Members Cookout
SATURDAY, JULY 8TH, 4:00PM AT SEAGRAVE OBSERVATORY

Our monthly meeting for July has been scheduled for Saturday July 8 to accommodate celebration of our annual Skyscrapers cookout. Our guest speaker for this year’s event is Dr. Scott Wolk of Harvard College Observatory who will talk about “X-Rays in our Solar System,” including Comet Temple 1.

Gerry Dyck will bring his solar telescope equipped with a Hydrogen Alpha filter so you can observe solar prominences and flares.

MENU: Hamburgers and Cheeseburgers, Veggie Burgers, Hot Dogs, Fresh Garden Salad, Homemade Fruit Salad, Pasta Salad, Chips, Soft drinks and water. The cost is $7.00 per person for all you can eat!

If you missed it last year you really did miss a great lecture and plenty of good food. So set aside a few hours on July 8 to catch up with old friends and enjoy a nice summer day at Seagrave Memorial Observatory.

Bring lawn chairs.
President’s Message

Dave Huestis, President

I can’t believe it, but it’s time for our annual July cookout at Seagrave Observatory. On Saturday, July 8, join us for an all you can eat feast. Festivities begin at 4:00 pm. See announcement in this newsletter.

Also, I am dedicating this July cookout and meeting in memory of Vivian Hartnett. Viv, a member since May 31, 1974, passed away on June 9 at age 87. There are several tributes to her in this issue of the Skyscraper. This soft-spoken lady always had a kind word and a gentle smile. She would have celebrated her 88th birthday on the date of our cookout. She will always be remembered.

Bob Horton will make a motion under New Business at the July meeting to accept proposed changes to the Skyscraper Constitution and Bylaws as approved by the Executive Committee. The proposed changes are printed in this issue of the Skyscraper. At the August monthly meeting under Old Business, the motion will be discussed and voted on.

We are pleased to have Dr. Scott Wolk of Harvard College Observatory as our guest speaker for this year’s event. Dr. Wolk will talk about “X-Rays in our Solar System,” including Comet Temple 1.

Following the talk we will break for coffee and pastry and then hold our business meeting.

See you at our July monthly meeting.

It is with great sadness I must inform you of the passing of a dear long-time member, Vivian Hartnett. Viv joined Skyscrapers back in May, 1974, but I believe her husband may have been a member prior to that. She continued to attend meetings until she could no longer drive. During the last few years, Viv had once again become a frequent visitor at our monthly meetings, thanks to the generosity of Kay Peterson.

She loved Skyscrapers, and many of us loved her. She was a kind and gentle lady, who always had a good word for everyone. Believe it or not, words fail me during this time of sorrow.

I feel like I’ve lost a close member of the family, for in Viv I saw the endearing qualities I often associated with my grandmother Huestis. We’ll miss Vivian very much.

Dave Huestis

The Pleasures of Jupiter

Dave Huestis

If you haven’t had the opportunity to observe Saturn through any of the local observatory telescopes these last few months, you’re out of luck until mid-January 2007. That’s the next time this magnificently ringed world will once again clear the eastern tree-tops at a reasonable hour (before midnight) at these facilities.

However, we are fortunate that Jupiter has now become the showpiece of the heavens from both Seagrave Observatory in North Scituate and Ladd Observatory in Providence. Though Saturn’s rings were the main attraction for our guests to observe on any public open night, Jupiter, being much closer to the Earth, shows a lot more detail to even an inexperienced observer. Plus, if you know what to look for, the Jovian system and its four prominent moons present many interesting events to enjoy. So before you visit your local observatory, learn about the dynamic and ever changing system of Jupiter and his moons.

When Jupiter finally rose out of the turbulence and sky pollution to the east, we were treated to great views of this giant planet. And now, through much of the summer, Jupiter will be well placed for observing. Following is a beginner’s guide to observing this system of worlds that behaves like a miniature solar system.

