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Transits of Extrasolar Planets and Analysis Methods JOSEPH FRITCHMAN, Wittenberg University — Using Wittenberg's 10-inch refracting telescope housed in Elgar Weaver Observatory, and an ST-8XE CCD camera, the egress of the transit of planet HD209458 'b' was observed on the night of December 18^{th}, 2006. This transit occurs when the planet passes directly between its host star and the telescope on Earth, and the brightness of the star decreases by about 1.5%. The brightness of the stars is measured by the number of counts in pixels in images taken as 30 second exposures over a period of 64 minutes. Data analysis techniques using Diffraction Limited's MaxImDL^{TM} yield a standard deviation of less than .004 magnitudes using a sliding box averaging method. This means that a change in brightness can be measured of about .4% and much dimmer transits of other planets may be recorded from this telescope. Analysis methods using MathWork's MATLAB® are being developed to gain more control over how pixels are combined to determine the brightness of stars and more effective modes of combining images.

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