

DISSIDENT LIGHT

Rockland Astronomy Club Journal ~ July/August 2005

DEEP IMPACT!

Washington, July 4th -
NASA's 83-million-mile
shot at a comet was a
bull's-eye. Its Deep Impact
spacecraft slammed
into its target with
such force early
Monday that the
resulting blast of
icy debris stunned
scientists with its size
and brightness. If you could
hear sounds in space, it
would have been a BIG bang.
Story on page 4.



**SAVE THE DATES:
SUMMER STAR PARTY
JULY 29 - AUG 7**

DETAILS ON PAGE 2



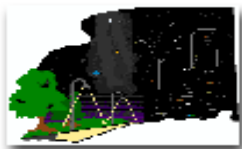
DISTANT LIGHT

is published monthly by the Rockland Astronomy Club, 214 Route 59, Suite 10-304, Suffern, NY 10901-5205. Subscriptions are included with annual RAC membership dues. Send address changes to Bill Thys at the address above. Contributions to and inquiries about this journal can be emailed to the Editor/Design Director Mies Hora: Editor@rocklandastronomy.com

©2005 Rockland Astronomy Club. All rights reserved.

RAC MEMBERS ONLY:
GET DISTANT LIGHT VIA EMAIL
 (requires Adobe Acrobat): send an email to Memberships@RocklandAstronomy.com

BECOME A RAC MEMBER
 Complete and mail the Membership



International Dark Sky Association



2005 Recipient

Rockland Astronomy Club is proud to be the first astronomy club to become a lifetime member of the International Dark Sky Association, is a longtime member of the Astronomical League, and is the 2005 recipient of the prestigious Pride of Rockland Award.

[CLICK HERE FOR MONTHLY SKYDATA: P. 7-8](#)

[CLICK HERE FOR RAC MEETINGS SCHEDULE AND ADVISORY COMMITTEE: P. 9](#)

Photo: Mies Hora



RAC SPECIAL EVENT

Summer Star Party July-August 2005

The 14th Annual RAC Summer Star Party and Family Camping Vacation will be held this year from Friday July 29 through Sunday August 7, 2005, Location: Shady Pines Campground, Savoy, MA

RAC SSP Chairman Don Urban says there are more than 200 people already signed up for this year's event, but there are plenty of camp sites available for latecomers, so contact him soon for reservations: Summer StarParty@RocklandAstronomy.com, visit our web site, or call the Shady Pines Campground office at 413-743-2694.

EVENT FEATURES

- Mag6-7 skies: Milky Way visible to horizons at 2,000 ft. elevation
- Two manicured grass observing fields
- Electricity provided (bring your own cord and power strip)

- Free 24-hour coffee and soft drinks
- 70' x 35' spring-fed swimming pool
- Indoor adult lounge with TV, pool tables and card tables
- Volleyball court
- Childrens' playground and video arcade
- Laundry room – 2 washers and 2 dryers
- Water, electric and picnic table at each campsite
- Clean restrooms and hot showers
- Free Friday evening burgers, dawgs, fries, drinks; Saturday evening pizza parties
- Free Sunday morning pancake breakfasts
- Saturday swap tables
- Rocketry launching

AREA ATTRACTIONS

- Less than two hours from Stellafane which is taking place August 5-6
- Berkshire Botanical Gardens
- Chesterwood • Berkshire Museum
- Williams College Art Museum
- Sterling and Francine Clarke Art Institute
- Tanglewood
- and much, much more. ★

RAC MEMBERSHIP APPLICATION

Club members receive this journal, enjoy special prices for annual subscriptions to S&T and ASTRONOMY magazines, discounts to club events and much more. Make checks payable to RAC and mail with this form to: Rockland Astronomy Club, attn: Memberships, 214 Route 59, Ste. 10-304, Suffern, NY 10901- 5205.

Name _____
 Address _____
 City _____ State _____ Zip _____
 Home Phone () _____
 Email _____

Note: The Journal is sent to Members via email. For mailed hard copies, add \$18/year.

Membership Type	1 Year	2 Year (Save \$2)	3 Year (Save \$5)	5 Year (Save \$10)	Hard Copy (by US Mail)	Total
Family	\$30	\$58	\$85	\$140	+\$18/yr.	_____
Individual	\$20	\$38	\$55	\$90	+\$18/yr.	_____
Senior Citizen (65+)	\$15	\$28	\$40	\$65	+\$18/yr.	_____
High School Student	\$10	\$18	\$25	\$40	+\$18/yr.	_____
Grand Total						_____

CLUB NEWS

RAC LECTURE SERIES Life Inside the Moons of Giant Planets

by Keith Murdoch

Lonny Buinis of Raritan Valley Community College gave a fascinating lecture on at RCC on Friday, June 17th to cap off the Spring 2005 Rockland Astronomy Club lecture series. His lecture, "Life Inside the Moons of Giant Planets", focused on the possibility of life inside Europa, one of Jupiter's Gaillean moons which now exhibits strong proof the existence of a subsurface water ocean.

