



Stellafane, Perseids, and Hurricanes

President's Message

Find a rain coat? Dust in the eye?
Seeing all these hurricanes on the satellite images makes be ponder. These spinning vortices look so much like spiral galaxies!
They both have arms (the pretty ones do)
They are composed of billions of water droplets (or stars)
They contains fog (or nebula and star clouds)
They are traveling through the ocean, (or vast universe)
They are vacuuming the deep blue (the hungry ones do)
They eat up smaller storms (or dwarf galaxies)
They contain biological passengers (or planets with us on one at least)
Heat fuels it (both fusion powered)
The center is calm (it could be calm inside a large black hole)
The two merge by one more cosmic thread. Every drop of rain in the hurricane contains at least one speck of dust that may have fallen from space, from our galaxy.
You can tell that Fall is here by the cooler temperatures and other weather changes.
Hurricane
NHAS is coming this way.
Between storms, have clear skies.
* Joel Harris
NHAS
President 2004



Public Observing Highlights

On Tuesday Aug 24th, several NHAS members went to a skywatch at the Captain Samuel Douglass Academy in Brookline, NH. Thanks to **Barbara O'Connell** for organizing this event.
About 30 people attended and kept us there until past 10 p.m. under dark, clear skies. **John Bishop** wowed the crowd by finding Uranus in his 6.5-inch off-axis Newtonian. Not to be outdone, **Mike Townsend** found Neptune a few minutes later in his Orion Astroview 120 Short Tube!
Our school skywatches start up again very soon. Watch the NHAS online calendar, since there are already skywatches scheduled for September and October.

* Ed Ting

Perseids Ahead of a Hurricane

Member **Lew Gramer** returned late Sunday night, August 15th, from an adventure-filled trip in South Florida to observe the glorious Perseid meteor shower. He began tent camping on Sunday night Aug. 8th, amid the star-filled skies and gentle breezes of the Florida Keys.
Thanks to the laminar (ocean-like) air

flows across the Florida straits, Lew enjoyed mostly clear skies all the way to Wednesday morning Aug. 11th, until the park ranger dropped by with the news that a mandatory Visitor Evacuation of the Florida Keys was about to begin!

Lew had to pack up his site in a hurry and drive three hours north to get to safer ground. But he still managed to observe the peak night of the mighty Perseids by heading out into the dank, still, mosquito-beclouded airs of the Florida Everglades.

Skies cooperated to the north, and some 200 meteors were logged that night – among them a startling mag. -6 Perseid fireball, and quite a few brighter than magnitude 0.

He returned to Massachusetts thankful for the clear skies that week, but also saddened by the devastation visited on the people of Florida's hurricane-ravaged West Coast.

YFOS Log Book

Members are encouraged to use the site and especially to use the mowing equipment to keep the grass at a reasonable level.

A big work session is planned for Sept. 25th so please join in. Bring bug spray for the evening if you plan to do some observing.

* Larry Lopez

Noteworthy News
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A Stellafane Winner

As many of you know who went to Springfield, Vermont in August, I had been working on a telescope for a long time and entered it in the Stellafane Telescope Competition this year. The results were two awards: third place in craftsmanship and fourth place in mechanical design.



The telescope is a 16" f/13.5 classical Cassegrain on a fork mount. The primary mirror is f/4.5 and the multiplication by the secondary is 3 making the system f/13.5. It was suggested by some people at Stellafane that I may have been the first person to enter a self-propelled mount. The body of the mount is on wheels. The drive wheels and axle are from a snowblower and the steering wheels and hardware are from a riding lawnmower. The drive wheels are powered by an electric motor and right-angle gear reducer and so I can drive the telescope from my basement out to my backyard for observing. I used a combination of linear actuators from satellite dishes and a modified automotive car jack to make an electrically-powered tripod system which lifts the mount off the wheels and sets the proper angle for the polar axis. Four deep-cycle marine batteries onboard provide power. A trickle charger can be plugged in when AC power is available.

The mount has a clock drive/goto system using stepper motors and is controlled by a laptop computer. The operating program is called Scope-Drive and was developed by Mel Bartels. The system, when fine tuning is completed, will make the mount capable of locating and tracking objects

from any list of objects entered in the program.

I ground, polished, and figured both the 16-inch primary mirror and the 4.5-inch convex secondary mirror with some guidance from Don Ware. The entire project has taken over three years to complete and I have missed many Friday meetings in order to work on the project.

Many people won't recognize me but I have been a member of NHAS for about five years. I supplied the metal roofing for the YFOS observatory and helped with its construction. I live in Ashland, NH.

