



W. M. KECK OBSERVATORY
Next Generation Adaptive Optics System

NGAO Proposed Work Breakdown Structure

August 28, 2006

NGAO Project

1. Project Management
 - 1.1. Science Requirements
 - 1.1.1. Science Trade Studies
 - 1.1.2. Science Requirements Document (SRD)
 - 1.1.3. Science Team Meetings
 - 1.2. System Documentation
 - 1.2.1. System Design Phase Documentation
 - 1.2.2. Preliminary Design Phase Documentation
 - 1.2.3. Detailed Design Phase Documentation
 - 1.2.4. Full Scale Development Phase Documentation
 - 1.3. Reviews
 - 1.3.1. System Design Review
 - 1.3.2. Preliminary Design Review
 - 1.3.3. Detailed Design Review
 - 1.3.4. Full Scale Development Progress Review(s)
 - 1.3.5. Pre-ship Review(s)
 - 1.3.6. Acceptance Review
 - 1.3.7. Operational Readiness Review
 - 1.3.8. Science Verification Review
 - 1.4. Funding Proposal(s)
 - 1.5. Team Meetings
 - 1.6. Reporting
 - 1.6.1. Technical
 - 1.6.2. Financial
 - 1.6.3. Science Community Liaison
 - 1.7. Contracting
 - 1.8. Other Management Activities
2. AO System
 - 2.1. AO System Management
 - 2.2. Systems Engineering
 - 2.2.1. Requirements Document(s)
 - 2.2.2. System Architecture
 - 2.2.3. Analytical Tools
 - 2.2.4. Performance Budgets
 - 2.2.5. Observatory Interfaces
 - 2.2.6. Specification(s)
 - 2.2.7. Document Control
 - 2.3. AO Enclosure
 - 2.3.1. Enclosure Structure



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- 2.3.2. Environmental Controls
 - 2.4. Optomechanics
 - 2.4.1. Optomechanical Structure
 - 2.4.2. De-rotator
 - 2.4.3. Optical Relay Components
 - 2.4.4. Optical Relay Mounts
 - 2.4.5. Optical Baffles
 - 2.4.6. De-rotator
 - 2.5. Wavefront Sensors
 - 2.5.1. High-order LGS Sensors
 - 2.5.2. High-order NGS Sensor
 - 2.5.3. Low-order NGS Sensors
 - 2.5.4. Slow Wavefront Sensor
 - 2.6. Acquisition Camera
 - 2.7. Motion Systems
 - 2.8. Electronics
 - 2.8.1. RTC
 - 2.8.2. DM Driver
 - 2.8.3. Wavefront Sensor Readout Systems
 - 2.8.4. Motion Control
 - 2.8.5. Supervisory Control
 - 2.8.6. Calibration Systems
 - 2.8.7. Metrology
 - 2.9. Software
 - 2.9.1. RTC
 - 2.9.2. Motion Control
 - 2.9.3. Supervisory Control
 - 2.9.4. Operations Tools
 - 2.9.5. Calibration
 - 2.9.6. Diagnostics
 - 2.9.7. Maintenance
- 3. Operations Tools
 - 3.1. Operations Tools Management
 - 3.2. Operations Architecture
 - 3.3. Astronomical Observation Planning
 - 3.4. Observing Setup
 - 3.5. User Interface
 - 3.6. Science Instruments and DCS Interface
 - 3.7. Performance Monitoring
 - 3.8. Automation and Optimization
- 4. Laser Guide Star Facility
 - 4.1. Laser Guide Star Facility Management



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- 4.2. Laser System(s)
- 4.3. Beam Delivery
 - 4.3.1. Beam Transport
 - 4.3.2. Launch Telescope
 - 4.3.3. Uplink Correction System
- 4.4. Laser Diagnostics Bench
- 4.5. Software
 - 4.5.1. Supervisory Control
 - 4.5.2. Beam Diagnostics
- 5. Integration and Test
 - 5.1. Laboratory
 - 5.2. Summit
- 6. Installation
- 7. Commissioning