

Keck SSC – April 2017  
Judy Cohen and Jean Brodie

# Congratulations !

- To Chris Martin and the team at Caltech, UCSC, WMKO, JPL, for the successful first light of KCWI !!!
- To Keith Matthews and the team at Caltech for the delivery of NIRES (first light later this semester)

# Observatory Report

# KCWI

- KCWI-B was successfully commissioned and obtained beautiful first light data (details below)
- The Keck SSC congratulates the Chris Martin and his instrument team and the Observatory for bringing this project to fruition!
- Team is working on understanding the KCWI-R budget for presentation at the June SSC meeting.

# Additional Instrumentation Projects

- MOSFIRE is back at full operations
- NIRES
  - Arrived at summit on April 5<sup>th</sup>
  - Expected to be available for shared risk in 2018A
- K1 Deployable Tertiary Mirror
  - Expected ship date, July 15
- OSIRIS Imager upgrade
  - Expected to be installed in August

# Telescope

- Segment Repair
  - First two previously unusable segments are now on sky
  - Two more underway
  - Ramping up to 3 repair stations
  - Full production expected to start May 1 (10-hr days; 7 days a week)
- TCSU
  - Plan to complete all testing by June 2017
- PCS camera upgrade review passed

# Data Reduction Pipelines

- OSIRIS DRP fix
  - Hack-a-thon in late March
  - Additional funds needed
  - SSC requests update from team in June
- Data Reduction Pipeline plan
  - Presentation for Keck SSC in June
  - SSC will advise on the list of high-priority DRPs, and the Director will make a final rank-ordered list
  - Priority will be determined by scientific impact, breadth of user base, and DRP complexity
  - NASA CAN over-guide has been requested to fund DRPs

# Keck Science Community Meetings

- 2017 Keck Science Meeting (Sept 14-15)
  - UCSC @ Hotel Paradox
  - SOC & LOC & website are urgently needed
  - Preceded by Time Domain Astronomy at Keck (Sep 13)
- Jerry Nelson Symposium
  - July 13-14 @ Hotel Paradox, Santa Cruz
- Suggestion for Keck Special Session at Winter AAS on Keck & Large Surveys
  - Presented as a Highlight by Anne, but there was limited SSC discussion on this topic

# Keck Transient Workshop

- Transient Meeting: Sept 13 in Santa Cruz
- Day before Keck Science Meeting
  - Anne Kinney leading the organization
  - Focused on opportunities for Keck in transient & time-domain astronomy, e.g. taking advantage of K1DM3 & ZTF.
  - Aim is for similar scope to last year's Keck-JWST meeting, e.g. ~50 attendees.
  - List of invited speakers under construction

# Keck Scholars Program

- Program has launched, 15 proposals received so far
  - Five offers extended
- Keck SSC is very enthusiastic about this program. Great opportunity for technology training and recruitment of future staff.
- Keck SSC also recommends that if possible it be extended more mature scientists whose expertise could be lent to the observatory and who can collaborate with staff – not possible with restrictions imposed by the source of funding for this program.

## Keck Scholars Program (2 of 2)

- Another idea for bringing the observing community closer to WMKO is hosting collaboration meetings at WMKO (to write-up for publication WMKO results from work involving WMKO staff, or other activities that help produce WMKO science and enhance collaborations with WMKO staff).

# Updates to SSC Concerns

- There are several new instruments without plans to retire other instruments
  - This is an important concern that will be addressed over the next several SSC meetings
- Keck is engaged in development for majority of instruments
  - Require strategies for strengthening instrumentation expertise at member institutions, possibly involving industry
- WMKO supports more individual programs per semester, partly due to partial nights
  - SAs are thinking about how to optimize scheduling and night operations

# Updates to SSC Concerns

- SA workload is getting too large
  - There is an ad to hire 2 SAs and 1 AO scientist
  - NASA CAN proposal requests support for DRPs
- Remote observing isolates Keck staff
  - Keck visiting scholar program will help
  - But it is also important for Keck staff to interact with senior observers
- Infrastructure is aging
  - 5-year plan addresses at-risk infrastructure

# KCWI-B First Light Report

- KCWI performance during first 3 nights of commissioning has met most level-1 on-sky requirements, including the DRP which delivered reduced data within 5 min of cube acquisition.
- Commissioning is being done with DCS; will transition to TCSU later.
- Science verification data taken in most grating/slicer combinations.
- Commissioning targets include M3, M51, Ring Nebula, quasar LyA nebula. Impressive spectra of point sources and spectral images of extended structures.
- Two technical issues to be solved:
  - vibration, which limits sky subtraction for faint sources.
  - guider dichroic orientation, which is backwards and produces ghost reflections; this is confusing but does not limit guiding; easy to fix.
- Team expects to complete all high priority commissioning tasks in May.
- Instrument is at/above the spec efficiency of 20% at 4600A, and achieves better than 5% out to 6000A.
- *SSC suggested distributing some early-release data in the archive when commissioning is complete.*
- Looking forward, KCRM project plan and cost estimates being developed.

# Visitor Instruments

- Should Keck have a visitor instrument policy?
- Although the observatory is now fully subscribed, some SSC members believe we need a policy, to be enacted whenever it is in the future that we are ready to consider visitor instruments again.
- Types of visitor instruments:
  - Working well on another telescope, but would be better on Keck.
  - New instrument under development for Keck, but not yet at facility stage (e.g. KRAKENS).
  - Prototype or built instruments for TMT, but of interest to Keck community for short term.
- Issues:
  - Definition of technical requirements for instrument mating to telescope.
  - Requirements on instrument team for instrument operations and data reduction.
  - Does visitor instrument time come off the top, or from individual partners?
- Pros regarding visitor instruments:
  - Could address gaps over the next 5-10 years in instrumentation that is relevant to the Keck strategic plan, but not filled by the planned new facility instruments.
  - May be one of few sources of funded instrumentation.
  - Might be a way to test new instrument designs or technologies for TMT.
- Cons:
  - Keck instruments are excellent, and in high demand. Thus the opportunity cost of using visitor instruments is less time for productive facility instruments.
  - Managing an visitor instrument program would put an additional burden on the WMKO staff. Some cases require only software handshake; others observer support.
- Action item: SSC members will consider these issues and send ideas to the SSC co-Chairs, for discussion at the June meeting.

# Instrument White Papers

- Current white papers: present progress at the June SSC meeting
- Upcoming white paper call
  - To be issued imminently, with due date in early June
  - \$100K available in total
- Funding implementation
  - Funding should normally be used within 1 year after provided.
  - SSC recommends that no-cost extensions be possible but must be justified and are not automatic.
  - SSC prefers that multi-institutional funding remain an option for proposals. WMKO will consider the ease/feasibility of this.