You can see more pictures of the

scope at the Stellafane.com website and in the pictures section of the NHAS Yahoo groups site.

One last note: The scope carries a license plate that reads "I Saw IT" and is a double meaning in that I am an amateur astronomer and a carpenter. It is a replacement plate for my truck.

* John McClean

AstroPhotons

The previous meeting at YFOS in August was attended by poor weather and only two members. The latest meeting was scheduled for YFOS on Sept. 11 but poor skies again prevented any observing. Details were not available at press time.

ATM True Grit

There was no ATM meeting last month.

* Larry Lopez

Far Out Objects of the Month

This month begins a new feature that focuses on objects that are far out in space. The presentation is in the form of an observer's log book, which might be useful as a model for the beginner. The first two objects are M2 and M15 as observed with a modest scope, under conditions that most other NHAS

members can probably beat right in their own backyards!

Date and UT of Observation: 1997-09-22/23, 02:30 UT

Location: Medford, MA, USA (42N)

Site classification: urban

Limiting mag.: 5.3 (zenith), 4.5 (in S)

Seeing: 2 of 10 - very good

Moon up: no

Instrument: 8-inch f/10 SCT

Magnification: 80x, 170x, 340x, 500x

Filters used: None

Object: M2

Category: Globular cluster

Constellation: Aqr

Data: mag. 6.5 size 13'

RA/DE: 21h34m -00o50m

Description: Readily found at the NW apex of a triangle formed by Alpha and Beta Aqr, amid a very sparse field of mag. 10 and 11 stars. M2 was a readily visible object, seen at all powers as a striking blob of "nebulousity" with some irregularities ("pseudopoda") stretching 3-5' to SW and N. However, lost as it was in the sky glow of nearby Boston, M2 did not show so much as a stelling, even at 500x! A mag. 10 star was involved just N of the core (PPM 709115). All in all, pretty disappointing even in 8-inch, especially in comparison to nearby M15.

Object: M15

Category: Globular cluster

Constellation: Peg

Data: mag. 6.3 size 12'

RA/DE: 21h30m +12o10m

Description: A much more enticing view than nearby M2. Like the sparser cluster, M15 was an intriguing little "fuzz blob" at 80x, with similar apparent "psuedopods" of hazy light spreading off to the NE, SE, and E. However, when viewed at higher magnifications (and seeing allowed me to push this fine little SCT to its limits), many faint stellarings were suddenly apparent throughout the fuzzy area of M15's halo, even into its bright core.

Some 40-50 stars could be resolved using averted vision, with a particularly dense, pretty clustering of stars overlaid on the NE "pseudopod" that had been noted at lower powers. Certainly worth a look under even urban conditions with a well-collimated 6-8-inch scope.

* Lew Gramer

The Bottom Line

Starting balance: \$3,309.18

Deposits: new members made after 9/4 A/P:

Expenses for Stellafane BBQ \$89.39

Net Balance: 3,219.79

Cash Balance: 3,219.79

Membership: 158

Welcome New Members

NHAS welcomes the following new members into our club:

Fred E. Deschoff Manchester, NH - Has Bogen mount w/tripod

Carl dos Santos Rindge, NH - Has Meade LXD75-SN10 w/UHTC

Dennis E. Isbell Derry, NH - Has Celestron C8

Rob Cordeau Nashua, NH - Has Orion SkyQuest XT8 (8" Dob)

James Ambrister Manchester, NH - Has Meade 8" LX90 (previous member)

Donations

Fred E. Deschoff \$7.50

* Barbara O'Connell

The Heavens Declare

A Stellafane Sojourn

Arriving at 10 a.m. Saturday, my first contact was with **Nils Wygant** who was setting up a tent that looked a little like a nylon DeAngelo's sub. **Gardner** Gerry was taking photos as Nils finished staking the tent. The news was that Friday night was rain, rain, rain. The main roadways had been upgraded and were surprisingly still solid.

The swap table was the next stop. On the way I met **Sal LaRiccia**, whom I knew back in the 70s at the South Shore Astronomical Society. At the swap area, I then met **Dennis DiCicco** and **Roger Sinnott** and talked about the old days in Hanover and Rockland, Mass. Dennis was amazed that I was still using a film camera (Minolta SRT 101) but then proceeded to pull out a real antique, a stereo camera with two lenses side by side. **Mike Townsend**, **Dan Smith**, and **Steve Forbes** were among the sellers.

Joel Harris again excelled as master NHAS chef and served up the

traditional NHAS cookout of hamburgers, hot dogs, chicken, and a few tofu burgers. There was plenty to go around, lots of munchies both salted and sweet, even watermelon.

