SARA SOUTH OBSERVATORY DIRECTOR'S REPORT

May 2010

by
Dr. Ronald Kaitchuck,
Director, SARA Southern Observatory
Professor of Physics & Astronomy
Ball State University

The 0.6-meter SARA-South telescope is fully functional and ready for regular operation at the start of May, 2010. I want to thank Peter Mack and the staff of ACE for their extra efforts to make this possible. I also want to thank Bill Keel, Todd Hillwig and Brian Murphy for acting as "test pilots" over the last month. I am happy to say they found very few problems. They also contributed beautiful images for our image gallery.

A little History

As you know, last December my wife and I went to CTIO to be on-site with Peter Mack for what we hoped would be the final check-out of the telescope. However there were delays. Peter was running behind schedule because of a computer problem. The FLI camera failed to work properly and there was a problem with the optical alignment. Peter returned to CTIO in February to fix the optical problem and to install a loaner camera from Butler University. The month of April was used for remote testing. Except for a couple of minor problems, the telescope functioned exceptionally well right from the start.

Operation of SARA-South and Differences Between the Two Telescopes

As we begin regular operations of SARA-South I want to make note of some differences in its operation. The most obvious being the lack of an ROA. To help with this Peter has installed 6 cameras; three monitor the telescope, one looking through the 6-inch finder telescope, one riding on the tube facing the sky and one outside looking at the building. The latter camera also gives a good view of the sky at twilight to check for clouds. There is also an all-sky camera like the one at SARA-North. Recommended procedures in the event of a problem or an emergency are discussed later in the report.

Another difference between the two telescopes is their focusing. You must use larger jog sizes than used at SARA-North. Instead of making steps of 20 units, use 200 units. I think this is just a result of the larger f-ratio of this scope (13.7 vs 7.5). When the seeing is good the out-of-focus images have a strange shape. The stars appear as a distorted ring with several bright spots. However, once focused, the stars were round and small.

Connecting to the telescope is more complicated that it is for SARA-North. Your local computer will require the installation of a Cisco VPN client. This will allow you to join the NOAO computer network. You can then launch Radmin. The details on the software setup and the VPN password and IP addresses

can be found in the User Manual written by Peter Mack and a small "Getting Started" document that I have written. I strongly advise that everyone install and test their SARA-South connection well in advance of their first night on the telescope. Both Todd Hillwig and I encountered a problem with our campus firewalls that prevented the VPN connection from functioning. This was resolved by our local IT folks, but it took time.

Transferring image files is going to be a problem; it is about half the speed we are used to. We will need to consider image compression. This may be a bigger problem with the larger image size of the Leach camera.

Peter has given many useful comments about remote observing in his user manual. We all should consider this required reading.

Guide Lines for Operation

With SARA-South we will be working without an ROA and in a telescope environment that is different than Kitt Peak. The following items should be considered for adoption as rules for operation. Many of these come from Peter Mack's Operation Manual.

Operation is not recommended on those nights of marginal weather conditions, especially when rain or snow is predicted within the next 12 hours.

The humidity can change rapidly. On many evenings a fog settles in the valleys below. It can occasionally reach the summit by dawn. The sky above will be near perfect but everything is dripping wet, so beware of this. The rain-snow detector will probably be set off and close the dome when this happens.

Of the three machines at SARA-South, the SARAOBS is the slowest, in fact, pretty sluggish. Be patient.

Except for the SARAOBS computer the responsiveness of the system is not too bad, especially if you reduce the RADMIN bit-depth from 16 to 8 bits.

Failures and Emergencies (from Peter Mack)

There is no on-site staff available for you to contact. Emergencies are categorized as situations like the dome being unable to close after an earthquake, as opposed to a camera being inoperable. If a piece of equipment fails in the night it will be at least the next day (or over the weekend the following Monday) before it can be seen to. The CTIO staff work Mondays through Fridays from approximately 09:00 through 16:00 local time. Observers should report non-critical equipment failures in the usual manner and a response team will see to getting things back to normal. Contact ACE during normal business hours if there is a non-critical equipment failure. Some limited help may also be available during evenings and weekends on an ad-hoc basis, but it is not guaranteed help and is at the sole discretion of the staff. Using Windows Live Messenger (available on the remote computers) you can often contact ACE personnel late into the night if they are working at other observatories.

Remaining Site Issues

1. There is a gap between the bottom circumference of the dome and the top of the building wall. This requires a skirt flap to seal out weather and to prevent light leaks.

2. Peter indicated that there will be significant heat dumped into the dome with the new Leach camera unless it is vented to the outside. This will require a small vent in the building wall. We may want to find ways to dump the heat far from the dome.
3. The paint on the north side of the building is pealing and will require re-painting.
4. We need a storage cabinet in the dome.