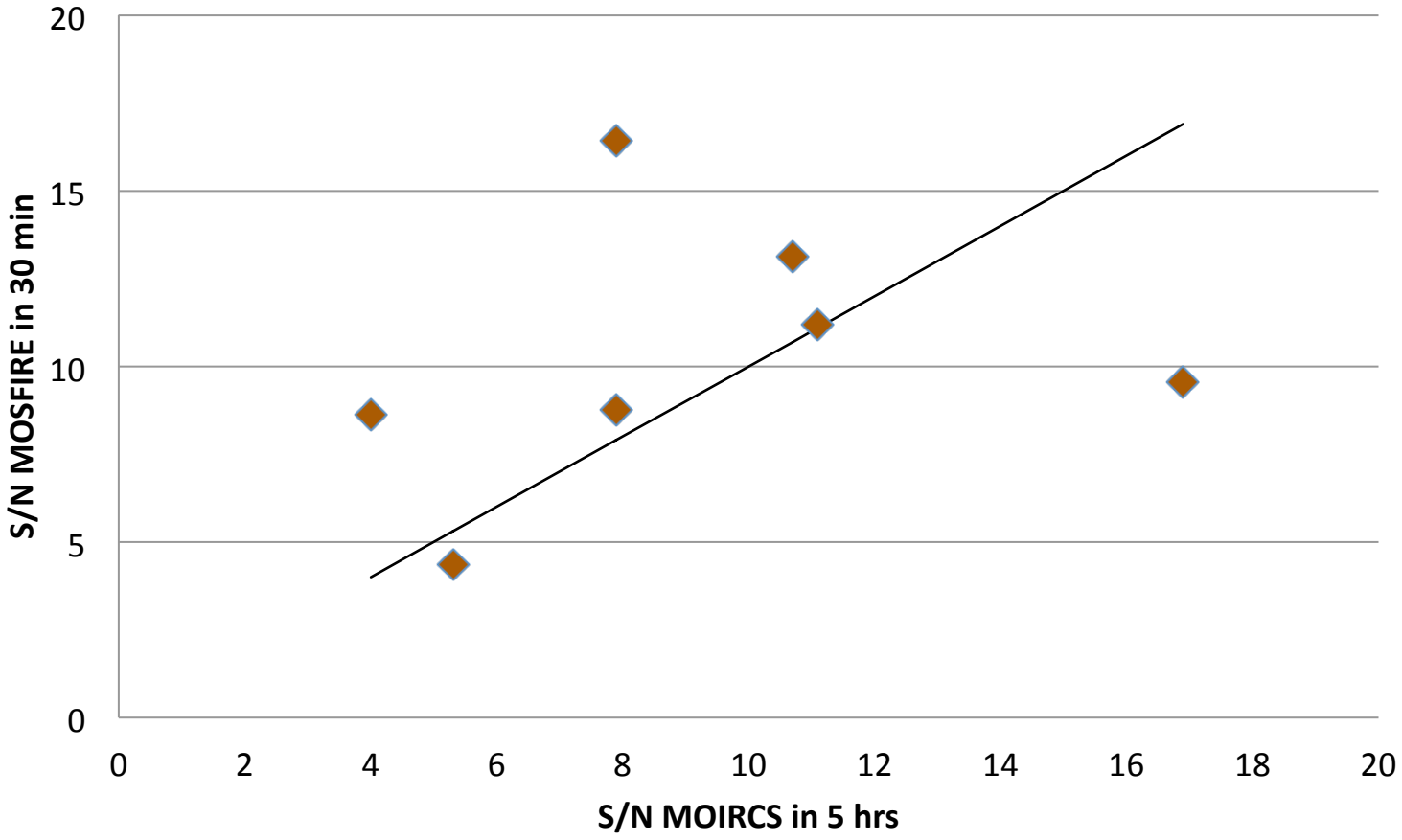
SSC Report
February 22, 2013



Observatory Report

Federal Funding

- Deployable Tertiary Proposal ($1.5M) submitted from UCSC to NSF MRI
- NASA Cooperative Agreement renewed on time for period 2013 – 2018
- NASA Planetary has requested a fast-track proposal for the NIRSPEC detector upgrade in time for the arrival of Comet Ison (Nov 2013); will simplify IR detector support at WMKO

