FLI Visits Tivoli Astrofarm, Namibia

Text: David Snay, *Astronomy Technology Today*
Images: Greg Terrance, Finger Lakes Instrumentation LLC

Kirsten and Reinhold Schreiber own and operate the Tivoli Southern Sky Guest Farm located roughly 180 kilometers southeast of Windhoek, the capital of Namibia. Its main function is as a farm for black Karakul sheep which they re-introduced in 1999. There are also cattle on the farm, but the main providers are the sheep. However, the family has been moonlighting as astro-photographers and astronomy hosts since 1986, when they installed their first permanent piers. Since then demand and support has grown to include 5 sets of apartments (all named after famous astronomers), 7 observatories, 8 piers and several observing pads.

The observatories have a wide array of available high end telescopes on jealousy inducing mounts. A small sample of the equipment available for visitors' use follows:

Figure 1 - Celestron C11 carbon fiber tube and an AstroPhysics Starfire 127 on an AP GTO 1200 mount

Figure 2 - 16” f/8 Hypergraph Observatory

Figure 3 - 16” f/8 Hypergraph

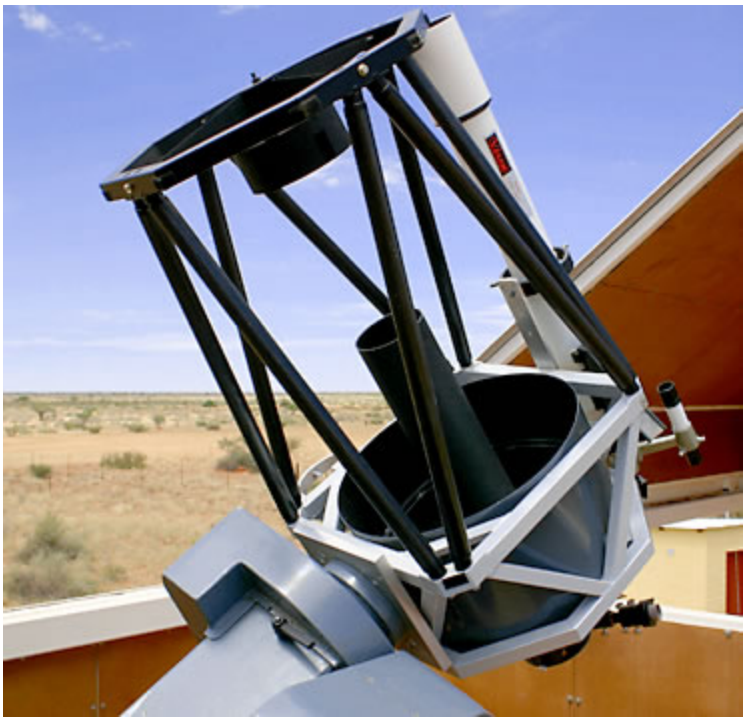
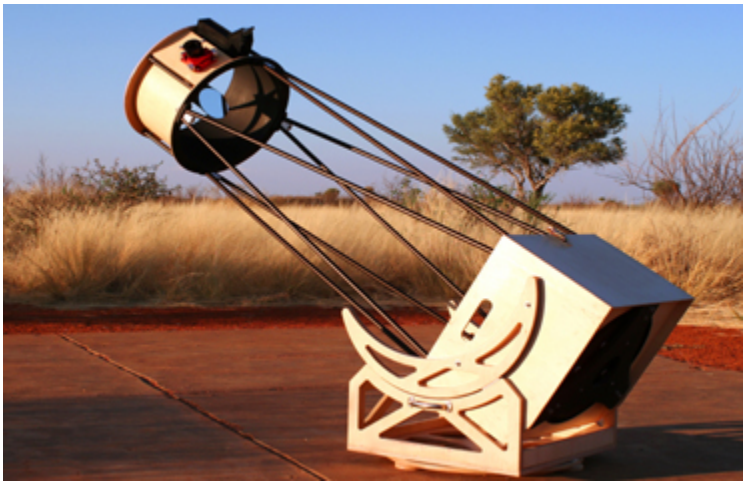


