The Skyscraper
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The monthly publication of

Amateur Astronomical Society of Rhode Island

47 Peeptoad Road
North Scituate, RI 02857

www.theskyscrapers.org

See back page for directions to Seagrave Observatory.

Submissions
Please submit items for the newsletter by January 15 to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or email to jim@distantgalaxy.com

Email subscriptions:
To receive The Skyscraper by email, send email with your name and address to jim@distantgalaxy.com. Note that you will no longer receive the newsletter by postal mail.

The Skyscraper

January 2007

January Meeting with Noah Petro

Friday, January 5th at North Scituate Community Center

Lunar Geology and Upcoming Lunar Missions

Noah Petro, doctoral candidate at Brown university will present "Lunar Geology and Upcoming Lunar Missions." Noah is broadly interested in the remote sensing of planetary surfaces and processes that modify these airless bodies. His graduate research has focused on lunar surface characterization with an emphasis on quantifying regolith modifications. As part of his research he has developed a model of regolith processing that has led to a unique method of determining the abundance of various components of lunar regolith.

Directions to the Community Center: From Seagrave Observatory: North Scituate Community Center is the first building on the right side going south on Rt. 116, after the intersection of Rt. 6 Bypass (also Rt. 101) and Rt. 116, in N. Scituate. Famous Pizza is on the corner of that intersection. Parking is across the street from the Community Center.

January 2007

5 Friday	7:30pm	**January Meeting** North Scituate Community Center
6 Saturday	7:00pm	**Public Observing Night** Seagrave Observatory, weather permitting
13 Saturday	7:00pm	**Public Observing Night** Seagrave Observatory, weather permitting
20 Saturday	7:00pm	**Public Observing Night** Seagrave Observatory, weather permitting
27 Saturday	7:00pm	**Public Observing Night** Seagrave Observatory, weather permitting

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President's Message

Dave Huestis, President

Happy New Year!

During the last several months it has come to my attention that a few of our members cannot attend our monthly meetings because they find it difficult or impossible to drive at night.

To assist those members, I have already instituted a program to provide transportation to these individuals if they so desire.

This program is being dedicated to Skyscrapers member Kay Peterson, who drove our late dear friend Vivian Hartnett to our monthly meetings. We were indeed fortunate Viv could share her remaining years with us at Seagrave.

Two of our members from South County have already agreed to help a fellow Skyscrapers member attend our meetings.

Currently we have another member from the Cranston area (in the vicinity of the intersection of Park Ave. and Reservoir Ave.) who would appreciate the opportunity to attend our monthly meetings. If you feel you could accommodate this individual, please contact me by email and I will provide the person's name, address and phone number.

Thank you all for your consideration.

Weather/Snow Cancellation Update

Rhode Island broadcasters have teamed up to provide more comprehensive notification of weather/ snow cancellations or delays.

Once I provide the cancellation notice to a central system, participating broadcasters will provide the notice.

Generally, the television stations will only provide cancellations for a group like Skyscrapers on their web sites. The radio stations will broadcast the cancellation notice over the air.

Here is the list of participating broadcasters. (Jim, see attachment.) I have not verified where the cancellation notice will appear on any of the television web sites. They obviously all have different formats. Check out your favorite station in advance to see where the closings, etc are posted.

In addition, for those of you who have email, should I have to cancel a meeting, I will send an email as soon as I make the go/no go decision.

Don't forget that our January, February and March meetings will be held at the North Scituate Community Center.

Our January 5 meeting will feature Noah Petro from Brown University who will talk about Lunar Geology.

See you in the new year!

Rhode Island Broadcasters Association

Inclement Weather Cancellation Program

2006-7 Participating Members

TELEVISION	
WLNE ABC6 www.abc6.com	CW28 www.cw28tv.com
WJAR NBC10 www.turnto10.com	RI PBS / Channel 36 www.ripbs.org
WPRI CBS12 www.wpri.com	WNAC FOX64 www.fox64.com

RADIO	
FM	AM
92.3 WPRO www.92profm.com	1590 WARV www.warv.net
93.3 WSNE www.wsne.com	630 WPRO www.630wpro.com
94.1 WHJY www.whjy.com	790 WSKO www.scoreamfm.com
95.5 WBRU www.wbru.com	920 WHJJ www.whjjam.com
98.1 WCTK www.wctk.com	1110 WPMZ www.poder1110.com
99.7 WSKO www.scoreamfm.com	1180 WCNX www.wcnx1180.com
100.3 WKKB www.latina1003.com	1240 WOON www.onworldwide.com
101.5 WWBB www.b101.com	1290 WRNI www.wrni.org
102.7 WAKX www.festivaljazz1027.com	1450 WLKW www.wnbh.com
105.1 WWLI www.litrock105fm.com	1540 WADK www.wadk.com
106.3 WWKX www.hot1063.com	1590 WARV www.warv.net

Meteor Shower Prospects for 2007

Dave Huestis

How many meteors did you observe during 2006? How many times did you actually go outside to look during a specific meteor shower? How many of those times was it clear? I'm not sure I can even answer all those questions. I always try to make some time for the major showers I report in my columns.

