

# SSC Report

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# WMKO Observatory Report

- KCWI-Blue is performing very well during commissioning
- NIRES near-IR spectrograph has been delivered
  - To be commissioned in time for 2018A science
- Full scale primary segment repair underway
  - 6 segments repaired to date (including 3 previously unusable)
  - 3 segments repaired per month
- Operations review was completed
  - Review committee gave WMKO accolades & recommendations
- NASA cooperative agreement proposal for continued operations submitted
- Keck I Deployable Tertiary pre-ship review in August
  - Commissioning by end of 2017

# WMKO Observatory Report (2)

- WMKO is making essential infrastructure investments in dome drive, ACS, electrical power to prevent failures
- TCSU project proceeding more slowly since MOSFIRE accident, expect completion in Oct. 2017.
- WMKO hired new Chief Development Officer and Instrument Program Manager, 2 SAs and an AO scientist are being recruited
- Keck Visiting Scholars Program underway
  - Open to students and postdocs to work on 1 – 3 month projects that benefit scholar, mentor, and WMKO
  - 8 initial scholars selected, annual or more frequent calls
  - Donor funding in hand for 3 years of Keck Visiting Scholars Program.

# 2017 White Papers

- 6 white papers were received and reviewed.
- Topics included new instrument concepts and AO studies, upgrades to existing instruments, and software/infrastructure for flexible observing modes.

# Broader Consideration of Technology Proposals

- ATI agenda item spawned a broader SSC discussion on formalizing the process by which technology proposals are considered.
- SSC decided that tech concepts will be considered at winter or spring meetings each year. Two flavors:
  - White papers requesting WMKO seed funding for upgrades and new concepts that could be future proposals, essentially as the process occurs now.
  - Concepts that are intended to be proposed within the next year for federal funding, e.g. NSF/MRI and ATI, and NASA/APRA. Timing of the SSC meetings would be ~6 months before the smaller dollar scale deadlines, and 10-12 months before the more major scale deadlines.
- This policy will be better than the current practices for all of us: WMKO, the SSC, and the potential proposers.
- Should be a separate Call, at a different time from the White Paper Call

# Data Reduction Working Group

- Group has been formed and launched
  - 16 members from WMKO and the community
  - Many additional people consulted
  - Met in Pasadena on March 2017
- Current state
  - Traditionally, WMKO was not involved in data reduction pipelines
    - SSC began requiring at least minimal pipeline deliveries with OSIRIS then MOSFIRE, KCWI.
    - WMKO took ownership of instrument team MOSFIRE pipeline, then a NIRSPEC pipeline
    - Others generously provided by Keck community members
  - However, current DRP situation is unsustainable
    - mix of languages, no common approach, non-uniform re-use of code
    - varying quality of code
    - hard to support ensemble of third-party code

# Data Reduction Working Group (con't)

- Proposal
  - New, open development model.
    - Governance provided by Keck.
    - Development in Python with common architecture, minimal dependencies, etc.
    - Exploits software and management expertise and best practices, and Keck expertise in instruments.
    - Aiming for “classes” of pipeline (e.g. IFU, imagers, spectrographs) rather than one pipeline/instrument.
    - Intend to have three modes: quicklook at telescope, archive-suitable, and publication quality
  - Streamlining of observing infrastructure from telescope is an essential part of the DRP effort.
  - Two models proposed: “gold” and “bronze” (so no ambiguity regarding which is preferred)
  - No detailed costing plan yet.
  - SSC endorses Gold model, if funding permits.

	Gold model	Bronze model
Common language	YES	NO
Code reuse	YES	NO
Uniform software standards	YES	NO
User support	YES	Limited
Effort/Cost	High	Low
Long term maintenance effort	Moderate	High but distributed
Timescale to “workable” solution	Long	Short
Support for new pipelines	YES	NO
Main code development	WMKO, NExSci/KOA, UC, Australia + supported/recognized community	Individual developers + limited support
Risk	Moderate/High	Low

# OSIRIS

- Hackathon team
  - Successfully identified issues that have arisen since grating upgrade
  - Next steps
    - Will provide additional Keck funding to OSIRIS DRP WG
      - New cosmic ray removal routine, fix wavelength solution, improved scaled sky subtraction, one additional hack-a-thon
    - Flux artifacts seem to be due to 1D extraction
      - Further work on 2D extraction routine

# Time Domain Astronomy (TDA) Update

- Cadence observing is popular:
  - Cadence is regularly scheduled,  $\frac{1}{4}$  night max
  - One-off Snapshots are less popular
- ~270 split nights per year on K1 and K2
- Execution of Target of Opportunity needs improvement
  - Time accounting and reporting are imperfect
- Possible TDA policy changes
  - Increase current limitation of 6 ToO+Cadence programs
  - Remove instrument change restriction after K1DM3 commissioning
  - SSC recommends increasing allocations to 4 + 4 at this time and continue to monitor demand and outcomes of TDA observations.
- Completing LGS satellite avoidance mapping
- TDA workshop on Sep 13, before Keck Science Meeting

# Upcoming Meetings

- Jerry Nelson symposium: July 13-14, Santa Cruz
- Keck & TDA workshop: September 13, Santa Cruz
- Keck Science Meeting: September 14-15, Santa Cruz
- Science within the Keck Observatory: December 8, Waimea, sponsored by Shri Kulkarni
  - Invitations to CARA board, SSC, staff of other Maunakea observatories
  - Afternoon symposium: research talks by support astronomers, followed by reception and evening banquet
  - Goals: to celebrate Keck science and build closer collaborations with the Maunakea community

# KCWI-B

- Keck SSC congratulates the KCWI-B team for their tremendous success!
- Status
  - Completed 9 commissioning nights, two ½ nights remain
  - Instrument performance is excellent
  - Commissioning Plan Progressing Well
  - Remaining tasks
    - Outstanding grating delivery (BH1; to be installed before July 25&26 nights)
    - Documentation work ongoing
    - Data Reduction Pipeline updates
  - All commissioning data will be released to the community before scheduled science observing
  - Pipeline
    - Github repository
  - Need to clarify with the team the ways in which they will support new users in reducing their data