Europa seems to have the four necessary ingredients for life "as we know it": liquid water, nutrients, an energy gradient, and time. Lonny discussed the probable conditions present at the ocean floor in Europa, and compared them to the conditions discovered to harbor life in extreme conditions near "volcanic smokers" present in the undersea trenches here on Earth. In a clearly documented chain of evidence, Lonny showed the existence of ice on Europa, as well as the presence of water under the ice using three indicators: "Plate tectonics", systemic presence of ice cracks, and a magnetic field, induced by Jupiter's magnetism on a conductive fluid within Europa.

Life on (or within) Europa had been predicted as far back as 1979, which is coincidentally the date of the discovery of undersea extremophiles, which thrive in superheated water, using an anaerobic metabolism based on hydrogen sulfide. Lonny tantalized us with the proposed European scientific mission to explore the prehistoric subterranean Lake Vostok in Antarctica. This lake, deeply buried under the Antarctic ice sheet, has been out of contact from surface air for millions of years. A mission to explore the depths of Lake Vostok for life would be an excellent "dry run" for future investigation of life



Above: Lonny Buinis of Raritan Valley Community College gave a fascinating lecture on at RCC on Friday, June 17th, "Life Inside the Moons of Giant Planets" attended by more nearly 80 people. He focused on the possibility of life inside Europa, one of Jupiter's Gaillean moons which now exhibits strong proof the existence of a subsurface water ocean. Left: RAC Lecture Series organizers Keith Murdoch and Jose Alvira flank Mr. Buinis after the lecture. Photos: Mies Hora

within Europa. Although Europa is the most fully analysed example of a possibly life-sustaining outer planet moon, Lonny also briefly touched on the possibility of similar conditions existing in Jupiter's moon Ganymede, as well as 3 icy moons of Saturn - Enceladus, Dione, and Tethys. All four of these moons have icy exteriors, and tidally induced internal heating.

Ganymede in particular also has a magnetic field somewhat similar to that on Europa. In short, Lonny presented us with compelling evidence that our outer solar system may be a far more interesting place than we had ever imagined. This was our

best-attended lecture to date, with nearly 80 people in the audience, including RAC members, a number of RCC students, and members of the general public. Thanks go to Lonny Buinis for a well-crafted and thought-provoking presentation, and to RCC and Professor Saeed Safaie for sharing in the effort to make this lecture series possible.

RAC will continue with a variety of lectures, planetarium shows, and workshops for the upcoming "RAC Calendar Year": Fall '05 thru Spring '06. Future details will be posted in DISTANT LIGHT and at www.RocklandAstronomy.com ✨

COVER PHOTO STORY

Deep Impact Kicks Off Fourth of July With Deep Space Fireworks

By Warren E. Leary
July 5, 2005

With the second stage of the two-part spacecraft, known as the flyby stage, watching from a safe distance, an 820-pound copper-core “impactor” craft smashed into the nucleus of comet Tempel 1 at 23,000 miles an hour, sending a huge spray of debris into space. “The impact was spectacular,” said Dr. Michael A’Hearn of the University of Maryland, the project’s principal scientist. “It was much brighter than I expected.”

Culminating a six-month journey to a point 83 million miles from Earth, the impactor guided itself to a point near the bottom of the elongated comet where they collided at 1:52 a.m. Eastern time with a force equal to four and a half tons of dynamite. Scientists had only one chance for a collision with their fast-moving target. With radio communications taking more than seven minutes each way, the spacecraft was on its own to complete the mission.

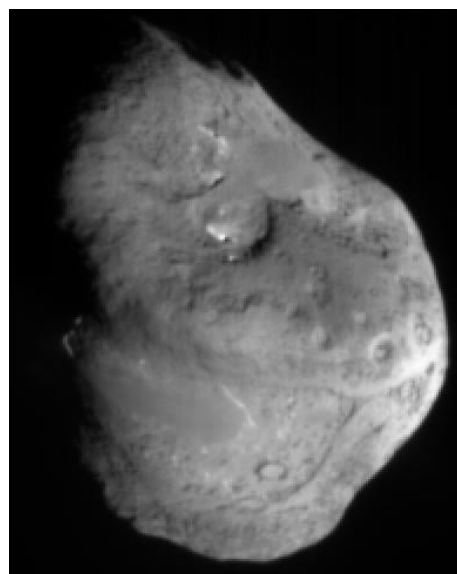
Just 24 hours before intercepting Tempel 1, springs separated the larger flyby craft from the impactor, leaving the projectile in the path of the comet as the mother craft veered away. The impactor turned on its automatic navigation system two hours before impact and made three course maneuvers to pick a well-lit spot on the sunny side of the comet to hit. It was right on target.