Since this column is scheduled to appear in July,
finding Jupiter in the sky will be quite an easy task. Within 15 to 20 minutes after sunset, you shouldn’t have any trouble locating brilliant Jupiter due south of your location and about halfway up off the southern horizon. It will be the brightest object in the sky in that direction, except when the First Quarter Moon passes just 5 degrees below it on July 3!

I realize Jupiter requires a telescope to really appreciate its beauty, but if you have a pair of 10 X 50 binoculars you can at least spot some of his brighter moons.

But the best way to view Jupiter is through a telescope, whether it is a small backyard instrument or one at the local observatories. My favorite turn-of-the-twentieth-century author, Garrett P. Serviss called Jupiter “one of the greatest pleasures that the telescope affords.” One of the first things that will catch your eye will be Jupiter’s four brightest moons. Galileo Galilei first observed them and Jupiter in 1610, so they are now known as the Galilean Satellites in his honor. They are: Io, Europa, Ganymede and Callisto.

If you want to identify the Jovian moons, I suggest you visit the following web site and download the GalileanSatellites program: http://members.cox.net/astro7/dansoftware.html. It displays the relative positions of the Galilean moons for a given date and time. While these satellites parade around Jupiter in the plane of its equator, many interesting events occur for us earth-bound astronomers to observe.

When a moon passes in front of Jupiter and casts a shadow onto the Jovian cloud tops, it is called a transit. Besides seeing the satellite’s shadow, you may also see the bright disk of the satellite traversing Jupiter’s clouds at the same time, though this event is more difficult to observe. A moon may also pass behind the planet, which is called an occultation. Jupiter’s shadow can even eclipse a satellite as well; gradually the moon will either blink out or reappear. Also, it’s fun to watch all four moons line up on one side of the planet. As you can see there’s much to observe in Jupiter’s vicinity. Accurate predictions (to within one minute) of these events can also be calculated using software found at the above noted web site.

In addition, you’ll easily notice the more prominent dark bands or belts in Jupiter’s cloud tops. The once dominant feature of Jupiter (from at least Galileo’s time thru the mid 1970s) was the famous Great Red Spot. It is nothing more than a giant storm in Jupiter’s clouds that has been active for more than 400 years. Unfortunately the storm’s not as red or great as it once was, so it might be difficult to detect in smaller instruments without special filters to enhance the image. (The Dan’s Software web-site also offers software that predicts when the Great Red Spot will be visible.) In recent years the red coloration has come back somewhat, making the Great Red Spot a little easier to see than it had been for 15 years or so.

Did you know Jupiter has a new “little red spot” that has recently formed? It’s called “Red Jr.” This new spot formed from the merging of three white spots in recent years. However, more recently it has turned red, much like its bigger brother, “Red Sr.” It will be very interesting to witness the evolution of this new feature in the Jovian cloud tops.

As I was writing this column, an announcement was made that on July 4th, Red Jr. would slide past the Great Red Spot. (These huge storms reside at different latitudes in Jupiter’s cloud tops; therefore they rotate around the planet at different rates, which allows features to pass one another form time to time.) Contrary to some media reports, the two spots will not collide. The outer fringes of these storms will most likely interact, though astronomers do not expect any significant changes. There is some speculation that Red Jr. may lose energy and its red coloration may disappear as a consequence. If you don’t have access to a telescope, you may find an
internet site or two that will display the event.

Keep in mind that Jupiter rotates once in 10 hours, making it possible to see the entire planet in one or two nights of observing. Even under low magnification the view will be rewarding. For example, 36 power will make Jupiter appear as large as the Full Moon does to the naked eye.

