The SARA Observatory
Southeastern Association for Research in Astronomy

SARA-KP OBSERVATORY DIRECTOR'S REPORT

September 28, 2018

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I. Introduction

With some increased monsoon weather activity, the observatory had a planned six week summer shutdown period this observing semester. A hardware failure discovered as ACE was preparing to start operations in late August extended the shutdown another two-plus weeks. The primary mirror was successfully aluminized and re-installed for the major shutdown period work. Although a significant number of nights had no observer reports filed (see section II), weather losses appear typical for the season. Lost nights to technical issues appear quite high as they were for the previous six months report, but the primary reason appears to be mostly associated with extended power outages at the observatory. As I was preparing this report, T. Oswalt supplied the Board with a proposal for a feasibility study to address the long term need for more stable and reliable power for the observatory.

II. Telescope Usage

Table 1 illustrates the statistics for use of the telescope compiled from the monthly summaries provided by Bill Keel and my own review of the observer log reports. The format mainly provides simple percentages from the nightly reports. I did check each month for the number of nights with no reports and find an average of 26% of the scheduled nights had no report filed during the time interval indicated in Table 1. Please continue to remind observers at your home institutions to file reports for all nights scheduled for them, even on nights totally lost to weather or when the observatory may be offline due to a major failure. The reports provide the only data we have for noting the productivity of the observatories.

Table 1: Telescope Usage Statistics for 1 March, 2018 to 26 September, 2018

Month	Hours Worked	Clear	Weather Losses	Tech Losses
March	101	53%	33%	14%
April	175.5	74%	13%	13%
May	135	85%	7%	8%
June	133	78%	21%	1%
July (1-15)*	40	50%	40%	10%
August	Shutdown all Month			
September (12-26)*	30	50%	45%	5%

***** Began summer shutdown in mid-July and hardware failure prevented opening until mid-September

III. Observatory Problems

At the end of March the ARC ccd shutter failed and as reported at the spring Board meeting, the cooler pump had failed. Fortunately spares for both were available so only 1 night was lost to each event. However, extended power outages at the observatory do stress the cooler system and typically require an onsite visit by ACE to restart the cooler and verify vacuum in the dewar. Such a power failure was just recently noted in early September as ACE was preparing to bring the observatory back online.

Reports of the guide camera disconnecting from Maxim (even during a guiding sequence) continued this semester. ACE was to upgrade the camera connection to the computer during the summer shutdown but I have not yet been able to verify changes or tested the guide camera operation after the observatory was reopened in September. Observer reports for the brief two weeks of operation in September have not indicated any details about the guide camera behavior.

No other systematic equipment/instrument issues were noted in the observer reports beyond the known large west hour angle tracking problem. This problem (along with other occasional "glitch-like" events reported) can be intermittent but observers just need to be aware of such issues. I do note I observed an asteroid on the night of 9/24/18 down to an elevation of 27 degrees at a southwest azimuth direction with no evidence of any tracking oscillations. There was, however, a new issue of tracking failure that I have noted in observer reports this September. Telescope tracking will spontaneously turn itself off on occasion. This behavior was happening 2-3 years ago so a cause of its return is not known. The main I/O control card was replaced upon startup in mid-September and ACE is looking into the problem.

IV. Instrumentation

- **Cameras -** The ARC camera had a shutter failure at the end of March and the external cooler pump unit replaced. I have queried Josie on the status of the failed cooler sent to the vendor but have no update on that at this time. We will have the entire system from CT as a spare once it is shipped back from Chile, but it is currently in customs limbo as reported by ACE recently.
- **Spectrograph –** The spectrograph has generally been working well before summer shutdown. ACE did replace the StellaCam with a new QHY cmos video camera that will display through its own vendor software, not the DVR as done with the StellaCam. However, upon startup in September, the FLI camera could not be seen by any computer. The FLI is currently back at the company for diagnostics, but ACE has not yet provided an update on its status. Assuming it gets repaired and the spectrograph brought back online, I will provide observers with new operational instructions related to the new video camera as necessary.
- **Computing facilities** - There are no currently known major problems with the computers for the Telescope, ccd, or weather station. However, I have not been able to access the weather station computer or the new DVR web access page for recent observing runs. I have asked ACE to check on both systems as they were dealing with several issues in bringing the observatory back online in the last couple of weeks.
- **Weather Station** - I'm not aware of any problems other than the computer connection issue noted above.
- **Dome Cameras** - Cameras were working as typical before shutdown, but I noted the DVR does not currently respond to web access above. ACE has not reported any failure, but the actual cameras might still need replacement with newer models.

V. Other

As has been discussed at previous Board meetings, we will eventually have to move to a new telescope / observatory control software. It appears the RM control system continues with some reliability issues but in the interest of having consistent operation for all 3 observatories, we should expect to purchase that control software in the near future.