



Management plan for Keck NGAO WBS 3.2 AO System Design

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Version history:

Initial release: August 7, 2007

Version 2: August 9, 2007

Version 3: August 14, 2007

Purpose

The purpose of this memo is to outline the approach to managing the Keck NGAO AO system design effort, work breakdown element 3.2.

Effort definition

The Systems Engineering Management Plan (KAON #414)¹ contains the WBS definitions for tasks down to level 4. These cover optical designs, mechanical design of the support structure and optical layout, wavefront sensors design, acquisition and calibration system design, and electronic control systems including supervisory, motor, and AO real-time controllers. The effort starts after the completion of the architecture definition phase, roughly mid August, 2007 and extends through mid December, 2007, according to version 26 of the NGAO system design tracked schedule².

People

People involved in this effort come from across the three participating institutions. The lead for task 3.2 is Don Gavel. The lead optical designer is Brian Bauman, the lead mechanical designer is Viswa Velur, and the lead software engineer is Erik Johansson. Assisting in the work are Chris Lockwood (mechanical), Mark Reinig (real-time control), Rich Dekany (optical), Jim Meguro (mechanical), Anna Moore (opto-mechanical), David LeMignant (calibration), Matthew Britton (calibration), and Chris Neyman (various system issues).

Plan outline

We will initiate the process with everyone reading, at least a draft version of, the system architecture definition³ and any versions of functional requirements documents that have been released. We will start with a kick-off meeting (mixed face-to-face and telecom, with preference for face-to-face) to get everyone familiar with the plan, the people and their roles.

The team will then break into two major groups: opto/mechanical and electronic/software. Both the optical and real-time software architecture and requirements have now been fairly well defined as a result of the system architecture process, however the layout and the overall computer architecture are less well



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defined at this time. There should be at least one set meeting per week of each of these groups, with more frequent “informal” communications as needed.

The opto-mechanical effort is further divided into the relay (including splitters and switchyard), and the wavefront sensor design groups.

The three groups will reconvene together for a mid-term update (~end of September), and begin meeting as a single group again starting in November to finish the final design and documentation.

Meeting schedule

Week of

- [Aug 27: kickoff](#)
- Sept 3: separate team meetings (3)
- Sept 10: separate team meetings (3)
- Sept 17: separate team meetings (3)
- Sept 24: separate team meetings (3)
- [Oct 1: mid-term meeting \(all groups\)](#)
- Oct 8: separate team meetings (3)
- Oct 15: separate team meetings (3)
- Oct 22; separate team meetings (3)
- Oct 29: separate team meetings (3)
- Nov 5: separate team meetings (3)
- [Nov 12: all hands group meeting](#)
- [Nov 19: all hands](#)
- [Nov 26: all hands](#)
- [Dec 3: all hands](#)
- [Dec 10: all hands](#)
- [Dec 17: all hands – final wrap-up meeting](#)

Executive Committee (EC) members should be present at at least three of the all-hands meetings: the kickoff, the midterm, and the final wrap up.

Task assignments and responsibility areas by person

At the kickoff meeting, a document will be made available that presents the tasks within the 3.2 activity be organized by person (this is possibly a “matrix” mapping people to task responsibilities). Some people will have several areas of responsibility. This is just a rearrangement of the task-oriented presentation given in the project schedule² by person but is designed to help with establishing a clear understanding of the scope and time commitment of each person early on, so that priorities, issues of availability, etc. can be worked out.



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Documentation and deliverables

The formal output of the design activities will be the System Design Manual (SDM) which will be used to take the NGAO project into the preliminary design phase. The way the NGAO project is organized, writing the SDM is the responsibility of Peter Wizinowich, as task 3.6, based on collating information generated by the AO system design teams. As such, the teams will need to document the designs internally, using the Twiki web based system as the library for document management. Documentation at this level will include:

- CAD drawings of the structure and optical layouts
- Drawings of the optical functionality and files containing optical prescriptions
- Enclosure and facilities management (cooling) concept drawings
- Software design documents
- Information from vendors (protected as proprietary if required)
- Meeting minutes

References

1. Keck Next Generation Adaptive Optics: System Design Phase Systems Engineering Management Plan, KAON 414, Version 2, Sept. 29, 2006. [NGAO_SD_System_Eng_Mgmt_Plan_v20.doc](#).
2. NGAO System Design Schedule, May, 2007. [NGAO_SD_schedule_v26.mpp](#).
3. NGAO System Architecture Definition, August, 2007. KAON 499.