So if you own your own telescope get outside and view the fascinating system of Jupiter. If you don’t have access to a telescope or you’d like to explore the universe with larger instruments, then by all means visit Seagrave Memorial Observatory on Peeptoad Road in North Scituate. We offer public viewing free of charge every clear Saturday night. We open the gate to our facility about a half- hour after sunset. Our members will be happy to share their love of the sky with you. More information, including directions and membership, can be found at our website: www.theskyscrapers.org

Furthermore, you can visit Ladd Observatory on the corner of Hope Street and Doyle Avenue on Providence’s East Side every clear Tuesday night. The doors open at 8:30 pm during the summer months and admission is free. More information can be found at Ladd’s website: www.physics.brown.edu/physics/commonpages/ladd/

While outside during the summer months, don’t forget to look skyward for a few shooting stars. You’ll see five random meteors or so on any clear evening, but at the end of July, from the 28th through the 30th, there are two meteor showers that may enhance the number of meteors seen. The Moon, a few days from First Quarter, will not severely brighten the sky to overwhelm the visibility of these shooting stars. Most will be yellow in color, and a few may enter our atmosphere as bright exploding fireballs.

And finally, the Earth is at its farthest distance from the Sun this year on July 3 at 94,508,169 miles. As always, keep your eyes to the skies.

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**From Thunderstorms to Solar Storms...**

*By Patrick L. Barry*

When severe weather occurs, there’s a world of difference for people on the ground between a storm that’s overhead and one that’s several kilometers away. Yet current geostationary weather satellites can be as much as 3 km off in pinpointing the true locations of storms.

A new generation of weather satellites will boost this accuracy by 2 to 4 times. The first in this new installment of NOAA’s Geostationary Operational Environmental Satellites series, called GOES-N, was launched May 24 by NASA and Boeing for NOAA (National Oceanic and Atmospheric Administration). (A new polar-orbiting weather satellite, NOAA-18, was launched May 2005.)

Along with better accuracy at pinpointing storms, GOES-N sports a raft of improvements that will enhance our ability to monitor the weather—both normal, atmospheric weather and “space weather.”

“Satellites eventually wear out or get low on fuel, so we’ve got to launch new weather satellites every few years if we want to keep up the continuous eye on weather that NOAA has maintained for more than 30 years now,” says Thomas Wrublewski, liaison officer for NOAA at NASA’s Goddard Space Flight Center. Currently, GOES-N is in a “parking” orbit at 90° west longitude over the equator. For the next 6 months it will remain there while NASA thoroughly tests all its systems. If all goes well, it will someday replace one of the two active GOES satellites—either the eastern satellite (75°W) or the western one (135°W), depending on the condition of those satellites at the time.

Unlike all previous GOES satellites, GOES-N carries star trackers aboard to precisely determine its orientation in space. Also for the first time, the storm-tracking instruments have been mounted to an “optical bench,” which is a very stable platform that resists thermal warping. These two improvements will let scientists say with 2 to 4 times greater accuracy exactly where storms are located.

Also, X-ray images of the Sun taken by GOES-N will be about twice as sharp as before. The new Solar X-ray Imager (SXI) will also automatically identify solar flares as they happen, instead of waiting for a scientist on the ground to analyze the images. Flares affect space weather, triggering geomagnetic storms that can damage communications satellites and even knock out city power grids. The improved imaging and detection of solar flares by GOES-N will allow for earlier warnings.

So for thunderstorms and solar storms alike, GOES-N will be an even sharper eye in the sky.

Find out more about GOES-N at goespoes.gsfc.nasa.gov/goes . Also, for young people, the SciJinks Weather Laboratory at scijinks.nasa.gov now includes a printable booklet titled “How Do You Make a Weather Satellite?” Just click on Technology.
Constitution and Bylaws Committee
Proposed Amendments

Bob Horton - Chairperson
Marilyn Fetterman, Dave Huestis, Glenn Jackson, Bob Napier, Kathy Siok, Ed Turco

Text in blue signifies an addition or change to the current Constitution and Bylaws.