“We’ve touched a comet, and we’ve touched it hard,” Dr. Peter H. Schultz of Brown University, another main investigator, said at one of two news conferences at NASA’s Jet Propulsion Laboratory in Pasadena, Calif., which controlled the flight.

The purpose of the \$333 million mission was to make the most detailed study of a comet to date, striking the mountain-sized hunk of ice and rock, and creating a crater from which would spew some of the primal material that makes up its core. The material, to be analyzed using instruments on the flyby craft, may hold clues to the formation of the solar system 4.5 billion years ago.

Depending upon the comet’s composition, scientists speculated that the impact could leave a crater as large as a stadium or as small as a house. Dr. A’Hearn said the blast was so bright that initial images did not reveal the crater’s size or depth. Those are to be revealed in later images recorded by the flyby spacecraft when they are received, he said. In some pictures, Dr. A’Hearn said, scientists see a feature or shadow where the crater would be, but it will take a week or more of image processing to be sure.

Late images from the impactor, the best ever taken of a comet, showed a Moon-like surface with flat plains, circular craters and a long, irregular ridge. Some of the last pictures appeared to show the impactor coming in between two milewide craters on the deeply textured surface. At the moment the impactor was vaporizing itself in its 10 kilometers per second (6.3 miles per second) collision with comet



The image below shows the view from Deep Impact’s probe five minutes before it was pummeled by comet Tempel 1. The image was taken by the probe’s impactor targeting sensor. This image above shows the view from Deep Impact’s flyby spacecraft as it turned back to look at comet Tempel 1. Fifty minutes earlier, the spacecraft’s probe was run over by the comet. That collision kicked up plumes of ejected material, seen here streaming away from the back side of the comet. This image was taken by the flyby craft’s high-resolution camera. Image credits: NASA/JPL-Caltech/UMD

Tempel 1, the Deep Impact flyby spacecraft was monitoring events from nearby. For the following 14 minutes the flyby collected and downlinked data as the comet loomed ever closer. Then, as expected at 2:05 a.m. EDT, the flyby stopped collecting data and entered a defensive posture called shield mode where its dust shields protect the spacecraft’s vital components during its closest passage through the comet’s inner coma. Shield mode ended at 2:32 a.m. EDT when mission control re-established the link with the flyby spacecraft. “The flyby surviving closest approach and shield mode has put the cap on an outstanding day,” said Grammier. “Soon, we will begin the process of downlinking all the encounter information in one batch and hand it to the science team.” ★

The University of Maryland is responsible for overall Deep Impact mission science, and project management is handled by JPL. The spacecraft was built for NASA by Ball Aerospace & Technologies Corporation, Boulder, Colorado. Deep Impact’s principle scientist is Dr. Michael A’Hearn who presented the mission overview at RAC’s 2005 NEAF. For more information about Deep Impact on the Internet, visit <http://www.nasa.gov>.

CONSTELLATION

Coma Berenices (Berenices Hair) Part One

Edited by Dr. Bernard Sokolowski

There are eight Messier objects in Coma Berenices. They include the globular cluster M53, and the galaxies M64, M85, M88, M91, M98, M99, and M100. There are many other fine deep sky objects as well, including some double stars, but most being galaxies. Of all the non-Messier objects, NGC 4565 and 24 Comae are not to be missed. Due to the large number of excellent deep sky objects that are observable with small to medium sized amateur telescope with in the Constellation, this article will be presented in two parts.

Coma Berenices is a faint, rather large spring time constellation that is quite easy to find just east of the tail of the constellation Leo. It is further framed by the constellations Virgo to the south, Bootes to the northeast and Canes Venatici to the North. The constellation is relatively new

one and was first introduced by Tycho Brahe in the late 1500s. Previous to this time, this grouping of stars was part of the constellation Leo, being the “tuft” of the tail. Coma Berenices is best observed in the mid spring, where it lies very close to the meridian at around 10 PM. Although it appears as a large diffuse cluster of stars to the naked eye, it has many deep sky objects of interest to both the professional and amateur astronomer. The largest object within the constellation boundry is the Coma Star Cluster, one of the largest and closest open clusters known. The vast majority of the remaining deep sky objects are galaxies,

with a few globular clusters interspersed in between. The vast majority of galaxies in Coma Berenices belong to the Virgo Galaxy Group.

