SSC Summary

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9 Feb 2012

SSC Response to 5 Yr Plan

- **The SSC strongly endorses the current 5 year plan. Baseline funding scenario maintains WMKO's key strengths, addresses critical aging infrastructure, and offers opportunities for new capabilities in addition to current NSF proposals**
  - Maintains successful operational model & observer experience
  - Addresses aging infrastructure: mirror repair, guiders, TCS, seismic remediation
  - Includes enhancements of existing capabilities: deployable tertiary, AO upgrades, small upgrades, e.g. OSIRIS grating in process, OSIRIS detector under consideration.
  - Provides new capabilities: KCWI-B/R plus funding wedge for new instrument
  - Major enhancements or complete new instrument (in 5 yr period) require additional funding
- SSC will solicit white papers for low cost improvements and upgrades for existing instruments with the goal for improving instrument sensitivity and versatility as well as operational efficiency

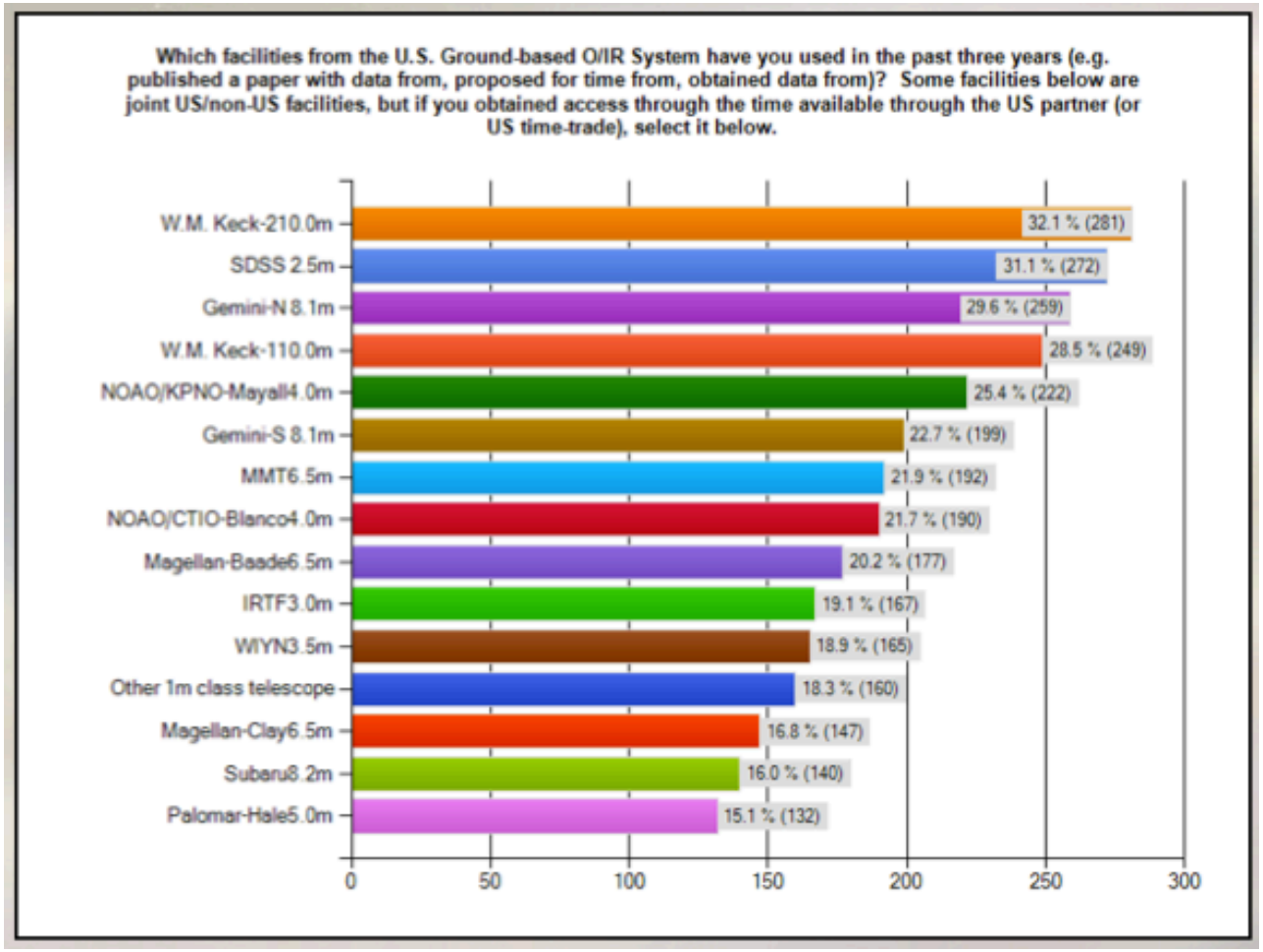
Federal Proposals

Two MRI proposals submitted:
- Deployable Tertiary mirror
- KCWI-R: Integral Field Spectroscopy
(optical/red channel)

NASA Cooperative Agreement expires Feb 2013.
Currently Provides 1/6 Operations (and other contributions.)
Armandroff & Scheffel writing renewal proposal:
Due Spring 2012

NSF Portfolio Review

Poll shows Keck Obs is #1 in usage by U.S. astronomers.