Bylaws

Article II: Officers

(Add the following paragraphs)

4 The President shall:
1 Preside over all regular monthly meetings and Executive Committee meetings.
2 Establish an operating budget, with the assistance of the Executive Committee, for approval by the members of the Society, per Article X of the Constitution.
3 Oversee the business and legal responsibilities of the Society.
4 Be the official spokesperson for the Society.

5 The 1st Vice President shall:
1 Provide programs for monthly meetings.
2 Assist the President in communicating to the general public the activities of the Society.

6 The 2nd Vice President shall:
1 Act as the Chairperson of the AstroAssembly Committee.
2 Submit a proposed operating budget for AstroAssembly to the Executive Committee prior to the Annual Meeting.
3 Have the authority to direct the Treasurer to pay any expenses associated with the operation of AstroAssembly, providing said expenses have been given prior approval by the Society, per the approved operating budget, as defined by Article X of the Constitution, or by motions approved by the members of the Society at any regular monthly meeting.
4 Submit a report of all expenses and income from AstroAssembly at the December monthly meeting.

7 The Secretary shall: (As currently stated)
7 Have custody of the records and archives of the Society.

(Change to)

7: Have custody of the records of the Society.

8 The Treasurer shall: (As currently stated)
1 Pay on his/her own authority any routine bills for periodic operating expenses.
2 Pay on the authority of the Society or Executive Committee any bills.
3 Keep an itemized account of all receipts and disbursements and submit a written report of the same at each regular meeting.
4 Submit an annual report of all receipts and disbursements at the Annual Meeting. An auditor appointed by the President shall audit this report, and the report of the auditor shall be submitted at the Annual Meeting.

5 Any Officer, Committee Member and/or appointed Board Member upon the termination of their duties or vacancy of position shall immediately turn over all Society records, property, files, documents, policies, etc. to the presiding President for transmittal to the appropriate party.

Article III: Executive Committee

3 (as currently stated)
The powers of the Executive Committee shall be:
1 To advise the President and assist him in carrying out the duties of his office.

(Change to)

The powers of the Executive Committee shall be:
1 To advise the President and assist in carrying out the duties of the office.

(Add paragraph 5)

5 Any Officer, Committee Member and/or appointed Board Member upon the termination of their duties or vacancy of position shall immediately turn over all Society records, property, files, documents, policies, etc. to the presiding President for transmittal to the appropriate party.

Article IV: Board of Trustees

Continued on next page...
Paragraph 1, line 4 (currently)

The Trustee with the longest continuous service shall be the Senior Trustee.

(Change to)

The Trustee with the longest continuous service shall be the Senior Trustee and serve as the Chairperson of the Observatory Committee.

(Paragraph 2)

The Board of Trustees shall have custody of the grounds, structures and equipment belonging to the Society. They may at any time establish or amend rules for use of said grounds, structures and equipment. They may at any time grant or withdraw permission to individuals to use the Alvan Clark telescope.

(Change to)

The Board of Trustees shall have custody of the grounds, structures and equipment belonging to the Society. They may at any time establish or amend rules for use of said grounds, structures and equipment, and establish policies for members comprising the Observatory Committee. They may at any time grant or withdraw permission to individuals to use the grounds, structures and all equipment belonging to the Society.

(Add paragraph 4)

The Board of Trustees shall conduct an annual inventory of equipment and property belonging to the Society, and submit said inventory list to the Executive Committee prior to the Annual Meeting.

Constitutional Amendments, New Articles

ARTICLE X: BUDGETS AND EXPENDITURES

1) The President and Executive Committee shall present a proposed yearly operating budget for membership approval at the annual meeting.

2) The Executive Committee shall have the authority to approve non-recurring expenditures only if these expenditures have been given prior approval by the society, either by approval of the yearly operating budget, or by passage of a motion at any monthly meeting.