The stars that form the constellation really aren't that remarkable to look at, there are only a handful of fourth-magnitude stars, which includes three Bayer stars. Yet there are several fine binaries, eight Messier objects and the Coma Star cluster. Historically, the constellation Coma Ber-

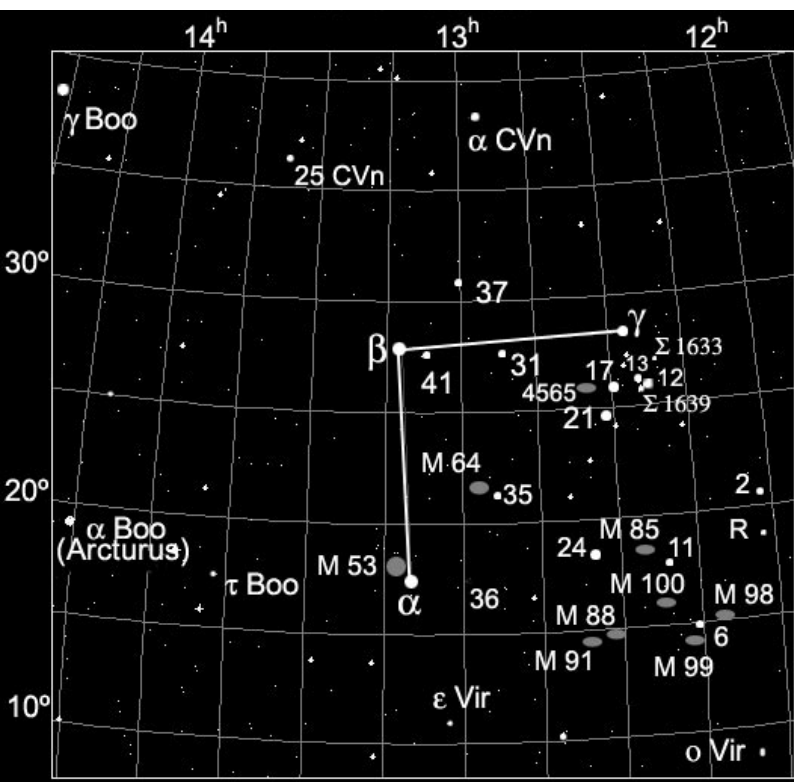
enices refers to a classical story concerning the hair of Berenice, the wife of Ptolemy III of Egypt. While the story is an old one, the cluster is named in honor of Queen Berenice II, who was the wife of King Ptolemy III (Benefactor) of Egypt. Berenice was quite famous for her beauty and possessed beautiful, long amber tresses (Hair) which was nearly the length of her body.

Following the murder of his sister, Ptolemy declared war and lead his troops in battle to avenge her death against the Seleucids/Assyrians. While this long protracted war raged between the Egyptians and the Seleucids, Berenice (meaning bringer of victory in Greek) was deeply concerned for her husband's safety, and prayed every day for his return. She asked the royal oracle/astronomer Conon for guidance, and was advised to offer her beautiful hair to Aphrodite, the goddess of love and beauty, for his safe return. Once the hair was cut, it was placed at the Altar in the Temple of Aphrodite. Soon after the safe return of King Ptolemy, it was discovered that Berenice's offering had disappeared from the Temple alter. Berenice and Ptolemy demanded an explanation from the temple priests. Conon explained and convinced the King and Queen that the Gods had transformed the hair into a constellation and enshrined them forever among the stars.

However, there is more to the story than the romanticized version above. Berenice was the daughter of Magas of Cyrene, now (continued on next page)



Photo: M64: Rob Gendler



CONSTELLATION: COMA BERENICES

(continued from previous page)

present day Libya. Her marriage to Ptolemy III in 245 B.C. served a political purpose, uniting Egypt and Cyrene. Her father Magas opposed this union and brought in Prince Demetrius the Fair of Macedon to marry her. Berenice was both obsessed with power and in love with Ptolemy III and was determined to marry him over her father's wishes. To insure this occurred, she removed the obstacle to her marriage with Ptolemy by poisoning Demetrius. Later she reconciled with her father enough to later plot with him against her son Ptolemy IV Philopater (lover of his father). Ptolemy IV did not particularly like his mother Berenice, and following discovery of her plot, had her killed before she could carry it out. He also executed his uncle and brother, which cleared the way for him to marry his sister, Arsinoe.

Alpha Comae Berenice, is a magnitude 4.3 double star of spectral class F5. Sometimes called Diadem, it has a diameter of about 900,000 miles and an actual distance of 62 light years. Alpha Comae is a rapid motion binary with stars of magnitude 5.05 and 5.08 respectively. The orbital period is 25.87 years with the apparent separation presently decreasing. The current separation is less than 0.05. The orbit is an unusual one, appearing almost perfectly edge-on to our line of site.

Zeta Comae Berenices is a magnitude 5.9 fixed binary/double star with an apparent separation of 3.6 arc seconds. The primary and secondary components shine at magnitude 6.0 and 7.5 respectively, with the secondaries position angle (PA) at 237°.