However, so far this year (I'm writing this column just after the Leonids were clouded out on the night of November 18-19) the clouds have spoiled many of the meteor viewing opportunities when bright moonlight didn't. I do recall a few bright Orionids around 2:00 am on a cold October morning. Other observers who stayed out longer did catch a few more before dawn. But 2006 is not going to be remembered for great sky watching.

We even missed the transit of Mercury on November 8. Watching it on the web is not the same as using your own telescope to view such a remarkable astronomical event. So I can only hope that we will finally get some good weather when 2007 begins. Unfortunately the Moon will pose a problem with quite a few of the 2007 meteor showers.

Though I usually look forward to starting out a new year with the fast and often blue Quadrantids on January 3-4, the Full Moon will most certainly drown out all but the brightest members of this display. We'll have to wait until the April Lyrids for a chance to see more than a few shooting stars above the normal random pieces of debris that often plow through our atmosphere.

Clip and save the 2007 meteor shower prospects chart below and use it to plan your observing schedule for the coming year. Even despite the interfering moonlight for many of these displays, if the weather promises to be favorable for a specific shower, by all means take advantage of clear skies to catch a glimpse of a meteor or two. And when you do see one, make a wish for clear skies!

Let's hope the skies are also clear for a couple of lunar eclipses during 2007. Though two total lunar eclipses occur, here in southern New England we will not be fortunate to see them in their entirety.

The March 3rd event will be well underway when the Moon rises above the eastern horizon. Totality begins within 15 minutes of Moon rise. A second total lunar eclipse will occur on the morning of August 28 in a bright pre-dawn sky, low in the west-southwest sky. Totality will begin just before the Moon dips below the horizon. Location. Location. Location! I'll write about these two lunar eclipses in a future column.

Date	Shower	Moon Phase
January 3-4	Quadrantids	Full Moon
April 22-23	Lyrids	Waxing Crescent
May 5-6	Eta Aquarids	Waning Gibbous
June 14-16	Lyrids	New Moon
July 27-28	Delta Aquarids	Almost Full
July 29-30	Capricornids	Full Moon
August 12-13	Perseids	New Moon
October 20-21	Orionids	Waxing Gibbous
November 17-18	Leonids	First Quarter
December 13-14	Geminids	Waxing Crescent

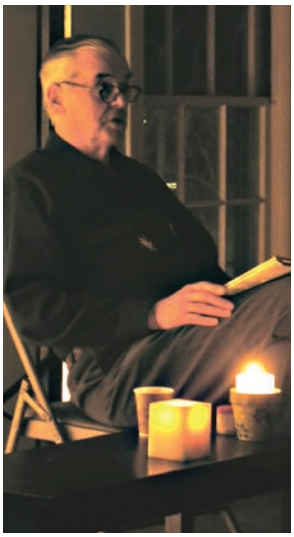
Gallery

John Kocur

Meeting with Jim Bell

Jim Bell of Cornell University presented "Postcards From Mars" at this special meeting. Jim is the lead scientist on the Pancams that are currently operating on the rovers Spirit and Opportunity. Jim was born and raised in Warwick RI, and attended several meetings at Seagrave Observatory in his early teens. Several copies of Bell's new book, "Postcards from Mars," were sold and signed by Jim.

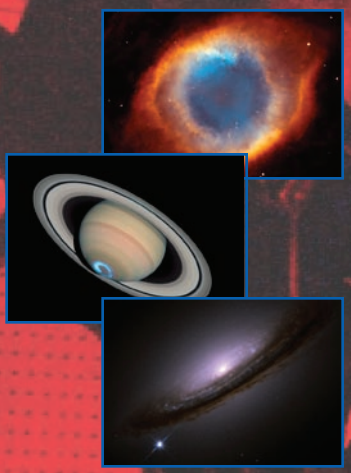
Holiday Party Meeting



Above: **Gerry Dyck** recites "A Child's Christmas in Wales", by Dylan Thomas. Left: Our guest speaker for our holiday meeting was **Dr. William Sullivan** who presented a talk on Myth, Astronomy and the War Against Time, "The Secrets of the Incas".

