The tilt of the EIS slit

To study the spectral tilt, it is necessary to analyse rasters that take the complete length along the slit, i.e., 512 pixels.

One such study is JTM003 which has been run four times.

I chose the run on 29-Dec-2006, 16:07, which is a quiet Sun raster.

The Fe XII 195 data window was calibrated with the routine EIS_PROCESS_WINDOW.PRO, using the YBIN=2 option to bin by 2 pixels in the Y-direction. A single Gaussian was then fit to each spatial pixel using the routine EIS_AUTO_FIT.PRO. This yields the line centroid in both angstroms and velocity (km s^{-1}).

Significant variation of the centroid along the slit is seen so it is difficult to see any systematic shape to the centroid variation beyond a simple linear variation. I have thus used the IDL routine LINFIT.PRO to fit a straight line to the centroid variations.

An example of one such straight line fit is shown in Fig. 1.

The complete set of derived gradients for all 512 X-pixels is shown in Fig. 2.

The average gradient is 0.0491, but the scatter is significant. This corresponds to a 25.1 km s^{-1} shift from the bottom of the slit to the top. At the top of the slit, the line is found at longer wavelengths than at the bottom.

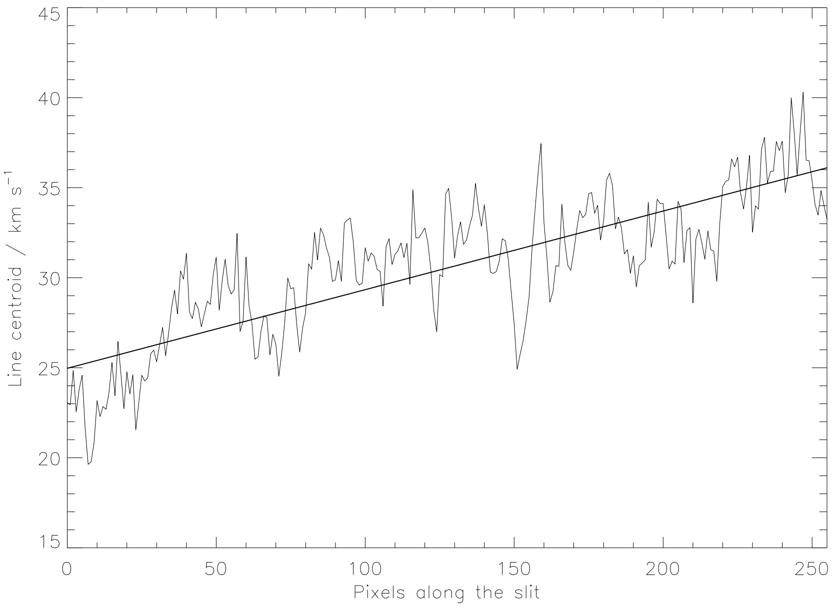

Figure 1:

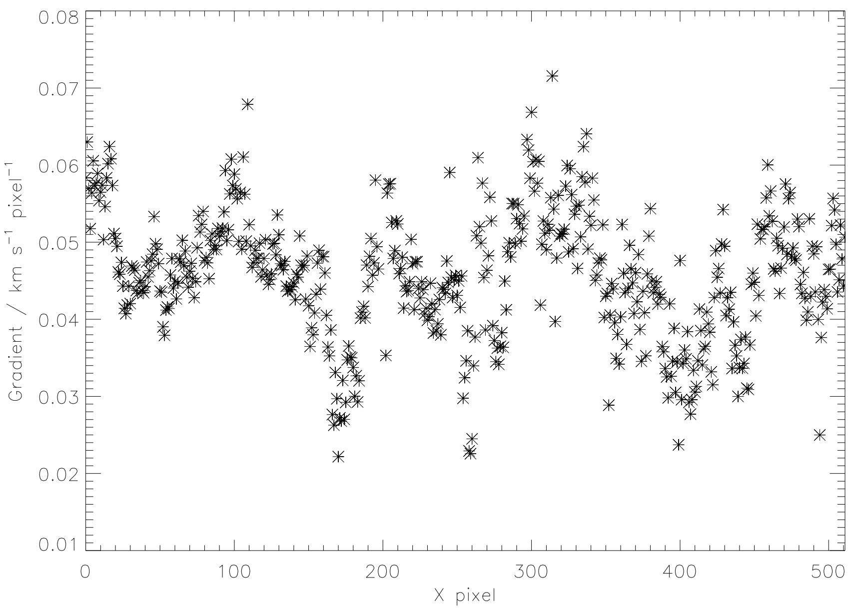
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
Gradient / km s^{-1} pixel^{-1}
0
100
200
300
400
500
X pixel

Figure 2: