parameter must be set to "none" and the `clean` parameter must be set to "no". Failure to set these parameters correctly will result in extractions with null values at every wavelength. IRAF ends up identifying every pixel in the extraction as noise and ignores every pixel.

¹See `exfits` at <http://etacar.umn.edu/treasury/software/>

²<http://iraf.noao.edu/>