24 Coma Berenices is a magnitude 5.1 fixed binary/double star with an apparent separation of 20.3 arc-seconds. The orange primary shines at magnitude 5.2 and the emerald colored secondary at 6.7. The position angle of the secondary is 271 degrees. Both components have excellent color contrast and are easy to split in any size telescope at moderate magnification. This is one double star that should not be missed.

2005 PERSEID'S

(continued from page 8)

sweeping through a cloud of material that has been ejected from the parent comet of this dependable meteor shower. In fact, it is possible that this secondary cloud might produce more meteors in 2005 than the main swarm.

Comet Swift-Tuttle's (P/1862) one-revolution trail from 1862 will pass just inside the Earth's orbit this year. At the time of Perseids, this occurs at 11 August 20:54 UT. If there were a closer approach of this comet to the earth, a spectacular meteor storm would be expected, but with no prior close approaches to compare to, it is uncertain what kind of a shower this will give for 2005. With the earth passing directly through the major debris pocket of the comet, perhaps the best meteor shower of history will occur with the Perseids in 2028. This is a long duration shower, with as many as two dozen per hour being seen from August 9 through the 20th. During the peak, expect to see at least 60 or more around 2 a.m., streaming from the constellation of Perseus, high in the northeastern sky. Best views can be obtained by positioning your feet to the East and facing directly overhead.

Mel 111, also known as **The Coma Star Cluster**. Mel 111 is an open star cluster with an apparent diameter of 5 degrees, an actual distance of 250 light years, and is one of the closest ones to our solar system. Because of its size the cluster is best seen with the naked eye or with 7x35 or 7x50 binoculars. The brightest members range in brightness from magnitude 4.8 to 6.3. Most have spectral types ranging from A to F. Even in binoculars, the cluster fills the entire field of view, with about 40 stars spread out over a 20 square degree area. One interesting fact to note about Mel 111 is that the cluster is slowly dispersing into the general stellar population and, as its members are lost, it will cease to be a cluster in about another 100 million years.

M53 (NGC 5024) is a magnitude 7.5 globular star cluster, of integrated spectral

METEOR SHOWERS IN AUGUST

August 1 - Capricornid Meteors

The moon will be four days past fourth quarter, a thin waning crescent, so this could be an excellent year for observing this shower. Remains of comet Honda-Mrkos-Padusakova, about 35 meteors per hour, many of which are bright fireballs, can be expected in the morning hours; nearly due south of overhead about midnight.

August 11 - Perseid Meteors (see page 8)

August 20 - Kappa Cygnid Meteors

Not a good year for these meteors to be seen to at their fullest. The full moon will dominate the sky on the 21st. Typically many of these meteors are seen along with Perseid meteors, leaving very fine trains of smoke in their wakes! The Cygnid and the Andromedids will be nearly overhead by 2 a.m.

August 31 - Andromedid Meteors

There will be a waning moon on the morning of this shower, so chances of seeing a good display are good. In 1885, 13,000 Andromedids were seen per hour, fragments of a now disintegrated Biela's Comet. The number of meteors from this shower is unpredictable. The shower radiant will be nearly directly overhead for mid-northern latitudes about the time the moon rises this year. ★

class F4, with an apparent diameter of 12.7 arc-minutes. It lies one degree northeast of Alpha Comae. The cluster was first discovered by J. E. Bode in February 1775, and later re-discovered and cataloged by Charles Messier in February 1777. The actual distance of the cluster is estimated to be 65,000 light years, which would give it an actual diameter of 100 light years at this accepted distance. Because M53 is compact and has a high surface brightness, it is visible as a circular bright hazy globe in telescopes as small as 3 or 4". The bright core begins to resolve into individual stars with telescopes as small as 6". Larger scope of 8" or more in aperture resolve ever increasing amounts of detail within the core and outer halo revealing the cluster's unique structure. ★

End of part one. Part Two will appear in the September issue of Distant Light.



New Jul 6 1st Qtr Jul 14 Full Jul 21 Last Qtr Jul 28

JULY SKYDATA

Highlights

- July 7 Mercury 1.6° south of Venus
- July 8 Mercury 5° south of Moon
- July 8 Venus 3° south of Moon
- July 8 Mercury at greatest eastern elongation (26°)
- July 13 Jupiter 0.8° north of Moon
- July 17 Antares 0.6° south of Moon
- July 22 Mercury stationary
- July 22 Venus 1.2° north of Regulus
- July 23 Uranus 2° north of Moon
- July 27 Mars 4° south of Moon
- July 27 Delta Aquarid meteor peak

The Delta Aquarids

During July and August the Aquarid-Capricornid complex becomes active – a region which contains the northern and southern branches of the Delta Aquarids and Iota Aquarids, as well as several distinct radiants in Capricornus. The strongest activity emanates from the two Delta Aquarid radiants. Activity was first noticed

from the region of the Delta Aquarids in 1870, when G. L. Tupman (Mediterranean Ocean) plotted 65 meteors during July 27-August 6. Tupman found the radiant to have steadily moved during the period of observation, with the position beginning at RA=340 deg, DEC=-14 deg, and ending at RA=333 deg, DEC=-16 deg. Although the motion seems backward with respect to the normal eastward movement of meteor radiants, the Author believes the former radiant represents the true Southern Delta Aquarids, while the latter radiant is either a combination of both the southern and northern streams or a conglomeration of several streams within the Aquarid-Capricornid complex. Following Tupman's discovery, the region became well studied by others.

The first significant study of the Delta Aquarid stream was published in 1934. Ronald A. McIntosh used the observations made by the New Zealand Astronomical Society during 1926-1933 to determine the daily motion of the radiant. In all, 44 radiants were utilized, with their original observers being McIntosh (Auckland), Murray Geddes (Otekura), F. M. Bateson (Wellington) and A. Bryce (Hamilton).

McIntosh concluded that activity from the shower is continuous from July 22 to August 9, with the radiant moving northeastward from RA=334.9 deg, DEC=-19.2 deg to RA=352.4 deg, DEC=-11.8 deg (average motion +0.96 deg in RA and +0.41 deg in DEC--- Author). McIntosh added that a sharp maximum occurs on July 28 (RA=340.5 deg, DEC=-17.0 deg), and a diagram included in his paper revealed the following visual hourly rates: 1 on July 22, 2 on July 25, 3 on July 26, 7 on July 27, 14 on July 28, 9 on July 30, 6 on August 2, and 1 on August 9. ★

Prime Observing Window

Friday July 1 thru Sunday July 10

Sun & Moon Rise & Set Times

Date	Sunrise	Set	Moonrise	Set	Phase
July 6	05:30	20:32	05:09	21:15	New
July 14	05:36	20:28	13:26	00:06	First Qtr
July 21	05:42	20:24	21:10	05:24	Full
July 28	05:48	20:17	–	14:16	Last Qtr

Planetary

Visible Planets in the Night Sky

July 1, 2005

	Rise	Transit	Set	Mag
Mercury	07:29	14:46	22:04	0.2
Venus	07:24	14:45	22:06	-3.9
Mars	00:58	07:10	13:23	0.1
Jupiter	13:02	06:56	00:51	-2.4
Saturn	06:58	14:18	21:38	0.2

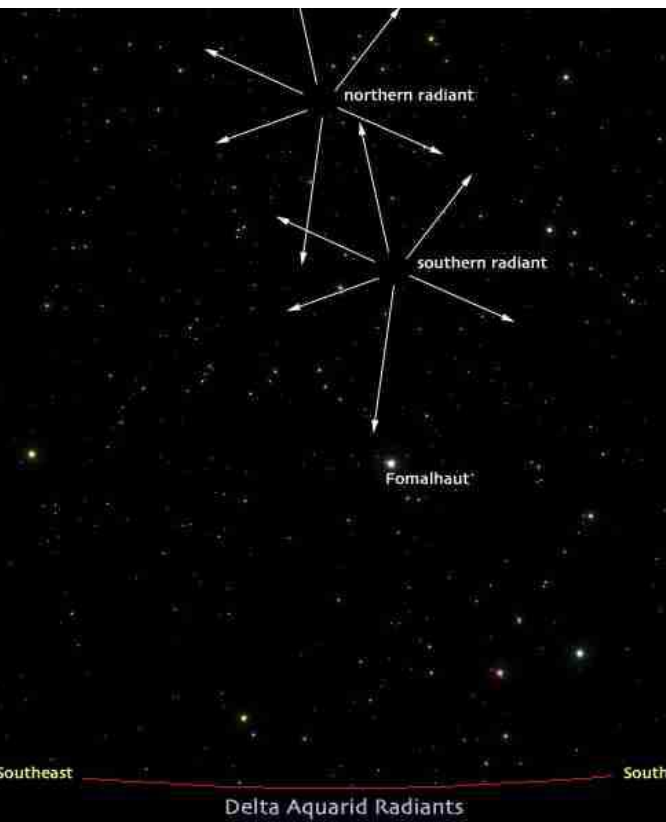
July 15

	Rise	Transit	Set	Mag
Mercury	07:50	14:42	21:34	-0.1
Venus	07:56	14:57	21:59	-3.9
Mars	00:25	06:49	13:14	0.1
Jupiter	12:14	18:04	23:55	-2.1
Saturn	06:12	13:30	20:49	0.2

July 31

	Rise	Transit	Set	Mag
Mercury	06:52	13:32	20:13	0.2
Venus	08:33	15:08	21:43	-3.9
Mars	23:44	18:21	12:59	-0.1
Jupiter	11:21	17:08	22:56	-2.0
Saturn	05:19	12:35	19:52	0.2

All data calculated for Suffern, New York, Eastern Time:
Latitude: 41:06:48 N; Longitude: 74:08:38 W





New Aug 6 1st Qtr Aug 14 Full Aug 21 Last Qtr Aug 29

AUGUST SKYDATA

Highlights

- August 5 Mercury in inferior conjunction
- August 7 Venus 1.2° south of Moon
- August 8 Neptune at opposition
- August 10 Jupiter 1.3° north of Moon
- August 11 **Perseid meteor shower**
- August 14 Antares 0.4° south of Moon
- August 15 Mercury stationary
- August 18 Neptune 5° north of Moon
- August 20 Uranus 2° north of Moon
- August 23 Mercury at greatest western elongation (18°)
- August 25 Mars 6° south of Moon
- August 31 Saturn 5° south of Moon

The Perseid's for 2005

The famous Perseid Meteor Storm will pass across the Earth's orbit once again this year in early August and will peak on the evening of August 11th. As is the usual case with this shower, some astronomers

are calling for quite a celestial show, yet others are not so optimistic. Since the moon will not reach first quarter until the evening of Aug. 14, the viewing conditions will be somewhat favorable. The main peak of this shower should begin around 10PM and reach maximum from 1AM to 2AM.

Do not wait for August 11-12 however, this is a long duration shower and meteors will be easily seen during the first week of the month when skies are hampered by only a thin to growing waxing crescent moon.

In 1992 Comet Swift-Tuttle, the parent comet that produced the Perseid meteoroid cloud, shed a great amount of dust in its wake and now sets the stage for intense activity as the earth passes through that debris; this will be the second year that the earth has actually gone directly through this debris cloud since it was intensified. Although meteors can be expected to be seen just as soon as the skies darken on the

evening of August 11, the peak is scheduled for early in morning of August 12 (about 2AM EDT) and throughout the evening of August 12; The Moon will be a waxing crescent in 2005. The peak of this year's show will take place on Thursday night-Friday Morning, August 11-12, with residuals coming back for an encore perhaps on the evenings of August 12, although moonlight will interfere after midnight. There is some indication that a secondary peak might actually be seen in ideal skies on the morning of August 12, somewhere around dawn or just before on that morning, as the earth will be

(continued on page 6)

Prime Observing Window

Monday Aug 1 thru Wednesday Aug 10

Sun & Moon Rise & Set Times

Date	Sunrise	Set	Moonrise	Set	Phase
Aug 6	05:57	20:07	07:09	21:13	New
Aug 14	00:56	17:13	15:56	—	First Qtr
Aug 21	06:12	19:46	21:04	08:20	Full
Aug 29	06:20	19:34	00:56	17:13	Last Qtr

Planetary

Visible Planets in the Night Sky

Aug 1 2005

	Rise	Transit	Set	Mag
Mercury	06:45	13:26	20:07	0.2
Venus	08:36	15:08	21:41	-3.9
Mars	23:42	18:20	12:58	-0.1
Jupiter	11:18	17:05	22:53	-2.0
Saturn	05:16	12:32	19:49	0.2

