MIPS Campaign E

MIPS Team

October 25, 2003

Abstract

Campaign E was short, centered just on obtaining a high quality image to check the focus for MIPS. Focus was measured to be between 10 and 35 microns off ideal, with an ambiguity in sign (as expected because of the symmetry of nearly diffraction limited images around focus).

1. Focus Determination

A separate report was prepared by Karl Stapelfeldt on the focus determination, and we will not repeat it here. The key result is shown in Figure 1. We concluded that the telescope focus is between 10 and 35 microns away from ideal.

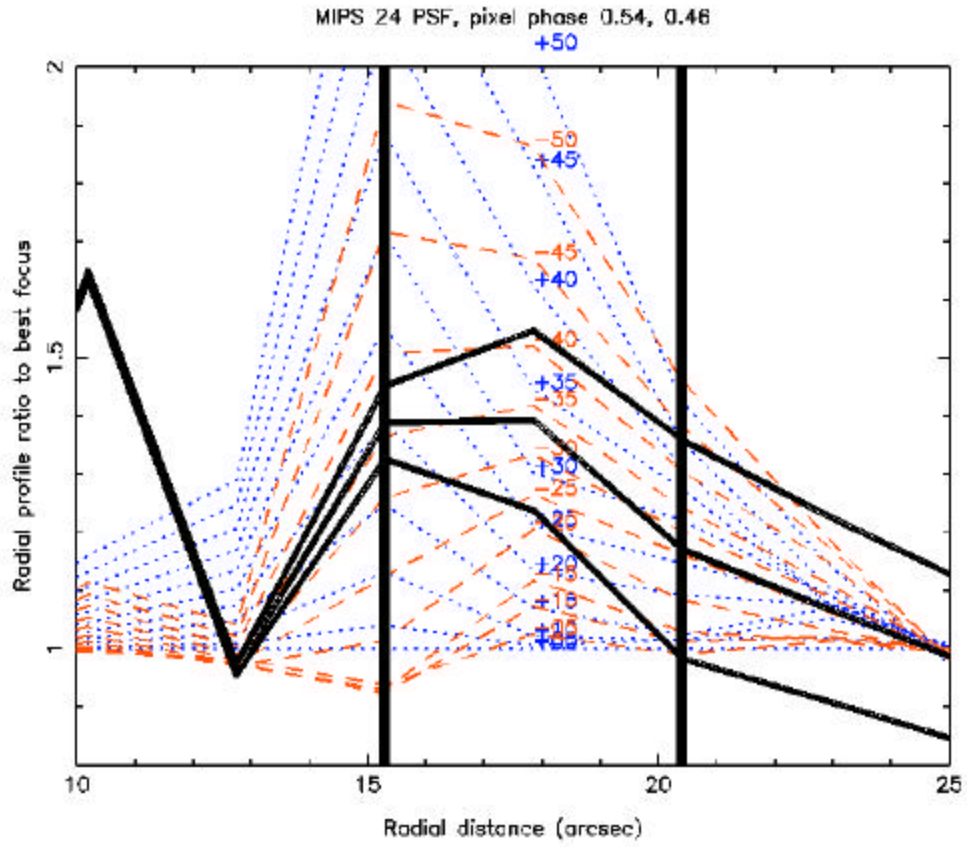

Figure 1. Ratio of Observed to Predicted PSF at 24 Microns. The predicted image is from STinyTim. Both images have been averaged radially. The second dark ring falls between the two heavy vertical lines, and the ratio in that region is what we use to determine focus (other measures of focus use intrinsically bright regions in the image and are less effective for a nearly diffraction limited image). The set of "horizontal" heavy black lines show the data (center) and an estimate of the range permitted by systematic errors (top and bottom). Predictions from STinyTim are in red for negative defocus and blue for positive.

2. Far Infrared Arrays

The 160 micron array continued to be hard saturated. In the best dark position, the 70 micron array was not saturated and we got another look at its performance on all pixels (the image uses the first few reads on an integration slope, since saturation still occurs on most pixels prior to the reset). The result is shown in Figure 2.

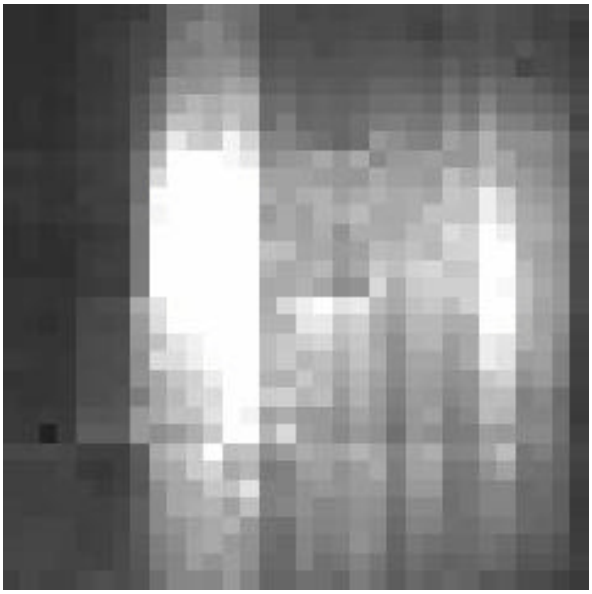

Figure 2. Operation of the 70 Micron Array. The scan mirror is in the "SED" position. The low signal levels to the left show the effectiveness of the total power mode dark area - signals should not be reaching this region except by scattering within the instrument. The array appears to be in excellent health.

3. Summary

Focus was determined successfully at 24 microns. Our results were consistent with those determined by the other instruments. The 160 micron array continued to be hard saturated, while the 70 micron one was working properly in the dark position of the scan mirror.