Observatory Report

Segment Repair

- WMKO will adopt `hybrid' approach: custom tooling with vendors, augmenting onsite expertise, local laboratories
- WMKO continuing to recruit for a Project Manager in advance of the planned external review in end of 2013; the review is a key milestone prior to commencement
- Good technical progress: RFP issued for axial repair, innovative adhesive tests for radial support, finite element models developed
- Exploring cost of fabricating a new spare segment; REOSC is still capable of delivering one within 2 years if required

Observatory Report

Other Projects

- K2 Center Launch: Successful Design Review Jan 2013 but cost has grown and project slipped 1 year.
- TCS Upgrade: Following actions since recent Detailed Design Review. Efforts are focused on improving the encoder mechanical mounting system.
- NGAO cost estimate: 0.5 FTE effort (50% at WMKO) required to prepare for possible NSF Midscale submission
- OSIRIS new grating successfully installed: significant gains in performance at all wavelengths

Observatory Report

Other Items

- Keck 20th Anniversary Meeting: Plans complete; good list of speakers and events; priority of potential funding requests agreed by SSC and Board

- Publication output continues to grow; growth in AO-based publications particularly satisfying, especially in Galactic science

5 Year Plan

- 5 year plan principles: maintain operations + key infrastructure updates
- Segment repair completed within 5 years with hybrid (internal + external) support model
- Telescope Control System Upgrade completed and seismic upgrade studied
- KCWI-blue completed
- Requires exchange of 28 nights/year (including 4 from UH)
- Conservative assumptions regarding federal grants and advancement made

SSC Response to 5 Yr Plan

- SSC congratulates WMKO for raising the $0.5M match for the $3.5M Keck and Moore Foundation grant for the new K2 laser

- SSC endorses the current 5 year plan
  - SSC supports WMKO segment repair effort as highest priority
  - Plan maintains operation service level while containing costs
  - Completes TCS upgrade; returns reserve to full health
  - SSC supports OSIRIS detector upgrade in the baseline plan

- SSC accepts but regrets the necessity of postponing plans for future instrument development in order to fully fund KCWI-Blue

- SSC supports future potential add-on of spare f/15 secondary

- The SSC requests engagement in the ongoing review of operations cost and service.

- The SSC requests that WMKO present the 'delta' in the schedule of the program from previous 5 year plan (analogous to cost).

NGAO in the 5yr Plan

- Funding for the preparation + submission of an NSF MSIP proposal exists within the 5yr plan.
- When (if) NSF-MSIP is announced, WMKO will propose altering the 5yr plan accordingly, including appropriate enhancements for Advancement.
- Board has agreed to a fund-raising list that includes NGAO as the highest priority long-term transformational initiative. The greatest immediate need is KCWI-B. The SSC supports these priorities.

NIRSPEC and the 5 Year Plan

- NIRSPEC: There is an time-sensitive request from NASA Planetary Science Division for a proposal for a detector upgrade to NIRSPEC. This would include a new readout and lays the groundwork for future upgrades. UCLA would be funded via this venue and it would be completed before the OSIRIS detector upgrade. The SSC strongly supports this effort.

Money for Studies in the 5yr Plan

- Give priority to finish what is currently planned
- The SSC plans a bi-annual white paper solicitation (starting 2013) for new ideas on instruments and upgrades.
  - The SSC would recommend WMKO providing seed money as appropriate.
- The SSC recommends WMKO generate a separate funding line to support proposal preparation.
- The current plan has $261k for instrument studies and proposals over the next 3 years, with a likely need for the DEIMOS and NIRSPEC upgrades under study.

KCWI Status after DDR

- The Detailed Design Review (DDR) panel met on Nov. 2012 and was enthusiastic about the breadth & importance of KCWI science.
- The review committee noted the maturity of the design and the absence of any major technological challenges
- The DDR panel expressed concerns about several aspects of the program including schedule which the team is addressing.