Figure 4 - 14" Dobsonian truss tube, lightweight, from Astrooptic Martini with a Hilux mirror made of Suprax which boasts a 96% reflective coating and a Strehl of 0.95



All of the observatories are elevated at least one meter to provide spacing between the equipment (and astronomers) and the critters that inhabit the wilderness that surrounds the farm. Okay, so everything is done to help protect you from the wildlife. How cool is it that you even need protecting? I remember a time many years ago when I was in the mountains of New Hampshire at a campground and the owners gave me the keys to one of their John Deer Gators so I could take my gear further into the mountains and I encountered a moose (scared me quite a bit before it came out of the bushes and walked away when I made some noise) and then a bear that scared me witless. Actually, there is very little risk of an encounter with the wildlife. Warthogs, Kudu and Jackal roam the area but they leave you alone. Being several feet off the ground with a door and floor between you and the great outdoors is more about minimizing ground air currents. The observatories are made of aluminum or steel to protect them from termites as well as greatly reduce maintenance requirements.

The folks at Finger Lake Instruments have noticed that not only is there a steady stream of amazing images coming from the southern skies of Namibia, but that more and more of those images have come through FLI cameras. So naturally they wanted to visit the site and host an event at the farm to:

- Explain the engineering behind their 'black boxes': ProLine & MicroLine cameras, Atlas focuser and CenterLine filter wheel
- Demonstrate how to setup, run and use FLI imaging equipment
- Allow attendees hands on use of equipment under real field conditions
- Give away an FLI camera at the end of the session!

Just as naturally, Gregory Terrance volunteered to make the trip (Greg is one of the founders and a man completely committed to the field of astro-photography). It was a tough job, but someone had to do it. Now I know it sounds like it this is a vacation for Greg, that's what I

thought when he told me about it. However, Windhoek is roughly 7,500 miles from Rochester, New York and it apparently requires a little over 9,000 miles of travel to get there. Here's the route Greg took: Rochester to Chicago to Dakar and then a long ride from the airport to the farm. That last leg was a 2 hour drive on mostly dirt roads. Given the distance and number of legs to this trip, you can probably predict that his luggage took an alternate route and was not waiting for him when he got there. Greg also recommends anyone visiting the AstroFarm do everything possible to arrive and leave during the day. You will be making that last leg of the trip on relatively remote roads and the wildlife is much bolder in the evening.

For a little perspective, here's a picture of Greg high above the ground an ASA (Astro Systems Austria) 10" F3 astro-graphs with a PL16803 and CFW-5-7 image train. Can't you see yourself out there at night making amazing images while reveling in the pristine night sky conditions?

Figure 5 - Greg

Greg brought one of FLI's Proline PL3041 CCD back illuminated camera to the event. The high QE, deep cooled back illuminated design yields a much more sensitive sensor. This increased sensitivity reduced the time required to acquire enough quality data for narrow band images was reduced from 15-20 hours to 2-3 hours. Here is the first sample image from the visit.

