SSC Reports

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Observatory Report

Observatory Report

- OSIRIS upgrade proposal going to NSF/ATI with expected improvement of a factor of 10 at short wavelengths
- SSC congratulates Taft and WMKO for approval of NASA Cooperative Agreement for next 5 years.
- NSF/MRI declined both Deployable Tertiary and KCWI-red proposals but these will be revised to incorporate reviewer's criticisms for resubmission in January, 2013.

Observatory Report

- Mid-Scale Instrument Program (MSIP) will be highly competitive with many activities looking for funding
  - MSIP may subsume TSIP, ReSTAR, & URO programs, one-off programs (ACT, SDSS, PAPER), and the instrument programs for major national facilities (NOAO, Gemini, NSO, Arecibo, NRAO)
  - Two strands recommended: (1) quality of frontier science (2) quality & quantity of capabilities made available to US community including telescope access. Which approach we will emphasize in any proposal will depend on exact details of ultimate call
  - Two funding scenarios: $40M or $20M, call not expected until FY2014
  - Keck advantages in future NSF proposals include highly desired instruments (MOSFIRE, AO, LRIS, HIRES), decreased national northern hemisphere access, support for instrument groups at UCO & Caltech
  - This is a likely target for NGAO funding.

Segment Repair

- SSC regards a mixed internal/external approach combining WMKO staff + contractor personnel as potentially minimizing a number of risks associated with either approach
  - Vendor survey recommend doing segment repair onsite at Waimea to reduce the risk of transport of finished optics, to improve quality control, and because customized machinery will be required
  - Vendors suggested that they could prototype processes, build tooling, develop procedures, and potentially send personnel, for implementation at Waimea.
- WMKO estimates that it will take 1 month pipelined to fix each segment: assume 2-4 workstations --> 6 years to complete project
- Searches are now underway for project manager and other staff needed for segment repair
- SSC recognizes and appreciates WMKO efforts to firewall science activities from segment repair efforts to greatest extent possible

On-going projects

- Telescope Control System Upgrade had mostly favorable review
  - Software and electronics OK are proceeding ahead with no significant liens
  - Significant work still required on encoder mechanical design
  - Review recommended an audit of safety requirements to ensure compliance with modern practices
  - The lack of a "no point of no return" design is a big plus with very low risk to existing operations
- KCWI detailed design review will be held Nov 19-20. with preship review planned for Q3 of 2014
- NIRES detector delayed by at least ~2 months. Arrival at WMKO no sooner than Aug. 2013.
- Near-IR Tip/Tilt. On track with some cost growth since DDR.
- KII Center launch system delayed by diversion of engineering support for MOSFIRE and KI laser and delays at telescope vendor
- OSIRIS grating on track for first science in January 2013 with 2-2.5x improved J-band efficiency. Installation in Nov/Dec 2012, first science in Jan 2013

20th Anniversary Celebration

- Keck 20th year Science Meeting to be held at Fairmont Orchid, March 14+15
  - By invitation only – including scientists, administrators, private funders, foundations, public funders
  - SSC has recommended a list of potential future investments to advertise and coordinate with talks.
- SSC recommends timely completion of KCWI-Blue as highest priority for funding received during the Gala events
- Considerable discussion of proper balance of science/ salesmanship within individual talks.

KECK AO Review

AOAG

- Keck Goal: Maintain leadership in high spatial resolution science through AO.
- The funding context and opportunities are evolving.
- Full potential of AO not yet achieved; leads to Next Generation AO
  - Capabilities based on broad science reach.
- NGAO design: Multiple lasers to do the tomography with sensitivity to tip tilt stars.
  - Significant strehl improvement; Much better sky and wavelength coverage
- NGAO recap
  - Funded by TSIP+WMKO through a successful PDR; WMKO has attracted funding (private+federal) to develop a few NGAO components and reduce risk

AO: Continued

- AO risk reduction high priority for TMT.
  - TMT: technical risk reduction from NGAO, future developments on NGAO will also be important to TMT.
- NGAO well positioned relative to other systems out there.
  - VLT ERIS provides direct competition but is in the Southern hemisphere

AOAG Assessment.

- NGAO is the AO vision for WMKO
  - Remains a flagship
  - Increasing collaboration with TMT AO group
  - Keeps Keck at cutting edge.
- Recommend Submitting an MSIP proposal
  - NGAO well positioned to propose to MSIP, recommended by Decadal, good risk reduction, but find cost sharing method.
- Gala a great opportunity for fund raising.
  - Also a good opportunity to partner with campus fund-raising.

AO: Next Steps

- Toward a successful MSIP proposal
  - Update the cost of NGAO
  - Bring DAVINCI up to preliminary design level
  - Update science cases with AO results.
  - Capitalize on TMT risk mitigation synergies
  - Create private fundraising strategy
- Short Term priorities
  - complete current projects
    - TRICK, Center Launch, OSIRIS grating & detector, PSF modeling

Keck @ 20

20th Anniversary Gala offers an unique opportunity to:

- showcase the scientific achievements of WM Keck Observatory on world stage
- honor those individuals and organizations that contributed to this success
- generate pride of ownership with relevant Foundations, donors and agencies
- present a strong strategic vision for future scientific discoveries
- introduce associated immediate and long term funding opportunities that will enable these discoveries

Keck@20

- SSC supports the Strategic Plan which organizes the initiatives as follows:

  - mega initiatives (NGAO)
  - large initiatives (full DEIMOS upgrade, SHREK)
  - moderate initiatives (K1DM3, completing KCWI-blue)
  - upgrades (OSIRIS, NIRSPEC)

- Other important factors
  - present all opportunities as part of a coherent vision
  - ensure flexibility of initiatives to match varying donor interests
  - all presentations should have science emphasis

NSF MRI: Keck 1 Deployable Tertiary

- Last year's MRI submission was unsuccessful
- WMKO is supportive of having limited ToO capability, but a general ("Gemini-esque") ability is infeasible due to funding + staffing constraints.
- SSC is generally supportive of cross-institutional agreements to enable TDA, though details are important and TBD.
  - ToO programs: strawman exists for observing + support, but inconclusive
  - Cadence programs: relatively straight-forward
  - Bad weather queue appealing, if done on a voluntary basis.
  - Super-seeing queue seems unrealistic.