CATAC Meeting Minutes

Tues March 28, 2017. 4pm EDT

CATAC Attendees: Balogh (Chair), Wilson, Simard, Gallagher, Lafreniere, Brooks, Welch, Richer, Carlberg, Abraham, Davidge, Metchev
Observers: Open to CASCA public. 16 participants plus Packham
Regrets:

Chris Packham presented some highlights from the presentation posted here.

Metchev: Is there a strong science driver for the (difficult) Q-band? Packham: The Q-band is very difficult from the ground, even at MK. There are not many science cases that are really outstanding that are significantly impacted without Q. On the other hand there are overwhelming science cases for 3-5 microns so losing Q but gaining 3-5 is a net win.

Packham notes the lower site impacts sensitivity not only through temperature and water vapour but also pressure broadening of atmospheric lines. That needs careful attention – depends on the particular line.

Marois: Very interested in L&M cases. Known gas-giant planets discovered by GPI. But also 10 micron thermal imaging of planets around nearby stars. Many of the science cases already need ~20h TMT time, so a factor of two is a big deal. Also, do we know how much of the sensitivity loss is due to the warmer temperature, and how much to PWV?

Packham: haven't separated temperature/PWV effects, but certainly the increase in site temperature really impacts L&M band.

Abraham: How competitive would we be with EELT if we really optimized at 10 microns. e.g. what if we added an adaptive secondary? Packham: AM2 would certainly help with the thermal background. Predictions relative to E-ELT may be pessimistic, as AO is now an old design. Could imagine a staged development to try and beat EELT by getting e.g. imaging mode on quickly and beating them to the key science.

Abraham: Do your EELT predictions assume 5 or 6 reflections? Packham: slides are old, and they assume 5 reflections. So this needs to be updated and will bring down the EELT sensitivity somewhat.