



SARA-KP OBSERVATORY DIRECTOR'S REPORT

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by

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I. Introduction

The October 2018 – March 2019 observing period had significant down time dominated by poor weather, power outages (often associated with weather), and a chronic tracking failure issue. Instrumentation problems have been minimal and the spectrograph was brought back online in October with improvements to its operation. A significant number of nights had no observer reports filed (see section II); most likely associated with long periods of observatory closure due to stretches of bad weather and extended main power outages. Plans to investigate connecting to the KP power grid so that we would be on their backup generator power have not been diligently pursued. This should be made a priority as the main power from TOUA has experience several outages this semester. Such outages typically require an onsite visit from ACE to restart some systems, further delaying operations at the observatory.

II. Telescope Usage

Table 1 on the next page 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 added a column to list the number of nights for which a report was not filed for each month. For the 6 month calendar, those numbers indicate 36% of scheduled nights did not have a report filed. For those nights with observers reports, the semester average was only 44% clear skies versus 46% lost to weather and 10% lost to technical issues.

Table 1: Telescope Usage Statistics for 01 October, 2018 to 31 March, 2019

Month	Hours Worked	Clear	Weather Losses	Tech Losses	Unreported Nights!
October	111	40%	57.3%	2.7%	3
November	127	62.9%	24%	13.1%	10
December	62.5	58.7%	37.6%	3.7%	18
January	58.3	34%	52%	14%	12
February	27.5	14.4%	64.6%	21%	9
March	87	52.9%	41.5%	5.6%	13

III. Observatory Issues

Fall and winter weather patterns were particularly poor for observing this semester. We cannot control the weather, but intense storms year round have shown the main TOUA power lines are prone to failure. An extreme winter snowstorm in late February even led to a shutdown of the entire mountain for a few days. Peter Mack did get an informal estimate from Larry Reddell, Mountain Facilities Supervisor, in January. Reddell indicated overall cost of connection to the mountain backup power grid versus installing our own backup system would be about the same but we have not received a formal bid for the work. Although initial cost might be higher for mountain grid, long term overhead costs for management and maintenance of our own system would probably even out the expense.

A failure of some dome control components lost a couple of days at the end of December but was quickly repaired by ACE. A communication problem with the spectrograph controller occurred twice and was also fixed by ACE. The ccd computer had some glitches and a few problems with communication to the ARC ccd were reported, but these issues were isolated with little time lost.

One chronic problem remains with tracking being unreliable in the eastern half of the sky. This was first reported last September after operations resumed with the replacement of a bad DIO-96 card. ACE has investigated the problem but it remains and appears to be an intermittent one. It does consistently show up for targets in the eastern half of the sky versus the west and seems worse for southeast azimuths.

IV. Instrumentation

- **ARC Camera** - Main imaging camera has been working fine. High humidity conditions still result in condensation on dewar window but no reports of shutter problems or noise issues. Keel reports that the stray light he had detected in narrow band filters appears to have gone away. We should have a complete backup system now as the camera and cooler were to be shipped back from CTIO

last fall but their status needs to be confirmed. Autoguider appears to be working Ok. Settings between the QSI camera for guiding with ARC versus the QHY camera for guiding with spectra are different so observers should note to check them before use. An updated user's guide for autoguiding will soon be posted on the desktop and made available to observers.

- **Spectrograph** – The spectrograph has been working very well with the exception of a couple of incidences of communication failure easily fixed by ACE. QHY camera is excellent for fiber plate viewing and can be used for guiding through Maxim in addition to target acquisition on the fiber. New FLI camera cooler is working reliably as is FLI camera. Only glitch is the QHY camera occasionally hangs on readout, sometimes crashing Maxim with a need to restart the program. New instructions for spectrograph use with the QHY will soon be posted to the desktop and made available to observers.
- **Computing Facilities** - There are no currently known major problems with the computers for the Telescope, ccd, or weather station. CCD computer has hung up a few times in a reboot mode but no other problems and there is plenty of hard disk space available for image storage.
- **Weather Station** - No known current issues other than occasional need to restart the program/computer. Observers are encouraged to use mountain all-sky cameras and weather stations for additional weather monitoring.
- **Dome Cameras** - New OWL DVR is working ok, still need to replace some of the actual cameras in the dome as only main camera viewing toward the east gives good image.

V. Other

As has been discussed at previous Board meetings, we would like to have common control systems and operating software, perhaps even instrumentation at all SARA observatories. The ACE Connector Client software continues to have stability problems at RM, but we should still expect to purchase that control software in the near future.