Instrument Development

New Keck 1 Laser Guide Star AO:
- Will be ready end of May.
- New K1 Laser power (20 W or higher)
- Working now, commissioning on-going.

Need Strategic Planning Update for Keck AO:
Constitute an AO analysis group.

Keck continues to lead the world in AO publications.

MOSFIRE

- Successful installation and testing of new bearing
- Successful cool down #10
- Instrument sailed from San Diego on February 8
- The SSC applauds the team for achieving this key milestone and encourages WMKO to offer observations in shared-risk mode in 2012B.

New AO Developments

Moore Foundation contributes $2M toward
new K2 TOPTICA laser.
A proposal will be submitted to the Keck Foundation
for another $1.5M.
Current K2 laser is aging.
Further AO Improvements with new IR Tip-Tilt sensor (K1)

The new K2 laser will significantly improve photometry and
astrometry over existing K2 laser

There is no current funding path for NGAO.

Segment Crack Repair

Axial and radial pad cracks in mirror segments.
Review Panel recommends 4 year schedule.

WMKO had made excellent progress on developing
a repair plan, which is accommodated in the 5 year plan.

Instrument Reports

- Instrument masters reported on the instruments, AO system, and archive of the Keck Observatory
- Instrument faults remain at historical (small) levels.
- We commend the SA's for all their efforts to maintain and improve an efficient and powerful instrument suite at WMKO.
- Recommendations:
  - Generate a "summary" page of instrument capability on the front page of Keck's instrumentation website

Instrument Reports

Instrument	Master	Improvement or Repair / Minor Issue / Major Issue Future Improvements / Future Major Improvements
ESI	Greg Wirth	IFU fully commissioned and performing well. ETC now online. Throughput monitoring stable across time.
DEIMOS	Luca Rizzi	Web pages updated to WMKO guidelines. Prevent dewar reaching hard limit in software. Secured several cables. Flexure exceeds FCS for some gratings in some angles. Slider dependent and all show it. **New detectors under study.**
NIRSPEC	Greg Doppmann	NIRSPEC sensitivities now available online. Redefined pointing origins to minimize guide drift (now 0.1”/hour). Streamline NIRSPEC for KOA by automating the wavelength calibration of archival data. Commission flat lamp control GUI. Upcoming dewar service in 12A (replace cold head, warm pumping to remove ice). **Detector study underway.**

Instrument Reports

Instrument	Master	Improvement or Repair / Minor Issue / Major Issue Future Minor Improvements / Future Major Improvements
OSIRIS	Jim Lyke	OSIRIS has safely moved to KI. Repaired the lenslet mask; replaced motor that swaps the mask. Complete on-sky testing on KI; first light on March 1. Test and install new DRP machines. **New grating installed in 13A (probable).** **Detector upgrade to be quantitatively considered.**
NIRC2	Hien Tran	Service mission during 2011B: 7 new filters (L, Y, z, ...); purged both cold heads; fixed temperature read back problem. Effective wavelength now extended to 1 micron. Throughput monitoring shows stable performance over 2 years. Cold heads may be aging. NIRC2 in KOA starting April 2012. More efficient data acquisition scripts. **Polarimetry mode awaits ATI**
Mainland Observing	Greg Wirth	Overall usage is stable with Mainland increasing. Advisory group convened in September. Will institute the suggestions in 2012 (VNC popup alert, enable remote sounds). UH Manoa site remains possible.

Instrument Reports

Instrument	Master	Improvement or Repair / Minor Issue / Major Issue Future Minor Improvements / Future Major Improvements
HIRES	Scott Dahm	Cross-disperser brake solenoid repaired. Rotator cover repaired. ThAr arc line plots now online. Replaced server. Throughput monitoring implies no degradation over 5+ years. MAGIQ slit-viewing guide camera (March 2012). MAGIQ offset Guider. Convert webpages to WMKO format. **Fiber scrambler tested successfully: x10 improvement in PSF stability. New prototype in progress.**
LRIS	Marc Kassis	LRIS-R linearity improved to 65k ADU. Developed CTE monitoring software (monitoring gain, bias, etc.). Autoslit updated (shows Blue/Red gaps). Flexure in the guider cameras (1.5”). XLRIS often indicates wrong grating. Add struts to guider to mitigate flexure. Fix XLRIS issue in software. Coarse alignment of slitmasks with offset guider. Throughput monitoring code and acquisition code. Commission new gold gratings (1200/9000; 831/8200).

Instrument Reports

Instrument	SA	Improvement or Repair / Minor Issue / Major Issue Future Minor Improvements / Future Major Improvements
Keck Observatory Archive	Hien Tran	Level 1 visualization tool. Split night GUI for tracking PI (HIRES and NIRSPEC). 7 refereed papers in 2011. Throughput analysis of HIRES and NIRC2. NIRSPEC DRP started. NIRC2 data release (April 2012). Extracted spectra for NIRSPEC data. Split night GUI for all instruments. **MyKOA to include all instruments (August 2012).**
AO Ops	Randy Campbell	New LGS policies from the MLOG (e.g. right to complete obs.). K2 laser dye replaced (3-4W increase). White paper on US StratCom blanket closures. Overheads remain at ~50% Blanket closures are getting even worse. Efficiency improvements (overheads). Continue the push on blanket closures. Support AO development projects. **TBAD development (replace spotters).**