Instrument Reports

- Support Astronomers gave a series of excellent reports on the status of each instrument and operations systems
- Support astronomers
  - Spend a significant fraction of time directly supporting astronomers
  - running 1 person short: Scott Dahm called up by Navy reserve to go to Afghanistan for 1 year
- We congratulate the team for their continued hard work in maintaining and enhancing the high quality of the Keck instrument suite and of Keck operations
- We are excited to see instrument performance monitoring and image quality monitoring continuing to expand
- The following slides summarize the issues and changes for each instrument and mode

Instrument Reports

Instrument	SA	Improvement or Repair / Minor Issue / Major Issue Future Improvements / Future Major Improvements
MOSFIRE	Marc Kassis	Most popular instrument. 30 minutes of MOSFIRE=5 hours of MOIRCS. Several new scripts. Several minor overheads which are being improved, e.g., CSU Fatal Errors (requires full init, once/3 nights) and Global server blocks (GUIs hang).
ESI	Greg Wirth	No issues. New calibration GUI.
DEIMOS	Greg Wirth	Grating flexure: must clamp in certain rotation. Inspect coated optics (2005 coating). Replace damaged filters (BAL12, V). Deploy slitmask alignment tool (eliminates finder charts). Analyzing throughput data.
NIRSPEC	G. Doppmann	Improved wavelength calibration tool. Dewar upgrades: cold heads replaced. SCAM intermittent imaging problem fixed with wiring attachment upgrades. Servicing plan for Aug/Sep 2013: NIRSPEC detector upgrade possible then.

Instrument Reports

Instrument	SA	Improvement or Repair / Minor Issue / Major Issue Future Minor Improvements / Future Major Improvements
OSIRIS	Jim Lyke	Re-commissioned on K1. SPEC scales nearly parfocal. Image sharpening working. **New grating installed, efficiency increase is 1.5x in z, J,H;. 2.5x in K.** DRP developments: hand-off of S/W to Keck, faster deployment of solutions. Improve OSIRIS imager (to replace NIRC2). DRP: convert code from IDL+C to IDL only. IDL profile packages for IDL version updates. **Detector upgrade.**
NIRC2	Hien Tran	Sticky camera stage problem fixed. NIRC2 data released to KOA. Throughput monitoring on-going, no change in last 3 years.
Mainland Observing	Greg Wirth	Remote sounds, VNC connection alerts, summit ISDN router upgraded, unify codebase, periodic maintenance tests.

Instrument Reports

Instrument	SA	Improvement or Repair / Minor Issue / Major Issue Future Minor Improvements / Future Major Improvements
HIRES	Hien Tran	MAGIQ guider commissioned. Focus degradation (fan) fixed. Shutter replaced. Next generation fiber scrambler tested.
LRIS	Luca Rizzi	New gold gratings: 600/10000, 831/8200, 1200/9000 for LRIS-R. Performance improvement at >9000Å very good (1.5-2.5x). Throughput project – monitoring efficiency, maintain database of history for optical elements to correlate efficiency changes with optics work. Improving calibration lamps (Fe-Ar). Blue crate crash most responsible for time lost (long-standing problem) – evaluating possible fixes and risks. Change custom (user-supplied) narrow-band filter implementation. Improvements in Image Quality Monitoring: focus (now, including autofocus), tilt available.

Instrument Reports

Instrument	SA	Improvement or Repair / Minor Issue / Major Issue Future Minor Improvements / Future Major Improvements
Keck Observatory Archive	Hein Tran	Release of data for 4 instruments (NIRC2, LRIS [PI-only], MOSFIRE [PI-only]). Public data released > 1 year after taken. 8.5 TB downloaded. 31 papers using KOA: 67% non-PI, 77% HIRES. PI data release for DEIMOS, ESI, OSIRIS, NIRC, and LWS by end of year. ADS bibcodes. KOA user committee. PIG for all instruments. Extracted spectra for NIRSPEC data & DRPs for other instruments.
AO Ops	Randy Campbell	Space command problem of 2011 solved. Science open time shows an upward trend (OSIRIS declined; working to improve it). K1LGS and OSIRIS transition to operations. TBAD deployed, operating in parallel with spotters. K1LGS efficiency improvements, NIRC2 L' image quality, AO PM data base, TBAD FAA approval.