1. Fixed Pattern Noise - Extraction

The procedure used to extract the fixed pattern noise (FPN) is to run a median filter of size 4 x 4 pixels through selected images, and divide the original image by the median filtered image. Figure 1 shows the power spectra of mean rows of F1 (512 x 512 pixel) images of different wavelengths, taken before and after median filtering. The raw data shows strong excess power at a spatial frequency of four channels, with subsidiary peaks at frequencies of 2.3, 21.7 and 3.2 channels. The dominant four-channel power is totally removed by the median filtering process, and the subsidiary spikes have very low excess power. The dimension of the filter is important, at least in the scan direction. Filter widths which are not a simple multiple of 4 do not remove the 4-channel FPN completely. This procedure is rather long (~ 600 CPU seconds for an F1 image), and it may be that a simpler box-car filter of suitable dimensions will also work satisfactorily.

2. Frequency, Amplitude and Coherence

Figure 2 shows overlays of selected individual rows from two images taken in the light of 230 nm and 550 nm. The two images (3901 and 4111) were taken 79 hours apart, and there has been substantial movement of the reseaux (~ 10 pixels) between exposures. The overlays illustrate:

- The FPN occurs at a primary spatial frequency of 4 channels.
- The amplitude of the effect is 10 - 15%.
- The fixed pattern noise is quite coherent (in SDS coordinates) from one image to another.
- The FPN shows some correlation from row to row, but there is significant variation in the row direction as well. The effect can not be adequately removed by division by a mean row.

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Fixed Pattern Noise

Rows Binned in increments of 32

Figure 3

Pixel