

### Summary of 2/28/06 telecon (4th meeting):

Next telecon: Tuesday, Mar. 14 at 9 am HST / 11 am PST

Attended by Dekany, Flicker, Gavel, Neyman, Wizinowich

See notes in blue below for updates on action items from last meeting.

#### Summary:

- Rich is getting additional input at Caltech on the science instrument spreadsheet.
- Peter is getting additional input on capabilities/plans for other Observatories & will update spreadsheet.
- Ralf to look at Chris' PSFs & provide any comments.
- Don to look at Chris' PSFs & generate his own for comparison by 3/7.
- Don will send his code to Chris.
- Rich to propose an atmospheric model, based on KAON 303, for critique.
- Rich to check with Matthias on the availability of TMT site survey data just prior to the CfAO retreat.
- Ralf can produce an anisoplanatic convolution from a grid of psfs over the field of view with separations of ~ 5-10" in the near-IR (closer in the visible) from YAO or LAOS when we have such a grid.
- Don pointed out that there is a Hawaii educational workshop on Thurs am of the CfAO workshop.
- Rich offered to produce a spreadsheet of AO capabilities versus the proposed science cases by 3/7. We could use this as a basis to ask the science teams about the required performance for each of the science cases. We will send Rich comments on this 1st iteration and then distribute to the science teams by 3/14. We would ask the science teams to fill in this table. We should consider a 1 hr telecon between all the groups prior to the March retreat as part of this process &/or we could compose a list of questions for the science teams to answer in their presentations at the retreat.
- Should be considering more wholistic performance estimates: number of nights to conduct programs, photometric requirements, astrometric requirements, error budget discussion, transmission, emissivity, overall technical feasibility, etc. & not just simulations. PSFs are a starting point.
- All should look at the minutes of the science subcommittee telecons and the technical products at <http://www2.keck.hawaii.edu/optics/ScienceCase/index.htm>.

Aloha,  
Peter

-----Original Message-----

**From:** Peter Wizinowich  
**Sent:** Tuesday, February 14, 2006 10:55 AM  
**To:** 'Antonin Bouchez'; 'Rich Dekany'; 'gavel@ucolick.org'; Ralf Flicker; David Le Mignant; 'kym@tacos.submm.caltech.edu'; Chris Neyman; 'Bruce Macintosh'  
**Cc:** 'Franck Marchis'; 'Claire Max'; 'Michael Liu'; Peter Wizinowich  
**Subject:** Technical and Science Instruments Subcommittee: Summary of 2/14/06 telecon

### Summary of 2/14/06 telecon (3rd meeting):

Attended by Bouchez, Dekany, Gavel, Neyman, Wizinowich.

- PSFs. The need for psfs is very high priority as identified by the science teams.
  - Chris is approaching the task of generating ~ 120 nm rms wfe psfs with reasonable fidelity in two ways: adding a hex pupil to the TMT LAOS code and taking tomography out of Ralf's code.

- Don offered to add a Keck pupil to his code and to generate psfs for comparison.
- Liu had asked initially for the good seeing case. We discussed what "good" seeing is. For now we will assume 25th percentile as documented in KAON 303 ( $r_0 \sim 22$  cm).
- Longer term we would like to establish some standard MK profiles to be used for simulations.
- We discussed whether we should generate psfs for a few general cases or for specific science cases. To start with we decided to first generate psfs and images for the Titan science case (since Antonin can lead the science image part) and second to generate psfs for the Galactic Center case. We will decide our next psf steps at the next meeting.
- Briefly discussed the trade-off between IR and visible tip/tilt sensors. Based on PALM3000 models the Palomar group decided they needed both. TMT decided they needed three of each.
- Actions:
  - *Chris to provide Don with conditions to be used for simulations. And any additional information needed for the Titan (should be done at I,J,H,K and assume very small tip/tilt error) and GC (J,H,K; Chris has a list of IR tip/tilt stars) psf cases. Done.*
  - *Both Chris and Don to generate psfs by the end of the week. Then these psfs & error budget distributions should be compared. Complete for Chris.*
  - *We need to post the resultant psf images that are available to the science teams. Done.*
  - *Antonin to generate initial Titan images and then to convolve the Titan case psfs with these images. ?*
  - *Rich to check with Matthias about getting Mauna Kea profiles from the TMT survey. Data not yet available.*
  - *Rich & Antonin to check with Matthew and Ralf about their tools for simulating field dependant images from a grid of psfs. Ralf able to produce from YAO or LAOS.*
  - *Peter to identify who we can work with on the GC science case images. Mike Liu to discuss with his group (presumably Andrea).*
- Other
  - Briefly discussed point source sensitivity analysis defined by Bruce, Chris and Peter. This work will proceed as a 2nd priority to the above psf work.
  - Briefly discussed Rich's NGAO architecture options document. People can digest off-line. Main purpose is to define terms for more effective discussions with science teams. There are some judgement calls in this document that will need further discussion in the future. Action:
    - *Peter to post to science case web page. Done*
    - *Science subcommittee chairs should point out this document to there teams for education and reference.*
  - Science instruments. Actions:
    - *Rich to update the draft science instrument spreadsheet prepared by Peter by our next meeting. Done & posted.*
    - *Peter to propose to the science subcommittee chairs that they use this revised spreadsheet to help associate each science case with specific science instrument needs. Done. One option is to have a matrix with science cases versus science instrumts.*
  - Meeting of NGAO science and technical teams. This was proposed for Mar. 30 in the original timeline. An opportunity exists to have this meeting during the CfAO retreat the week of Mar. 27. After discussing the draft schedule for this retreat we thought that Thursday, Mar. 30 might work best for such a meeting. A topic for our next meeting is what should be covered at such a meeting. Actions:
    - *Don to check if this works for the CfAO. Done & dates of Mar. 30 (afternoon) and Mar. 31 (morning) have been set aside.*

- *Peter to check with subcommittee chairs if this works for the NGAO subcommittees & if so to start organizing the meeting. Done. Agreed that meeting is a good idea (although perhaps too early for science cases). Peter prepared a draft agenda (see separate email) & revised with comments. Proceeding with meeting.*