The SARA Observatory
Southeastern Association for Research in Astronomy

SARA South Observatory Director's Report

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I. Introduction

The performance of the SARA-South telescope was greatly reduced this semester due to computer and dome issues (~25% of available time was lost to these issues). Some connection problems were experienced with those distributed between local observer connections and CTIO network problems. CCD connection problems were due primarily to computer issues. At the time of this report Peter Mack is at CTIO for a full engineering visit including new instrumentation.

II. Telescope Usage

The table below indicates that observations were made on 33% of the scheduled nights. This number is a lower limit because reports were not submitted for 71 nights. If we remove the nights when the telescope was closed, the percentage of reported nights is 65%. If we consider nights for which reports were posted this percentage rises to 59%. Unfortunately the large number of unreported nights makes these numbers far less useful. The last nine nights of March were used by Peter for engineering.

Month	Nights reported/ Nights scheduled	Nights observations were made[1]	Nights lost to weather	Nights lost computer or network problems	Nights lost to dome or telescope problems	Nights lost for other reasons
October	19.5/30	12	7	0	0	1
November	17/30	13.5	1.5	1	0	0
December	16/28	8.5	1.5	10.5	0	0
January	10/24	1.5	0	19	0	0.5
February	13/26	10	1	1	1	1
March	13/22	7	4	6	0	0
Totals (% of scheduled nights)	88.5/160[1] 55%	52.5 33%	15 9%	37.5 23.5%	1 0.5%	2 1%

[1]There were an additional 15 nights with no reports when the telescope was closed.

III. Usage by others

Lowell Observatory observers were scheduled for 9 nights this semester (about 55% of their allotment). Chilean observers were scheduled for 16 nights, using their full allotment.

IV. Observatory Problems

Pointing accuracy continues to be an issue with the telescope. If the telescope does not point accurately two solutions are often utilized that both appear to work consistently: 1) Move telescope to zenith and resend, 2) Offset telescope -720 arcsec in declination. Gear backlash is the most likely culprit.

Computer problems were the primary culprit in lost time and effort this semester. The telescope computer has remained offline for the duration of the semester. There were numerous issues with the Observatory and CCD computers including lost drives, faulty memory, bad USB connections (though this may have been a symptom rather than the problem), BIOS issues, and others. Lost time to computer connectivity resulted in 29 nights lost. Lost network connection (no VPN access) resulted in 6 lost nights.

Dome issues arose only twice, both times with a relatively short loss of observing time (less than two nights total).

The weather station and all-sky camera have not been functioning for some time. The all-sky camera was found to have major fault and is being entirely replaced. The weather station was simply an unplugged USB connector(!). The new Ethernet-addressable console is being installed. The good news here is that there is nothing wrong with the weather station, so we now have a complete set of spare parts there if something should go wrong.

Peter's current visit to the telescope will address instrumentation as described below in addition the following facility-related items:

- Dome skirt installation
- New computers
- Analysis of pointing issues
- Weather station
- Cloud sensor
- All-sky camera

Peter believes that the majority of computer issues we have had relate directly to dust during construction (and adding my two cents, the lack of a dome skirt has likely exacerbated the problem).

V. Instrumentation

1. Camera

The QSI camera has been a reasonable camera for scientific use considering the short timespan for obtaining it after failure of the previous camera. Two major problems have been sensitivity and the lack of a guide camera. The guide camera issue is due to space issues with the QSI focus which result in the inability to focus the guide camera.

Peter's current visit includes installation of the (returned) Leach camera. Unfortunately the saga continues with the camera, though this time with the controller. The computers at SARA-S will not read the PCI card for the camera controller. Peter has requested a new card from Leach and expects to have it at CTIO with a final shipment before he departs. Hopefully I will have more information by the time of the Board meeting.

If the card does not arrive and Peter is unable to install the Leach camera he plans to reinstall the QSI and have the CTIO staff trained well enough to install the Leach CCD (though it is *not* an insignificant task).

2. Spectrograph

Peter is in the process of installing the spectrograph. The computer has been built and is ready for use. The spectrograph will be installed in the next week and tested before Peter's departure on April 15th.

VI. Other

The old SARA-S dome was donated through the CTIO Education and Public Outreach office to Mamalluca touristic observatory, located in Vicuña. The agreement was made based on no cost to the SARA consortium. I am unaware if the dome has been