3) The Executive Committee shall have the authority to approve any expenditure deemed necessary to protect the assets of the Society during emergency situations. When an emergency situation occurs, the Executive Committee is required to inform the Society of the nature of the emergency, the steps taken to protect the property of the Society, and the amount of money that was spent, at the next monthly meeting.

ARTICLE XI: CODE OF CONDUCT

Any individual that violates Local, State, or Federal Law, or conducts themselves in any behavior that compromises the reputation of the Society, will be referred to a disciplinary board consisting of the Executive Committee and the Board of Trustees.

Summer Double Stars in Boötes
Glenn Chaple

During the warm summer evenings, the constellation Boötes is perched high in the sky after sunset. The Herdsman is a rich hunting ground for double stars. Ten of the best are described below. All are plotted in any standard star atlas. Data on magnitudes and separation were taken from the Washington Double Star Catalog.

Kappa Boötes: magnitudes 4.6 and 6.6, separation 13.5 arcseconds. Pretty pair with a striking deep blue companion.

Iota Boötes: mags 4.8 and 7.4, sep 38.7”. Located in the same low-power field with kappa. Nice sight!

Struve 1835 Boötes: mags 5.0 and 6.8, sep 6.2”. Part of an attractive row of stars in the extreme southern part of Boötes.

Pi Boötes: mags 4.9 and 5.8, sep 5.5”. One of the loveliest sights in Boötes.

Zeta Boötes: mags 4.5 and 4.6, sep 0.7”. This binary, with a period of 123.4 years, will require an 8-inch scope with excellent optics. Slowly closing.

Epsilon Bootis: mags 2.6 and 4.8, sep 2.9”. A good test for a 3-inch, because the secondary is often lost in the glare of the primary. Gold and blue colors.

39 Boötes: mags 6.3 and 6.7, sep 2.7”. A beauty! Easy when the seeing is steady.

Xi Boötes: mags 4.8 and 7.0, sep 6.3”. A binary pair (period = 151.5 years) with striking yellow and reddish colors.

44 Boötes: mags 5.2 and 6.1, sep 1.9”. Another binary pair (period = 220.0 years). This one is also slowly closing, but can still be split in a good 3-inch scope.

Delta Boötes: mags 3.6 and 7.9, sep 103.8”. Wide pair. An easy small telescope target.

Mu Boötes: mags 4.3 and 6.7, sep 107.1”. Another wide, small-scope pair, but wait! The secondary is a close binary pair (mags 7.1 and 7.6, sep 2.2”).

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Featured speaker:  
Dr. Miguel Morales was the speaker for the evening. Dr. Morales is a postdoctoral fellow at the Harvard-Smithsonian Institute for Theory and Computation. One of Dr. Morales’ areas of interest is observational cosmology, in particular radio observations of the early universe. Dr. Morales’ presentation brought insight to the Epoch of Reionization (EOR) and what we can learn from neutral hydrogen’s spectral line at radio frequencies. We also learnt about the Mileura Widefield Array being built to perform EOR measurements.

Business meeting:  
• Call to order:  
The business meeting was called to order by David Huestis at 9:15 p.m.; new officers were introduced.

Secretary’s report:  
• read by Joel Cohen,  
• accepted as read,  
• will be published in next issue of The Skyscraper.

Treasurer’s report:  
• accepted as read by Dave Huestis.

Trustees’ report:  
• Rick Arnold is working on tracking where the keys to the scopes’ sheds are. He mentioned that the lawn had been mowed; Rick Lynch offered to trim the property after every mowing.  
• The propane tank is completely full and attached to the grill.

Monthly speaker:  
• Glen Jackson announced that the speaker for the July meeting (cookout) will be Dr. Scott Wolk.

Librarian’s report:  
• Nothing to report; Tracey Haley not present.

Historian’s report:  
• Dave Huestis informed us that the Seagrave family bought the house on 119 Benefit Street in 1862. He recently learned that when Frank Seagrave was born in March 1860, the family lived at 20 Angell Street.

