

SARA OBSERVATORY DIRECTOR'S REPORT

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by

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I. Introduction.

This has been a very interesting six months at SARA, complete with good news and bad news. Lets look at the bad news first. We have failed once again to take delivery of a new large format CCD. This is the third time we have tried to buy on! We were attacked by ants which made observing during the REU months very educational for the students. We were also attacked by weather, the entire state of Florida (where FIT and FIU are of course) have been dealing with a succession of hurricanes. To date, Melbourne suffered nearly a direct hit from Francis, knocking out power to FIT and crashing the SARA web pages and list server, as well as damaging the houses of several SARA faculty. However, in spite of the problems, the observatory continues to provide us with the research and teaching instrument we all wanted when we began this journey so many years ago. Through corrupt companies, uncertain political and economical times, drastic weather issues, we are comfortably operating the SARA telescope remotely (sometimes from the comfort of our own homes) and nearly always getting useful data.

We Are so secure with the Kitt Peak 0.9-meter, that the consortium is for the first time considering expanding out to acquire another instrument! We feel we have enough resources, especially if we expand the consortium by adding a new member or two, to acquire another telescope at a southern hemisphere location, or perhaps a larger aperture telescope here in the North at a dark site. In this report I will cover briefly the discussion that went on at an ad hoc meeting during the summer REU workshop at Valdosta. I will also describe other SARA-related activities.

II. Research at SARA.

The current setup with the AP7 CCD continues to yield high quality publishable data. Once again, a variety of research projects are carried out at the SARA observatory. Microvariability observations of Blazars (Webb NSF supported), photometric observations Seyfert galaxies (Rumstay), white dwarfs (Oswalt), and pulsating stars,

III. Telescope Usage.

The telescope is fully subscribed and ROA coverage is adequate, although not as comprehensive as we would like. Every night where there was ROA coverage was allocated for research and nearly all clear nights were used by a Saran. We have had several times when an observer scheduled for the night was unable to observe, but they posted the “opening” on the web server and someone nearly always took it off their hands. Since the last board meeting, we have adopted a new policy that seasoned observers can, if the weather conditions are stable and excellent, keep observing even after the ROA has left the mountain. This represents a departure from our previous, ultra-conservative posture, of demanding an ROA be present every moment the dome is open. This was done since a large number of clear hours were wasted on nights that were very stable and photometric all night long.

SARA observers signed up for 181 of the 185 possible nights. The nights not requested all fell during the AAS meeting when nearly all of the SARA observers were attending the meeting. We obtained observations on 97 of the 181 nights. A large fraction of the observer reports were missing due to a computer crash at FIT where they were stored on-line, thus it was impossible to determine why data was not taken on those nights. The observing reports that were present indicated most were not used due to weather or the lack of ROA's. Scott Shaw counted 939.5 hours on sources from the observing reports that did exist. Very few nights were lost to mechanical failure this period.

IV. Telescope Problems.

For a couple of reasons, this section is rather small. First of all, the loss of the observing reports caused a loss of technical information where observers reported technical problems. Relying primarily on memory, the major problems we had the past six months were intermittent shutter problems with the AP7 CCD, a few nights lost due to a mirror cover problem (possibly brought on by gusting winds), and auto-guider CCD problems. Only the mirror cover problem resulted in the loss of complete nights, which I think amounted to at most three nights. These problems were handled by ACE with expediency and caused minimal down-time.

For a while, pointing and tracking problems seemed to be worse. The last few observers noted a dramatic increase in the pointing and tracking. The calibration of the pointing model is almost certainly responsible for the marked increase in pointing accuracy. Tracking is still subject to instabilities at some hour angles, but the auto-guider helps when a guide star is available and in working order.

V. Instrumentation.

- **Cameras**

1. The small format AP7 Apogee camera remains the workhorse of the observatory. Although during very cold nights the shutter problem continues, it has not hampered observers very much. The shutter had to be replaced several months ago.
2. An order for a new FLI large format CCD was cancelled. Apparently FLI was having difficulty getting the camera and the SITE chip to work with the USB connector, so based on non-delivery we cancelled the order and ordered an Apogee Alta U55. It has yet to be delivered.

- **Computing facilities**

No news here, the computers continue to work well. Terry will purchase a couple of new flat screen monitors for the REU visits.

- **Weather Station**

We are still awaiting recommendation and purchase of a new weather station. This will come, but the SARAN in charge of this project (the observatory director) has not pushed this through and this should be his number one priority item.

- **Auto guider**

The auto guider is on the telescope and is in regular use by observers. It went down due to CCD problems but is currently back in use. It now operates out of two of the possible three quadrants, but for many fields is still of only limited use since the field of view is very limited. The last few observers have noted the auto- guider is malfunctioning. ACE has been asked to look at it.

- **ISTeC** - The ISTeC web site is maintained by Gary Henson of ETSU. The last update reads: 2002 November 15. All of the links work and the pages are well done and attractive.

- **REU Program** -

After a very successful REU program last year, new students were selected this year from a pool of about 70 applicants. We are looking forward to Kitt Peak visits for our new REU students.

- **ROA's** - Our current group of ROA's are exceptional! There have been no problems noted in the log sheets, only praise for the ROAs.

VI. Future.

Here is a list of important action items I feel we need to address in order of urgency.

1. Take delivery of the new Apogee large format CCD! (Gee, have I written this before?)
2. ***Weather Station replacement.***
3. ***Secondary mirror fabrication and image quality improvements.*** Scott took on the task of investigating tube cooling at the last board meeting. The major problem is getting a quote from ACE and Peter actually having the time to do it. This is something that my want to be implemented at summer shutdown this August. No one has investigated alternative funding for Secondary mirror fabrication. This is a major project and someone who has the time needs to be the driving force behind this project if we really expect developments.

SUMMARY

In Summary, this has been another great fall and spring for SARA. Although very little progress was made in improving the optics, the tube cooling or the weather station, the telescope was rarely out of action due to technical problems. Most of us have been concentrating on the science rather than the maintenance or improvements to the telescope. Even without a working weather station, between the satellite images, the data from WYIN and the 4-meter, CONCAM and of course the experience and extremely reliable ROA's, the weather station is not a necessity. We are still facing the acquisition of the large format CCD, now back with Apogee again after FLI failed to deliver. The saga continues! No one has taken on the task of spearheading the secondary mirror fabrication, although Scott has spearheaded the tube cooling and MAXIMDL-ACE compatibility issues. Although these things are not critical to our science, they would be a very important improvement to our system.

The SARA REU program continues to be our "flagship" teaching program, and the new SARA video showcases our outstanding programs.

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