The SARA Observatory
Southeastern Association for Research in Astronomy

SARA-CTIO Observatory Director's Report

April 3, 2020
Todd Hillwig
Valparaiso University

I. Introduction

The SARA-CTIO telescope operation this semester went relatively smoothly, despite the loss of the Andor camera. The primary loss of time was due to weather with the next greatest loss of time due to poor telescope pointing. The main issues at this point are getting the Andor camera back in service and getting the spectrograph installed. A few other issues are described below.

II. Telescope Usage

The table below indicates that weather was the primary cause of nights lost. Only about 5% of reported time lost was due to technical issues.

Month	Fraction of nights reported	Fraction of time observations were made	Fraction of time lost to weather	Fraction of time lost to technical problems
September	0.533	0.609	0.076	0.315*
October	0.548	0.604	0.396	0.0
November	0.600	0.956	0.044	0.0
December	0.307	0.880	0.120	0.0
January	0.677	0.792	0.204	0.015
February	0.759	0.878	0.095	0.027
March	0.875 (14/16)	0.911	0.078	0.011 (15 nights lost to closure)
Averages (% of reported nights)	59.3%	80%	15%	5%

III. Usage by others

Lowell and Chilean observers continue to make use of their time allotments. About two or three new Chilean observers are trained each semester.

IV. Observatory Problems

Only about 5% of reported time lost this semester was due to technical problems, and the majority of those nights were due to the Andor CCD readout issue—more than a week before the CCD could be changed over to the FLI. Weather was once again the source of the greatest losses of time, with very similar losses to the same semester last year.

The primary issue has been the loss of the Andor camera for nearly the entire semester. Andor shipped the detector to their engineers to test. The first report was that the engineers could nor reproduce the effect we were seeing. After a number of rounds trying to be a conduit of information between Andor and ACE, we finally convinced Andor that ACE should be included as a responsible part for the use of the CCD and they began communicating directly with Brian and Peter. Peter eventually discovered that it the Andor engineers who performed the tests may have been using a diffuse light source. I find that difficult to believe given that I sent them a number of sample CCD images demonstrating the problem. If they did use a diffuse source then either they didn't see those images or they shouldn't be doing that job. We're still trying to clear up exactly what tests they were running, but the current situation has made that even more difficult than it was.

The FLI camera has been operating reliably since replacing the Andor camera (again). There are significantly more low efficiency columns than there were previously, so those trying to do <1% photometry should be very careful. In fact it may be that better precision than that with the FLI is no longer possible, though I haven't done any high precision testing.

V. Instrumentation

1. Science Camera

The FLI CCD has been continuing as the workhorse instrument for the telescope. There are the low-signal issues mentioned above that need to be considered, but in general the camera has continued to work reliably.

2. Spectrograph

Peter needs to provide an update here.

3. Other

The guider has worked pretty reliably this semester. There have been a few scattered issues with it, but it has worked reliably the majority of the time.

Pointing remains an occasional problem. The target is usually in the field but on specific nights may be off the chip. The pointing issues are generally highly repeatable for up to several nights, so that once an offset is determined it can usually be used the entire night for every field. However, offsets are often different in the northern and southern sky.