Old business:  
• Louis Del Sesto was voted in.

New business:  
• Two new applicants were introduced to the membership: David Kasper and Byron Foote. They will be voted in next month under old business.

Good of the organization:  
• Sam Robbins videotaped Dr. Morales’ presentation and will make it available at www.youtube.com.  
• Steve Hubbard requested that all invited speakers use the microphone and that the air-conditioning be turned on.  
• Bob Napier mentioned that the deadbolt (top lock) to the 16-in’s shed was unlocked and requested that both locks are locked. Jack Szelka recommended to lock the deadbolt first and the bottom lock second.  
• David Kasper sent an e-mail about potential speaker.  
• Ted Ferneza gave an Astro Assembly’s update.  
• Dave Huestis:  
  • organizing a visit on June 24 to Whitin Observatory (Wellesley College, MA),  
  • looking for more stories to publish in newsletter (product reviews are fine).  
• Other announcements:  
  • sign-up for name tags  
• movie night on June 3 at 7:30 p.m.  
• Bob Napier mentioned the “Science on Screen” series at the Coolidge Corner Theatre (Boston, MA)  
• executive board meeting on June 9 at 7:30 p.m.

Adjournment:  
The business meeting was adjourned at 9:50 p.m.
May Meeting Notes
Joel Cohen, Secretary

The May meeting was called to order at 7:38 pm.

Our speaker for the evening was Dr. George Greenstein of Amherst College and Five College Astronomy Department. Dr. Greenstein compared some asteroids in orbits that cross Earth’s to trucks moving down the superhighway of open space at 67,000 miles per hour. He said that the probability of an impact with Earth is slight but just the same, it could be a significant event.

After a break for refreshments, the business portion of the meeting began. Dan Lorraine showed a multi media presentation of the 2006 Skyscrapers trip to New Mexico. Secretary’s report was accepted as published. The Treasurer’s report was not delivered.

Trustee’s report- Rick Arnold repaired the floor of the Clark dome. Both the 12” and 16” Meade telescopes are back, set up, and operating well. Bob Horton will provide a special training on the 12” Meade to make sure all qualified operators are using the latest features properly. Tracy Halley has installed some upgraded electrical fixtures. Jack Szelka will be ending his term as Head Trustee and Dave thanked him for his diligence and dedication. Dave asked that the Trustees check on Propane prices and that we be filled up for the cookout.

Glenn Jackson listed upcoming speakers as Dr. Miguel Morales for June, Scott Work for July, Ron Remillard for August, Members night for September, Ron Dantrowicz for November.

Tracy Halley will be taking over for Dan Lorraine as Librarian.

Old Business – Membership applications for Nichole Mechnig and Gail Scanlon were accepted unanimously and that result was greeted with vocal enthusiasm unmatched in this writer’s association with Skyscrapers. The moment was enjoyed by all present. A motion by Glenn Jackson, seconded by Jerry Jeffrey, to accept the budget as presented by the President and recommended by the E-Board was passed unanimously. Bob Napier commended Dave Huestis for going where no previous executive had ventured before.

New Business – A membership application was received from Louis Del Sesto. Ted Ferneza reported that Astro Assembly budget projections rely primarily on attendance figures. Steve Hubbard said that StarConn is June 17, Ted said he expected to have brochures ready.

Good of the organization -- Jack has posters available from the New Mexico Trip. Ted said we have collected $73 in the first star parties of the fiscal year. Dave thanked Donna Gaumond and Gerry Dyck for their articles in the Skyscraper. Dave also asked for other contributions. Dave announced that he was working on a new date, 6/24 for the trip to the Whitin Observatory at Wellesley College. Dave also made mention of a day and night trip to the Amherst area for later in the summer. Jack Szelka thanked Rick Lynch for the arrangements and itinerary of the New Mexico Trip.