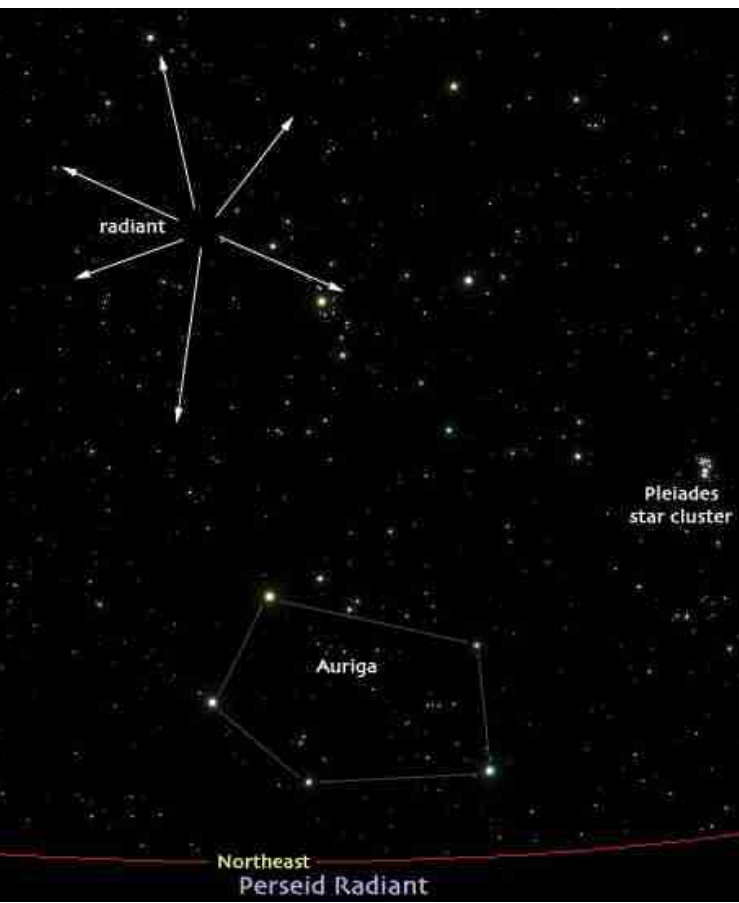
Aug 15

	Rise	Transit	Set	Mag
Mercury	05:05	12:02	18:59	1.0
Venus	09:06	15:14	21:22	-3.9
Mars	23:06	17:53	12:40	-0.2
Jupiter	10:34	16:18	22:03	-1.9
Saturn	04:30	11:45	19:00	0.2

Aug 31

	Rise	Transit	Set	Mag
Mercury	05:01	11:58	18:56	3.7
Venus	09:40	15:19	20:59	-3.9
Mars	22:22	17:17	12:13	-0.5
Jupiter	09:45	15:25	21:06	-1.8
Saturn	03:37	10:50	18:03	0.2

All data calculated for Suffern, New York, Eastern Time:
Latitude: 41:06:48 N; Longitude: 74:08:38 W



The RAC Essentials

MONTHLY CALENDAR

**201-768-2238
or 845-47STARS**

Message Hotline: The latest information or last minute changes to club events.

Prime Observing

Fri/Sat, July 8/9

Sat, July 16, 8-12 pm

Wednesday, July 27

July 29 - August 7

Fri/Sat, August 5/6

Wednesday, August 11

Sat, August 13, 8-12 pm

Period: July 1 through 10

Period: August 1 through 10

Observing at Wawayanda*

Joy of the Universe, Anthony Wayne Recreation Area, PIP Exit 16,
Open to the public

Peak of the Aquarid Meteor Shower

RAC Summer Star Party, Shady Pines Campground, Savoy, MA (details: see page 2)

Observing at Wawayanda*

Peak of the Perseid Meteor Shower

Joy of the Universe, location above

LOCATIONS

North Rockland

High School Planetarium

Hammond Road, Thiells, NY

Rockland Community College

College Road, Suffern, NY

Lower Hudson Valley

Challenger Center

Rt. 59, Suffern, NY

Anthony Wayne

Recreation Area*

Exit 17, P.I.P., NY

Silvermine Ski Area*

Exit 18, P.I.P., NY

Wawayanda State Park*

973-853-4462,
Highland Lakes, NJ

Tahganic State Park*

Taconic State Parkway,
Ancram, NY

ADVISORY CMTE.

Jose Alvira

Frank Bifulco

Jim Burnell

Mark Hettinger

Mies Hora

Rob Lyons

Keith Murdock

Al Nagler

Dr. Jack Rosen

Audry Salvatore

Len Salvatore

Ed Siemenn, *Chair*

Bernie Sokolowski

Bill Thys

Alan Traino

Don Urban

Life & Honorary Members

Tom Massey (L)

Al Nagler (L)

Andrew Warrington (H)

*Special permits required to observe at these locations. Contact Frank Bifulco for permit copies.

KEY PERSONNEL

Contact any person on this list for advice on a specific topic:

Membership Services

Bill Thys, 201-797-9553

Memberships@RocklandAstronomy.com

Journal Editor & Design Director

Mies Hora, 845-429-0923

Editor@RocklandAstronomy.com

Special Events & Observing

Frank Bifulco, 914-523-6548

Observing@RocklandAstronomy.com

Northeast Astronomy Forum

Alan Traino, 973-427-2020

NEAF@RocklandAstronomy.com

Summer Star Party

Don Urban, 201-768-6575

SummerStarParty@RocklandAstronomy.com

Media Services & Lecture Series

Keith Murdock, 845-786-5645

Media@RocklandAstronomy.com

Accounting

Mark Hettinger, 201-768-5720

MarkHettinger@RocklandAstronomy.com

Program Director

Jose Alvira, 845-446-4336

JoseAlvira@RocklandAstronomy.com

Club Library

Audrey Salvatore, 845-928-6697

Library@RocklandAstronomy.com

Webmaster

Rob Lyons, 201-679-7404

Webmaster@RocklandAstronomy.com

Educational & Children's Programs

Ed Siemenn, 845-461-4799

EdSiemenn@RocklandAstronomy.com

Astrophotography

Bill Thys, 201-797-9553

BillThys@RocklandAstronomy.com

CCD Imaging

James Burnell, 845-986-3332

JimBurnell@RocklandAstronomy.com

Senior Advisor

Al Nagler