Figure 6- M17

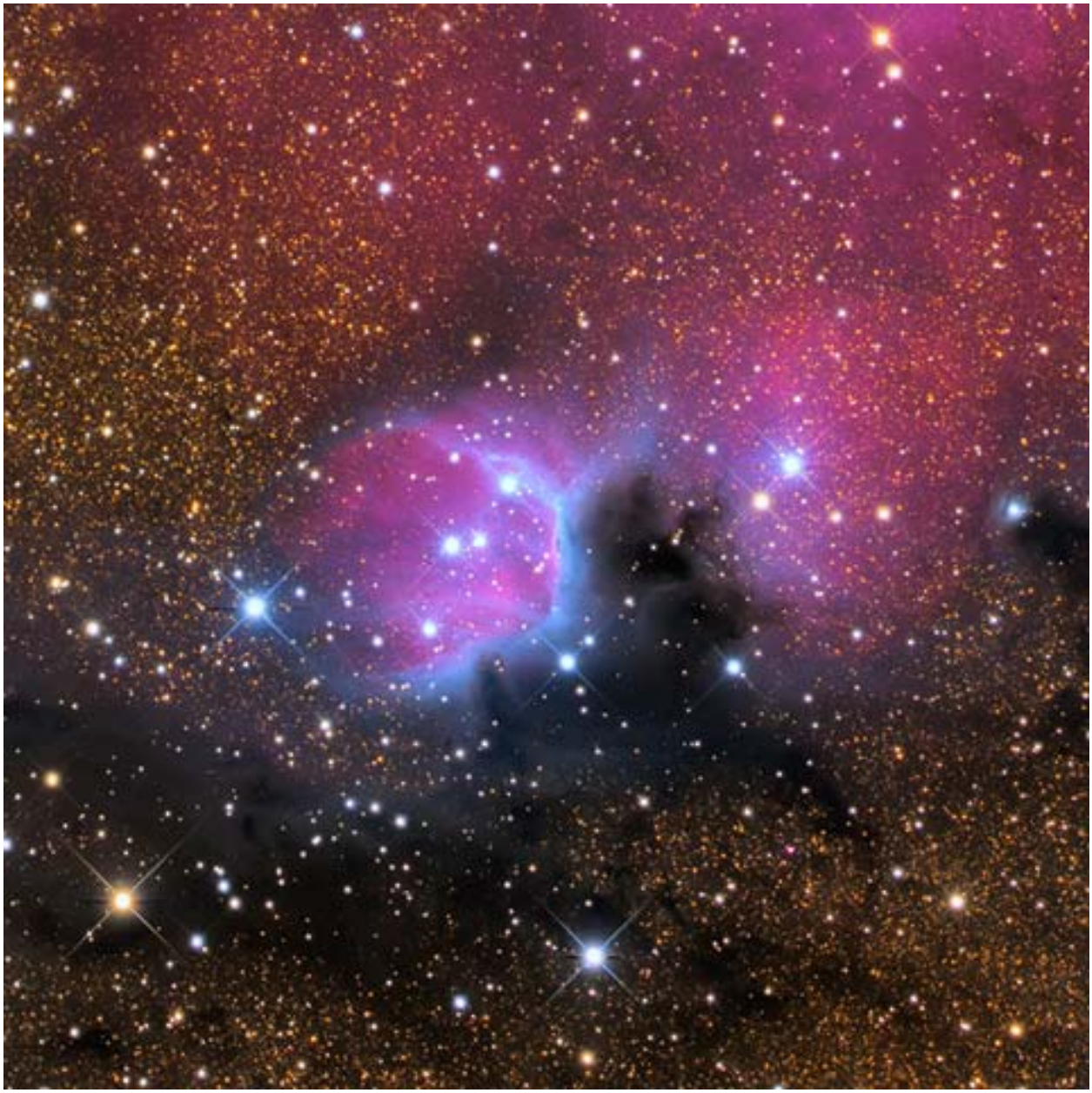
This was made using a ProLine PL3041 camera and Finger Lake Instruments research grade filters. It is M17 and required only 50 minutes each of SII, Ha and OIII data in 10 minute increments! I've made several attempts at this object from dark skies (such as they are from Massachusetts) and can honestly say that there is no way I could have made this image with anything even close the amount of time Wolfgang Promper needed to make this image.

All the astronomers on site during this event were from Germany and Austria. This location is very popular with European astro-travelers (is that a word?). This makes sense considering that Western hemisphere astronomers can travel to dark sky sites without

international travel. However, if you're from the Northern Hemisphere and want to view and/or observe Southern sky objects, the Tivoli AstroFarm should be high on your list of destinations.

Let's finish with a couple more images made by Wolfgang Promper using FLI cameras and filters. The first is IC1275, an emission nebula in Sagittarius. Using a ProLine PL4240 and Finger Lake research grade RGB filters required only 130 minutes of total exposure (40', 40', 50' respectively) using 5' sub-exposures.

Figure 7 - IC1275



The last image to share with you is NGC 5139, otherwise known as Omega Centauri. This was made with a ProLine PL16803 camera and more of the Finger Lake Instruments research grade RGB filters. This one required only 40’ exposure in each channel.

Figure 8 - NGC5139

You can learn more about the AstroFarm at http://www.tivoli-astrofarm.de/e_tivoli_astrofarm.htm . There you’ll find more information about the history of the farm, travel requirements, available equipment and the best times to travel (think Winter in Namibia).