President’s announcements -- Movie night volunteers to program and promote. Web site has chat boards that need some activity. Next meeting June 2, 2006 and next E-Board meeting June 9, 2006. 75th Anniversary of Skyscrapers is next May and we should seek recognition of some sort from the State of Rhode Island.

Thanks to outgoing officers for their help during the year just ended and good luck to new board members coming in.

Meeting adjourned at 9:47 pm

Writer’s note – Thank you for the opportunity to sign my name to a record of historic value and significant public service. Yours truly, Joel Cohen

For Sale: Antares Refractor Model 1208 5” f/6.5
The Antares 1208 is primarily a rich-field telescope, allowing for large true fields of view due to the relatively short f/6.5 focal length. Chromatic Aberration or false color is surprisingly well controlled, due to the Lower Dispersion glass used. This means that you can also use the 1208 refractor for some good planetary observations. I still recommend that a Minus violet filter be used though.

Aperture 127mm; Focal length 820mm; Focal ratio f/6.5; Well corrected Fraunhofer (air-spaced doublet) Low Dispersion Achromat; Multicoated objectives; Non adjustable ABS cell, 8” long hood & dust cover; 2” Crayford focuser; Weight: 15 lbs

Included Accessories:
8x50 reticle finder scope with quick exchange holder Cradle Rings; Dove tail plate for the EQ5/CG5 clones; Illuminated Polar bore scope; DAD’s, 48” Pedestal, & EQ5 head

Cost New: 5” f/6.5 Model 1208 Refractor OTA w/ Crayford Focuser & EQ5, $788.00; Dual Axis Drive for EQ5, $160.00; Total Cost new is $948.00

Asking w/ OTA, EQ5, DAD’s, & 48” pedestal $650.00 Firm

Mark Gibson (mjgibson1@verizon.net), Westport, MA, 508-636-4987
Please join us on Friday September 29th and Saturday September 30th for this year’s 54th annual Astro Assembly. Friday evening is given over to 4 or 5 informal talks from local amateurs and researchers. Saturday we will enjoy listening to nationally renowned leaders in Astronomy sciences. This year’s key note speaker will be Dr. Sidney Wolff, former director of the National Optical Astronomy Observatories. Dr. Wolff played a lead role in the early history of Mauna Kea’s observation development and was the first woman to head a major US observatory (Kitt Peak). Dr. Wolff has served as president of both the American Astronomical Society and the Astronomical Society of the Pacific. She received the AAS Education prize for 2006 for her outstanding contributions to astronomy education and science. She is a currently serving as project scientist for the Large Synoptic Survey Telescope being built in Chile.

Solar observing through a variety of instruments will be available all day Saturday. Roger Rivers from Rivers Camera and Telescope will be our primary vendor.

Due to space constraints at our facility, attendance is limited. For that reason, we strongly recommend that you pre-register. Additionally, tickets for the banquet will not be sold at the door and can be pre-ordered for $17.00. Our dinner banquet is an all you can eat buffet (see menu below) and has been very successful in past years.

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### Buffet Dinner Menu

- Wine & Cheese Reception
- Fruit Tray
- Antipasto Salad
- Boneless Chicken & Gravy
- Swedish Meatballs
- Seafood Pasta
- Vegetables
- Rolls & Butter
- Pastry & Coffee

Serving: 6:30 PM

Menu subject to change slightly

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Name: ____________________________________________
Address: ____________________________________________
Email: ____________________________________________

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<th>Registrations at $17.00 each</th>
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*Banquet tickets must be pre-ordered. No tickets will be sold the day of the event.*

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☐ I would like to give a short 20-minute talk on Friday evening:

*Indicate the title of your talk below. AstroAssembly registrar Ted Ferneza will contact you via email to confirm your talk.*
Directions to Seagrave Memorial Observatory

From the Providence area:
Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:
Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:
Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:
Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight’s Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:
• Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight’s Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
• Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:
Take Interstate 295 South (off Interstate 95 in Attleboro.) Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.