Larry Lopez started a brisk discussion with **Sarah Bingel** and this writer about vegetarian vs. the Atkins diet and somewhere along the line it descended into jokes about tofu (toad food? toe foo?)

Next a trip to the pink clubhouse and the telescope competition was in order. Many new entries dotted the hilltop. A few of the eyecatchers were these:

- o **John McClean's** self-propelled 16-inch f/13.5 classical Cassegrain scope. The wheels and axles were from a snowblower and lawn tractor and power came from marine batteries. John is an NHAS member from Ashland, NH.

- o **Normand Fullum's** 12.5-inch Newtonian dob, a hand-carved wood masterpiece. He also brought an 8-inch Newtonian dob with an ornate wooden tube. Normand is from Hudson, Quebec.

Down the hill at the big tent, the talks were already in progress as were the mud holes. **Paul Valleli** talked about "Baffling and Vignetting" and **Richard Parker** spoke about "Telescope Relationships" (formulas not sweethearts).

A trip back to the hill netted some additional information about some of the telescopes. Many were already covered with tarps in anticipation of bad weather from hurricane Charley.

In the clubhouse, **Bert Willard** said that their neighbor had cleared trees on the west side of the clubhouse (Stellafane has only two acres atop the hill) for a better view from the neighbor's home. The superb view now includes Okemo Mountain and others in western Vermont.

Walking down the hill, I noticed the little flashing LED devices pinned to the trees. Stopping at the entrance to the old camping field brought back memories of Stellafanes past.

NHAS had already gathered

at the amphitheater for the evening events. **Bob Morse** went through the raffle as quickly as possible. **Nils Wygant** won a hydrogen alpha filter. Next they presented several awards. During the telescope awards, **John McClean** won 4th place for mechanical design and 3rd place for craftsmanship out of a field of 30 entries. The judges declared a tie and **Normand Fullum** won first place for both his scopes! The full details were posted at http://www.stellafane.com/post_conv/2004_conv/2004_mechanical.html after the convention.

David Levy presented the Shadowgram and ended with a plea to help support the Flanders Pavilion Fund, a new effort to build a 6,000 sq. ft. meeting hall to replace the big tent. It will be an indoor location for many of Stellafane's events. He then honored the memory of some special Stellafane people: **Miriam Houston**, **Janet Mattei**, and **Hartness** and **Margaret Beardsley**. As David ended his talk with a musical slide show, the clouds amazingly and slowly dissolved. At first only Arcturus was visible, then the handle of the Big Dipper and next the Bowl.

It was getting dark and nearing 9 p.m. as **Dr. Ronald Mallet** gave the keynote talk on "A Brief History of Time Travel." Most of the club quietly departed to pack up or decide how much longer to stay. Even though the bright stars were visible, it was quite hazy. With rain from hurricane Charley due Sunday morning, most NHASers saw the handwriting on the sky, packed up, and bid goodbye to another Stellafane weekend.

* Michael Frascinella

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Looking Back at Last Month

Opening. Joel Harris welcomed us to the August meeting.

Book of the Month: Larry Lopez got a deal on a book at Borders in Concord – a collection of essays on astronomy, physics, and related fields.

Public Observing. No news

Committees. Photo Comm. – Chase McNiss noted a meeting on Aug. 21 at YFOS and said he would work on a meeting schedule. The committee is also looking for a new chairman.

ATM Comm. – Larry Lopez praised John McLean for getting two awards at Stellafane. Larry reminded us that the ATMs were willing to help people make scope mirrors. Web Comm. – Larry received complaints that photos were not accessible (newsgroup?).

YFOS. Larry said the field is being maintained but the sky has been poor.

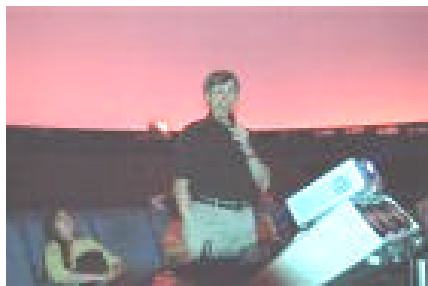
Treasury. Barbara O'Connell was stuck at work. Contact her if you need pay back for Stellafane expenses.

Space probes: The Mars Rovers were still cruising the red planet and the Cassini spacecraft found two new moons around Saturn.

History Program: Arvin Conglestone mentioned the History of Astrophotography Program, Oct. 3, in Waltham, Mass. It is sponsored by the Photographic Historical Society of New England (www.phsne.org).