2007 AstroPhoto Contest

Running throughout 2007 will be Skyscrapers annual astrophotography content. Entries may be submitted at any time to Jim Hendrickson (jim@distantgalaxy.com) and will appear in *The Skyscraper* and on the web. Prizes include eternal fame and glory in the annals of Skyscrapers history.



Inset: Hubble Space Telescope photos. Back: Seagrave Observatory by Marian Juskuv.

Space Weather for Air Travelers

By Dr. Tony Phillips

At a time when much of the airline industry is struggling, one type of air travel is doing remarkably well: polar flights. In 1999, United Airlines made just twelve trips over the Arctic. By 2005, the number of flights had grown to 1,402. Other airlines report similar growth.

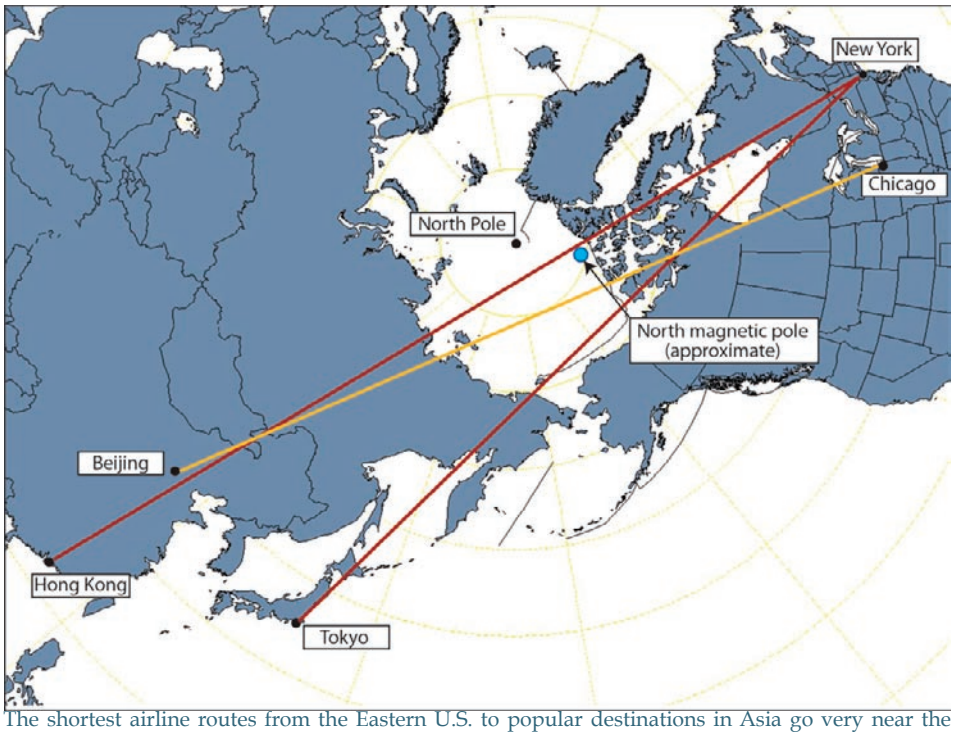
The reason for the increase is commerce. Business is booming along Asia's Pacific Rim, and business travel is booming with it. On our spherical Earth, the shortest distance from Chicago to Beijing or New York to Tokyo is over the North Pole. Suddenly, business travelers are spending a lot of time in the Arctic.

With these new routes, however, comes a new concern: space weather.

"Solar storms have a big effect on polar regions of our planet," explains Steve Hill of NOAA's Space Weather Prediction Center in Boulder, Colorado. Everyone knows about the Northern Lights, but there's more to it than that: "When airplanes fly over the poles during solar storms, they can experience radio blackouts, navigation errors and computer reboots—all caused by space radiation."

In 2005, United Airlines reported dozens of flights diverted from polar routes by nasty space weather. Delays ranged from 8 minutes to nearly 4 hours, and each unplanned detour burned expensive fuel. Money isn't the only concern: Pilots and flight attendants who fly too often over the poles could absorb more radiation than is healthy. "This is an area of active research—figuring out how much exposure is safe for flight crews," says Hill. "Clearly, less is better."

To help airlines avoid bad space weather, NOAA has begun equipping its GOES weather satellites with improved instruments to monitor the Sun. Recent additions to the fleet, GOES 12 and 13, carry X-ray telescopes that take spectacular pictures of sunspots, solar flares, and coronal holes spewing streams of solar wind in our direction. Other GOES sensors detect solar protons swarming around our planet, raising alarms when radiation levels become dangerous.



