Request For Proposals
for the
NICI Planet Finding Campaign
Addendum #3

Issued: 11 October 2005

Purpose of RFP Addendum #3. Supplement to the NICI sensitivity estimates. The RFP specifies a baseline sensitivity and contrast ratio. Proposing teams may adjust the baseline performance for their proposals as described in the RFP. The following supplemental details may be helpful.

1. The baseline assumes an exposure time of 3 hours to achieve the stated contrast and S/N. Shorter or longer integration times may be considered, and proposing teams should assume that S/N scales as the square root of the exposure time.

2. The RFP specified a wavelength dependence for Strehl, but didn't include details necessary to estimate background sensitivity limits for filters other than the H-band 1% methane filters. Please note that the only high-performance filters designed for NICI that have been received are the H-band 1% methane filters. The broad-band filters are copies of those made for NIRI, and were not optimized for AO coronagraphic work. See the NICI and NIRI web pages for more information and filter profiles. There are a few other filters in NICI (broad and narrow-band) that are not listed below. Only the H-band methane filters can be used in the dual channel mode, which uses a 50/50 beamsplitter to separate the light for the two cameras. For all other filters, only a single channel may be used. Note that the throughputs for wavelengths other than H-band are very rough estimates, based on NIRI throughput measurements.

Band (μm)	Zero point (ph/s/nm/m^2)	Throughput	Backgrnd (mag/$asec^2$)	Emissivity	Filter width	Est. sky backgnd e^-/s/pixel
J (1.25)	1.97×10^7	0.3 *	15.5		1.15–1.33	9.4
H (1.65)	$9.6\times10^{6\,\dagger}$	0.39 *	14.0		1.49–1.78	42
methane (1.65)	9.6×10^6	0.19 per channel			15.5 nm	1.1
K (2.20)	4.5×10^6	0.4 *	13.5		2.03–2.36	36
Lp (3.78)	9.9×10^5	0.25 *	3.5	15% *	3.43–4.13	107265
Mp (4.68)	5.1×10^5	0.25 *	0.3	15% *	4.55–4.79	361000

* Single channel only.

† Note the error in the original RFP on the exponent sign in the zero point for H-band.