



SARA NORTH OBSERVATORY DIRECTOR'S REPORT

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by

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I. Introduction.

Although there were a few problems coming out of summer shutdown, this has been a much more normal transition into observing once again. The one major improvement over the summer is the repackaging of the Apogee U42 CCD camera. I will discuss that in the CCD section of this report. Again a problem has recently arisen with the ROA staff. It turns out that administrators at NOAO have once again taken the stance that the KNPO staff are “double dipping” but working for SARA at the same time. Terry is working this out with Buel Januzzi and hopefully this issue will be resolved rather quickly, in the mean time we are relying on ACE and they have been very helpful.

The NSF MRI proposal *Enhancing and Enlarging the Scientific Impact of the SARA Observatories* was accepted. PI Rico Ignace of ETSU succeeded in winning gold for us. This will result in very high quality CCD cameras and spectrographs for each SARA observatory, north south. Everyone in SARA wished to thank Rico for his hard work in getting the successful proposal written and submitted. I would also like to recognize Todd Hillwig for his work with the proposal and Terry Oswald, they were co-I's on the proposal. Thanks also to all of those who submitted ideas and research text for the proposal. Great job RICO!

SARA south is still progressing and we are hoping for an October “new light” opening of the observatory.

II. Research at SARA North

Bill Keel of the University of Alabama used SARA for his discovery paper on Hanny's Voorwerp which was published in the MNRAS electronic early-publishing site (<http://www3.interscience.wiley.com/cgi-bin/fulltext/122580520/HTMLSTART>).

This discovery has also been mentioned in “The Economist” and on cnn.com. The SARA images were the first targeted follow-up data obtained, and the SARA continuum data point remains in the paper despite the later use of much larger telescopes such as the WYIN on the object.



Hanny’s Voorwerp – SARA Image from Bill Keel’s website:
<http://www.astr.ua.edu/keel/research/voorwerp.html>

This is a very exciting topic in extragalactic zoology and I am sure our new cameras will afford even better images of this unusual phenomena.

III. Telescope Usage.

This is a difficult portion of the report to write. The problems with the telescope have really had a significant impact on observations even when we were technically “observing”, and incomplete observing reports didn’t help. Bill Keel sent me the statistics he has compiled and they are presented in Table 1 below. Column 1 lists the Month, column 2 the nights observing reports were filed when observing had taken place. Column 3 is the number of nights in that month (potential nights) minus the nights we did observe. Since there were times when we had no CCD, or the telescope was out of commission for dome problems and observers knew ahead of time there was no chance of observing, sometimes observing reports were not filed. That complicates the tracking of the problems after the fact. I urge everyone, if you are assigned a night, file the observing report, even if there is no chance of observing! So the “Nights Lost” could include cloudy weather or technical problems. In Column 4, Bill calculated the “known” hours that observations were obtained on clear nights. In September, data was taken for nine hours of the 19 hours observing was possible giving a “Mechanical efficiency” of 59%. Again, many more of the nights that were lost were due to mechanical failure, but few reports were filed so this is actually a “best case” number. March is the only “normal” month with fewer technical problems prohibiting observations.

Observing Statistics

Month	Nights Observed	Nights lost	Hours Observed	Hours Weather	Hours Mechanical
April	16	4	116	45	25
May	14	7	110	69	3
June	20	7	119	82	23
July	1	9	4	52	8

The statistics showed that the mechanical failures were not significant this semester, and that July was a very bad month weather-wise.

IV. Telescope Problems.

Problems ranged from dome failures to connections to CCDs and other cameras. ACE dealt with most problems, some not as quickly as we would have liked because Peter was out of town, but everyone did the best they could given the situation. There are no outstanding major problems.

One problem I would like to address on the SARA user side is this: **Why are people still using VNC?** I sent around an E-mail to sara-tech and the other list serves, instructing everyone to use RADMIN and that VNC is not supported by ACE!! RADMIN has proven to be better in every way, so I want to once again ask observers to **use RADMIN, please don't use VNC** to control the telescopes or cameras anymore.

V. Instrumentation.

- Cameras

1. U42 CCD was sent to APOGEE for repackaging into a camera which has much better cooling. The upgrade, high cooled head, IR flash and optical mask baffles would be added to the new camera head. Latest bench test of the E2V 4240 yeild -66C below ambient temp. The RBI should be better and the system will of course have much lower dark count. I heard from Apogee and U42 should be shipped back to SARA by Friday, Sept. 25.
2. Finger Lakes camera with SITE chip has been in place since September startup on SARA north. Later in October when the SARA South joins the fleet, it will be the southern hemisphere camera for us until the Leech cameras arrive.
3. We are currently in the process of ordering a new Bob Leach CCD camera as well as an ACE spectrograph for both the SARA north and SARA south observatories. The new cameras will be the prime instruments and we will keep the U42 as a back-up for SARA North and the Finger Lakes as a backup for SARA South. The details concerning the CCDs will be discussed at the board meeting.

- **Computing facilities**

ACE had to wipe and reinstall the programs on the SARA computers after the REU visits. Seems some bugs may have infected them as a result of web surfing by students and/or faculty. Otherwise, no change computing wise to the observatory.

- **Weather Station**

Although the SARA weather station and all-sky cams are now working much more reliably requiring less rebooting. The wind speed meter is currently not working at the present time.

OBSERVING NOTE: For observers who notice this site is not updating, one can always find the actual weather station output in the ACE system. Click on the “Observatory” tab in the ACE window, click on “weather station” and a window pops up showing you the actual weather readout. This info is exported to the web site, and sometimes the exporting process freezes up. If the weather station is indeed functioning at all, the ACE window should have the correct values even if the web site is not updating.

- **All Sky Camera-** The all-sky camera has been functioning well. It is very nice to be able to see the sky while observing. It would be nice to be able to set it to automatically update, but frankly that would be shutter wear and tear when it is not really necessary, so in my opinion it is fine the way it is. **OBSERVING NOTE:** Occasionally it does refuse to operate, and it is necessary to go to the ACE computer, open an internet browser window, click on favorites and open the “APC_rack_PDU” web site. From there you can cycle the power on and off for the all-sky camera and it usually comes back up. This is a common thing that some observers do not know!
- **Dome Cameras -** Situated well and are very helpful.
- **REU Program -**

This year was another incredibly successful REU year. The students were excellent as were the faculty projects. The only problem was an incident where some software was loaded on the SARA computers. Apparently students were board due to bad weather and downloaded some things to do.

- **SARA North ROA’s –** As mentioned in the introduction, the issue of paying the ROAs has yet again raised its ugly head. A bean counter at NOAO caught wind that the visitor center people were acting at ROAs and determined they were “double dipping”. They had to cease immediately or risk losing their jobs at the visitors center. Terry is in negotiations with NOAO to straighten the whole thing out once again.

VI. SARA South Observatory Report

Peter Mack and ACE personnel made the initial visit to SARA in late August for the majority of the retrofit.

- They installed the control crate
- dome control
- and perform the vast majority of the retrofit.
- Brought other parts back for refurbishment/repair
- will return to Chile with the instruments and any final parts early October.
Is October a better time for you to travel?

Plans are for a SARA person (either Ron or Todd) to go to Chile with Peter to complete the project, learn the system, and accept the completion of the contract.

VII. Future.

These are some of the challenges we face starting this week and in the near future.

1. *SARA South CTIO 24-in.* We are hoping that we are within a month or so of “second light” and beginning of remote operations at SARA South.

VIII. Summary.

The success of the MRI grant, the nearing completion of the SARA south telescope, and the hopefully successful negotiations concerning the ROAs make for a bright future for SARA observers!

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