The shortest airline routes from the Eastern U.S. to popular destinations in Asia go very near the

"Our next-generation satellite will be even better," says Hill. Slated for launch in 2014, GOES-R will be able to photograph the Sun through several different X-ray and ultra-violet filters. Each filter reveals a somewhat different layer of the Sun's explosive atmosphere—a boon to forecasters. Also, advanced sensors will alert ground controllers to a variety of dangerous particles near Earth, including solar protons, heavy ions and galactic cosmic rays.

"GOES-R should substantially improve our space weather forecasts," says Hill. That means friendlier skies on your future trips to Tokyo.

For the latest space weather report, visit the website of the Space Weather Prediction Center at http://www.sec.noaa.gov/ . For more about the GOES-R series spacecraft, see http://goespoes.gsfc.nasa.gov/goes/spacecraft/r_spacecraft.html . For help in explaining geostationary orbits to kids—or anyone else—visit The Space Place at http://spaceplace.nasa.gov/en/kids/goes/goes_poes_orbits.shtml .

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

Winter Double Stars: Orion

Glenn Chaple

The Astronomical League, composed of over 240 local astronomical societies and numerous individual at-large members, is one of the largest amateur astronomical organizations in the world. Its basic goal is to promote public interest in amateur astronomy. To that end, the Astronomical League awards certificates to members who observe a specific set list of sky objects (Messier or Herschel objects, for example).

One of these certificates is for Double Stars. Of the one hundred double and multiple stars on the Astronomical League's list, nine are found in Orion. Try your luck with them, then go to www.astroleague.org to see the complete list. Beta Orionis (Rigel) magnitudes 0.1 and 6.8, separation 9.5 arcseconds A fine test for small-aperture scopes, because the companion hides in the glare of the main star. Use the highest practical magnification.

δ (**delta) Orionis** — mags 2.2 and 6.3, sep 52.6" Westernmost star in Orion's belt; resolvable in binoculars.

Struve 747 — mags 4.8 and 5.7, sep 35.7" Another binocular pair. In telescopes, appears in the same low-power field as iota Orionis.

λ **(lambda) Orionis** — mags 3.6 and 5.5, sep 4.4" A delicate little pair, best seen with 75 – 90X.

θ_1 **(theta 1) Orionis** — mags 6.7, 7.9, 5.1, and 6.7, seps 8.8", 13", 21.5" The "Trapezium," by far the finest multiple star in the night sky. Located in the brightest part of the Orion Nebula, these stars are the progeny of this great gas cloud. Magnificent!

ι (**iota) Orionis** — mags 2.8 and 6.9, sep 11.3" Fine pair that sports the white and blue colors typical of many Orion doubles.

θ_2 **(theta 2) 2 Orionis** — mags 5.2 and 6.5, sep 52" A wide binocular pair located on the edge of the Orion Nebula.

σ **(sigma) Orionis** — mags 4.0, 7.5, and 6.5, seps 12.9" and 43" Nice, wide triple. Use low power.

ζ (**zeta) Orionis** — mags 1.9, 4.0, and 9.9, seps 2.4" and 58" Most easterly of Orion's "belt" stars. The close pair is a difficult split for small scopes. Use high power on an evening when the seeing is excellent.

And, finally, just to bring to ten the number of double and multiple stars on our Orion list, I add a personal favorite.

Struve 817 Orionis — mags 8.2 and 8.3, sep 18.5" This faint, but pretty pair is located just 1/3 degree south of Betelgeuse. A fine sight when captured in the same low-power field as this great star.

Treasurer's Report

Al Schenck, Treasurer

April 1, 2006 - Dec 17, 2006

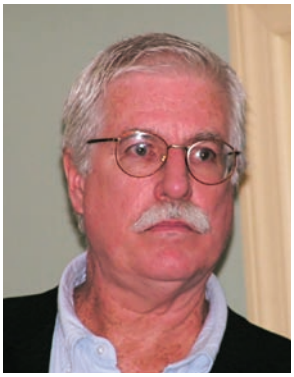
INFLOWS	
astroincome	
Astroad	90.00
astrobanquet	1,615.00
astrogrille	328.15
astroraffle	1,176.00
astroregistration	1,978.00
TOTAL astroincome	5,187.15
Bookincome	750.00
cookoutinc	441.00
donation	
Collationdonation	37.00
Other donation	152.57
TOTAL donation	189.57
dues	
Contributing	936.00
Family	950.00
Senior	181.00
Other dues	1,880.00
TOTAL dues	3,947.00
Interest Inc	45.97
magincome	
Astronomymaginc	233.95
skytelmagincome	494.25
TOTAL magincome	728.20
magsales	11.00
Starparty	350.00
TOTAL INFLOWS	11,649.89