Mars web site: John Bishop mentioned interesting material on the Lick Observatory web site called "Two Weeks on Mars" highlighting the difference between mapping and drawing the planet.

Evening Feature: "Eclipse on Ice: Antarctic Flight through Totality, 23 Nov. 2003" presented by J. Kelly Beatty of *Night Sky/Sky & Telescope*.



This was a new venture for *Sky & Telescope*. The first leg was to fly to the southern trip of South America, then

hire a really big plane to go to the South Pole. He located a big Airbus 340 at Lan Chile Airlines but it took a while to explain that it was for a nonstop airborne eclipse expedition. To make the trip even more exotic, the flight included a pass over the South Pole and the Mt. Vinson range.

The charter cost about 1/3 million dollars or about \$5500 per seat. (Since they could only sell the window seat on one side, each passenger got the whole row). The sun at eclipse time was 15 degrees above the horizon so there would not be any sore necks.

Kelly had a lot of paperwork at all government levels to deal. He also had to include survival gear and specially trained personnel in case the plane had to land on the ice pack.

On the trip south from the U.S., they did some sightseeing at the Cerro Tololo and Gemini South Observatories and other places. Kelly snuck in a few slides of the southern night sky including the Magellanic Clouds.

The flight plan called for a 14 hour eclipse flight. At 1:20 p.m., they departed Punta Arenas, Chile and headed south. The plan intercepted the path of totality at about midnight local time at an altitude of 38,000 ft. The eclipse shadow actually traveled from east to west, just the opposite of what you usually see, because the Earth's tilt put the path on the opposite side of the South Pole. During totality, the corona was a dazzling electric white since they were so far above the ground.

Later the plane made two passes over the South Pole at 1500 ft. and they could even see people waving. The last leg of the trip was over the Vinson Massif – a cold, stark, impressive, snow-swept mountain range.

During the Q&A session, Kelly noted that – on top of having to plan for this trip – he had been appointed Editor of a new publication called *Night Sky* which was geared to the new telescope owner – someone who might not know a Plossl from a fossil. He had to edit magazine copy during the eclipse flight.

He said that S&T was planning more eclipse expeditions, so reserve your seat soon!

* Michael Frascinella

NASA Space Place

Resisting Retirement: EO-1

by Patrick L. Barry

The Hubble Space Telescope isn't the only satellite that scientists have fought to keep alive beyond its retirement. They also went to bat in 2001 for EO-1 (short for Earth Observing 1) near the end of its one-year mission.

The motivations were similar: like Hubble, EO-1 represents a "quantum leap" over its predecessors. Losing EO-1 would have been a great loss for the scientific community. EO-1 provides about 20 times more detail about the spectrum of light reflecting from Earth landscape than other Earth-watching satellites, such as Landsat 7.

That spectral information is important, because as sunlight reflects off forests and crops and waterways, the caldron of chemicals within these objects leave their "fingerprints" in the light's spectrum of colors. Analyzing that spectrum is a powerful way to study the environment and assess its health, whether it's measuring nitrate fertilizers polluting a lake or a calcium deficiency stressing acres of wheat fields.

Landsat 7 measures only 8 points along the spectrum; in contrast, EO-1 measures 220 points (with wavelengths between 0.4 to 2.5 μm) thanks to the prototype Hyperion "hyperspectral" sensor onboard. That means that EO-1 can detect much more subtle fingerprints than Landsat and reveal a more complete picture of the chemicals that comprise the environment.

Now, almost three years after it was scheduled to be de-orbited, EO-1 is still collecting valuable data about our planet's natural ecosystems. Scientists have begun more than a dozen environmental studies to take advantage of EO-1's extended mission. Topics range from mapping harmful invasive plant species to documenting the impacts of cattle grazing in Argentina to monitoring bush fires in Australia.

Not bad for a satellite in retirement.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration

DEADLINE for Oct. 2004 Issue: 5 PM Oct. 2

E-mail articles to the Editor.

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This month's contributors:

Joel Harris, Ed Ting, Larry Lopez, Bob Sletten,
Barbara O'Connell, John McLean, Lew Gramer



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Stellafane, Sept. 10, St. Anselm's

NHAS Upcoming Events

Event	Date	Time	Location
Business meeting	Sept. 10	7:30 p.m.	St. Anselm's College, Goffstown, NH
Coffee House	Sept. 17	6:00 p.m.	Club Observatory, YFOS
Photo Committee	Sept. 18	6:30 p.m.	Club Observatory, YFOS
CMP Skywatch	Oct. 1	7:00 p.m.	Planetarium, Concord, NH
Business meeting	Oct. 8	7:30 p.m.	Planetarium, Concord, NH