KNGAO Opto-mechanical meeting January 8, 2008

Attendees: Lockwood, Kupke, Gavel, Velur, Neyman, Johansson, Le Mignant

Agenda:

- Review of deliverables to complete AO system design phase / [action items from meeting 12](http://www.oir.caltech.edu/twiki_oir/pub/Keck/NGAO/071213_Remote_NGAO_Meeting_12/NGAO_Team_Meeting_12.doc)  
- Status updates  
  - relays  
  - LOWFS, HOWFS, pickoffs  
  - ADCs  
- Mechanisms / Electronics interface (Erik)

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* Review of Deliverables:
  1. All items look to be delivered in 2 weeks, with exception of costing and performance analysis (both descoped in the replan). There will be a written plan for PDR phase performance analysis.
  2. The FRD input will be in the form of spreadsheets (so someone will need to enter them into Contour).
* Overview of action items from meeting 12
  1. ADC for d-NIFS. Still not determined if they are needed for science IFUs, although we are proceeding as if this is not an AO relay issue but the responsibility of the IFS instrument designer. Plan is to put individual ADCs in front of each TTFA arm. We are assuming there will not be one big ADC in front of the entire d-NIFS field.
  2. Dichroic definitions: It is still an action item to publish a single list defining dichroic sets for each splitter position in the system that everyone agrees on and works from.
  3. ADC requirements. Need input from the science team on ADC requirements. In particular, the design presented by Brian at meeting 12 may not be adequate for the visible science wavelength band, although it may work for all the IR bands. Brian and Rich need to touch base concerning consistency of the error budget with the performance of Brian’s design.
  4. Still need input from the science team for specifications on feeding OSIRIS.
  5. Plate scale for the truth sensor. Viswa argues this should still be 0.5 arcsecond. There are two TWFS: one detecting visible light in the narrow field and one detecting infrared light in the wide field (one of the TTFA-like pickoffs). The visible light will not be corrected well enough to justify smaller pixel scale (Viswa and Rich are still evaluating this). The infrared sensor – I would think would be reasonably well corrected and may benefit from a finer plate scale, but I’m assuming this is being investigated as well. Reni asks why we can’t simply use the NGSWFS in the narrow field.
  6. LGS WFS unit mechanisms and requirements and rotating LGS WFS units. Anna and Viswa to meet today and generate a list for Erik to work from.
  7. Uplink TT: in the laser projector or use a TT stage in the LGS WFS? Not decided yet, but there may be a slight advantage of in the LGS WFS because of round-trip delay.
* Subsystem status updates
  1. Relays.
     + Chris has sent out an “E-drawing” (you need E-drawing’s 3-D viewer to see it; download as freeware from the internet), and is soliciting your comments. This should include everything, so check for completeness, with the exception of interface to the Nasmyth platform and interface to the interferometer. Details of LGS WFS mechanisms and NGS WFS mechanisms are not shown but envelopes should be correct (Viswa and Anna, please verify).
     + Need to deal with issue of independent instrument focusing. Present system hard-mounts the instruments to calibrated focal points and uses telescope focus and image sharpening (DM focus) to tune up. We may not be able to get away with this because some dichroic selections in various science modes may be “open”, and this would significantly shift the output focus. We may need to specify that instruments need to move in z.
  2. LOWFS, HOWFS, pickoffs
     + Viswa will send out a draft write-up by early next week.
  3. ADCs
     + No report (Brian?)
* Mechanisms / Electronics interface
  1. Both Erik and Chris L have separately generated (probably incomplete) lists. Also, Peter has generated a spreadsheet of NGAO system configurations (12/20 email) that should be useful as input for defining mechanisms.
  2. Erik and Don will schedule a meeting to go over the list of mechanisms in detail.
* More open issues – (brought up in a subsequent discussion with Reni and Chris L after the elecom)
  1. Stray light – do we have any places or configurations where stray light may be an issue, in particular for the longer wavelength IR? This may drive the need for being careful about what is put behind dichroics.
  2. Interferometer access to DMs. Are paths available to the woofer and tweeter that would allow a normal-incidence interferometer beam? This looks to be the case on initial assessment, but Chris L will check this further.