OUTFLOWS	
astroexp	
Astrocater	1,170.00
astrogrillexp	129.69
Astroprinting	136.21
Astroreception	259.78
Astrorefund	34.00
Astrorestroom	110.00
Astroshuttle	25.00
Astrosupplies	148.00
Hallrental	150.00
Raffle	5.00
Tentrental	500.00
TOTAL astroexp	2,667.68
bldgandgrounds	140.00
Bookexp	802.50
clubsubscription	60.00
collation	198.51
Cookoutexp	503.13
Corporationfee	20.00
Discretionary	25.00
Insurance	
Other Insurance	2,322.00
TOTAL Insurance	2,322.00
membersubscriptions	
Astronomymagexp	238.00
Skytelexp	560.15
TOTAL	798.15
membersubscriptions	
Newsletter	8.58
Portajohn	100.00
Utilities	
Electric	116.32
Propane	49.86
TOTAL Utilities	166.18
TOTAL OUTFLOWS	7,811.73
OVERALL TOTAL	3,838.16

December Meeting Notes

Mercedes Rivero-Hudec, Secretary

December 2, 2006, North Scituate Community Center



Featured speaker: Dr. William Sullivan gave a very interesting talk based on his book "The Secret of the Incas: Myth, Astronomy and the War Against Time." We learned that the precession of equinoxes is found in mythology all around the world. Dr. Sullivan also explained that there are three rules to understand myths: 1) animals are stars (constellations), e.g. llama constellation – near e Scorpius, with a and b Centauri being the llama's eyes; 2) topographical or architectural references are analogues to positions of the sun on the celestial sphere; and 3) gods are planets.

Business meeting: The business meeting was called to order by **President Huestis** at 9:52 p.m., after the holiday party and Skyscraper **Gerry Dyck's** rendition of Dylan Thomas's "A Child's Christmas in Wales." • A moment of silence was observed in memory of Skyscraper **Nichole Mechnig's** grandfather.

Secretary's report: Amendments to report posted in the newsletter regarding the replacement of the Clark's drive: cost not to exceed $300.00; replacement was not approved at the November's meeting – a motion had been placed instead. • The rest of the report was approved as posted in the newsletter.

Treasurer's report: Approved as posted in the newsletter.

Trustees' report: Trustee **Tracey Haley** reported few repairs: gate lights, additional red lights by the Meade, gravel to patch mud holes.

Librarian's report: Tracey Haley mentioned that there had been several additions to the library, among them: 13–14 books, a dedicated book by **Jim Bell**, one audiotape. "Everything seems to be going well."

Historian's report: No report at this time.

Old business: Todd Kozikowski, **John Briggs** (former member), **Ed Zarenski**, **Mark Knowles**, **Ralph Fletcher**, and **Noah Szosz** were voted in.

Two motions: Steve Hubbard's: no discussion; the motion carried; all in favor. • **Al Hall's:** no discussion; the motion carried; all in favor.

New business: The following new applicant was introduced to the membership: **Charles Piso**. He will be voted in next month under old business. • On behalf of **Jerry Jeffrey**, committee chair for trustee position: one nomination –**Robert Horton**. There were no other nominations from the floor. There was a motion to approve **Bob Horton's** nomination. A ballot will be included in January's newsletter; the election will take place during the January meeting. A discussion about the election process followed.

Good of the organization: Byron Foote donated a dome to Skyscrapers; he will work with the Trustees to install it permanently. • Gerry Dyck: the PowerPoint presentation for the 75th anniversary is almost done; he is still looking for and accepting photographs of Skyscrapers' early years, facilities, and the membership.

President's announcements: Next meeting on January 5, at the Community Center. • Thank you to **Dolores Rinaldi** and all the volunteers for organizing the holiday party • Happy Holidays!!!

Adjournment: The business meeting was adjourned at 10:12 p.m.

Ballot for Vacant Trustee

TRUSTEE

- ❑ Robert Horton
- ❑ (write-in) _____

Please fill out this ballot and bring it to the Skyscraper Monthly Meeting on Friday, January 5, or mail it to the address below:

Skyscrapers, Inc.
47 Peeptoad Road
North Scituate, RI 02857
Ballot

Mailed ballots must arrive at Skyscrapers by the January 5th meeting. Mailed ballots and ballots brought to the meeting must have the voters name on the outside of the envelope for verification. All entries must be marked "Ballot" on the envelope. Validated ballots will be set aside and counted without identity.

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.

47 Peeptoad Road
North Scituate, RI 02857