

The Shoreline Observer



*Newsletter for the
Shoreline Amateur Astronomical Association*

President- Mark Logsdon

Vice President- Gary Stroven

Secretary/Treasurer- Phil Sherman

Robert Wade, Editor

February 1993

February Meeting

The February meeting of the Shoreline Amateur Astronomical Association will be held on Thursday February 18, beginning promptly at 7:00 PM in the West Ottawa Middle School Planetarium in Holland, Michigan.

- Refreshments.
- Sandy Plakke will tour the February night sky.
- Bill DeVette will present a slide program on Astrophotography.

Board Meeting

Mark called the meeting to order on January 28, 1993.

Treasure's Report: \$ 389.62

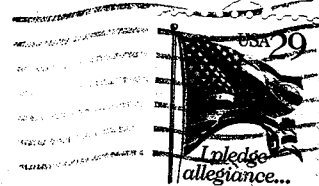
New Business: Our guest speaker for February, Bill DeVette, is also a member of the Muskegon Astronomical Society. You are invited to join the speaker for dinner at Joe Babushka's at 5:30 PM prior to the meeting on Thursday.

Astronomy Day, May 1: Mark and Arlin are working on setting up an observance similar to last year.

Messier Marathon: Reserve the weekends of March 19/20 and 26/27. If we are really fortunate, we could have our first good star party in ages.

Respectfully submitted by Mark Logsdon

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Dew Proof Astrophotography

by Jason Ware

The following article was submitted to *Sky & Telescope* magazine in December of 1992. Hopefully the article will get published so you can see the photos in the magazine (although it sometimes takes a couple of YEARS before articles submitted get published.)

Success in astrophotography requires a combination of the proper equipment and a suitable environment. I do most of my deep sky photography from a forty acre dark-sky observing site in Southern Oklahoma, owned by the Texas Astronomical Society of Dallas. Although the site is quite dark, it is often plagued by heavy dew, or in

the winter, frost. On a recent observing and photography trip the sky above was very clear, however the ground was covered with a blanket of fog several feet deep! Conditions like this can kill all astrophotography efforts, unless proper precautions are taken to ensure the telescope, and film remain dry.

My photography setup consists of an 8-inch Meade f10 Schmidt-Cassegrain telescope, guiding is usually done by a Santa Barbara Instruments ST-4 Autoguider. Photography under conditions with heavy moisture has presented several problems which I have overcome and would offer as advice to those in similar climates.

KEEP THE CORRECTOR DRY

Schmidt-Cassegrains are known for foggy corrector plates. The thin glass quickly radiates heat and will generally begin to fog before other nearby objects show any sign of dew. Several companies make resistive heated dew caps or heat strips designed to replace the heat lost by radiation. I use an Orion 12 volt Dew Zapper, which on the wettest of nights will not quite keep the corrector clear. I have solved the problem by adding an Orion FlexiShield dew cap placed over the Dew Zapper. This further insulates the Zapper and has the added advantage of shading the telescope from stray light, which can reduce contrast or fog the film.

Dennis di Cicco, Associate Editor of *Sky and Telescope* has been successful in preventing dew formation by lightly blowing a hair dryer over the corrector plate during an exposure. Care must be taken when using this method because image degradation, while not enough to ruin the photo can cause loss of the guide star, especially when using an autoguider.

EYEPiece "ANTI-FOG"

Astrophotographers who have worked on a humid or cold night know that bringing the eye close to the guiding eyepiece can cause it to fog, thus making the guide star impossible to see. I have a similar problem with the SBIG ST-4 autoguider. The autoguider uses a CCD imaging camera which replaces the guiding eyepiece and "watches" the guide star. In order to improve sensitivity and reduce thermal noise, the CCD is cooled by a thermo-electric cooler. Although the CCD itself is protected from moisture by an optical window, the window can sometimes form dew which causes loss of the guide star. I have solved this problem by adding about 1 1/2 watts of heat to the CCD draw tube. This was done with two 210 ohm resistors connected in parallel to a 12 volt supply. I have used this same setup on a guiding eyepiece and it works quite well.

NO MORE SOGGY FILM

A subject which has received little attention in the amateur community is that of keeping the film dry while in the field. Hypersensitization works by removing moisture and oxygen from the film, thus reducing reciprocity failure. In many cases the film is then returned to a damp environment at the telescope, which actually reverses the effect of hypering. In extreme cases I have seen the film fog and even swell to the point of sticking to the pressure plate in the back of the camera! This problem is especially noticeable with Kodak 2415 black and white film.

A solution to the problem was presented to our club by James Bryan of Georgetown, Texas in a talk on his research to find novae in M31. He suggested using dry nitrogen bled into the telescope with a thin hose. My friend David Lee and I took this idea and adapted it to an off-axis guider used with a Schmidt-Cassegrain. Using airbrush hoses and fittings, available at most hobby stores, we found a way to introduce a steady stream of dry nitrogen into the off-axis guider. This creates a positive pressure inside the telescope and camera and forces out the moisture saturated air.

Totting around a supply of nitrogen may at first sound like a hassle, in reality small tanks can be purchased from welding supply stores which contain enough gas to last several evenings. A larger tank can be rented for refilling the small tank. Nitrogen is relatively cheap, a large tank full, enough for several months of use is sold for under \$10. The rental fee on the tank is under \$5 per month. Be sure you have a professional at the welding supply give you the proper fittings for refilling the small tank. You will be working with pressures close to 3000 p.s.i, and using improper fittings can be disastrous. You will want to get some sort of needle valve to finely control the amount of gas running through the system. I have found a flow rate of about 50 millilitres per minute to work with my telescope, this can be measured by inverting a cup with a known volume in a tub of water and then noting the amount of time it takes to fill while holding the hose underneath.

Astrophotography under adverse conditions is challenging, but not impossible. Those who live in areas with damp climates, and cannot travel to a dryer area, may benefit from these techniques.