



Club News

February, 2003

John Kocijanski, Editor

Jim McKeegan,	President
John Kocijanski,	Vice President
Brian Deis,	Secretary
Bud Wertheim,	Treasurer

The Northeast Astronomy Forum will be held at Rockland County Community College on May 17th and 18th. Our club has been offered a free space for a table on the balcony for the show. Last year we went on Saturday. Anyone wishing to volunteer to man the table contact John at kocis@catskill.net. The table worked out well for us last year and gave the club some exposure. We handed out observing schedules and newsletters.

A few members of the club have been discussing the possibility of having a public solar observation day on April 5th. The session may be held at the Galleria Mall in Middletown. Mark Rosengarten has offered the use of his Solar Max 40 to view the sun in hydrogen alpha. A couple of other members plan to bring their white light filters. We still have to contact the management of the Galleria to obtain permission to do this. We may set up on the sidewalk outside Ruby Tuesday's restaurant. A table with our club banner would be set up. We would also be giving out handouts.

Walnut Mountain Park is apparently snowed in for the time being. The town park officials say that their plow is unable to get into the park and it may not be plowed out until some of the snow melts. We do have permission to use the Town of Thompson Park in Monticello as a secondary observing site. Here are directions for the park from Rte. 17.

If you are coming west on 17 get off at exit 106. Make a left at the end of the ramp and stay on that road to going into Monticello. The road is Broadway. Go into town and through four lights. At the fifth light by St. Peter's Church make a right. Go out of town on this road. The turn for the park is about 4.1 miles from the church. On the left side of the road there is a sign for the park. At that sign make a left. Bear left and go all the way down hill. The park entrance will come up on the left. There is a parking lot on the left as you pull in.

If you are coming east on Rte. 17 get off at exit 104 (by the raceway) and go straight through the light at the end of the

ramp. Stay on this road and go into town. Turn left at the light on Broadway and make a left at the next light at St. Peter's Church. Go out of town on this road. The turn for the park is about 4.1 miles from the church. On the left side of the road there is a sign for the park. At that sign make a left. Bear left and go all the way down hill. The park entrance will come up on the left. There is a parking lot on the left as you pull in.

The January club observation sessions on the 4th and 28th were not held due to poor sky conditions. The 28th did turn out to be a good night even though the forecast was for cloudy skies.

The February observation session for the club will be on the 1st and the 22nd.

Starting next month the photo section of our newsletter will highlight the telescopes of club members. If you have a photo of your scope and a brief description of it that you would like to contribute please send it to John at kocis@catskill.net .

The club has selection of astronomy books, Stardate audio CDs, a Macintosh computer with astronomy software, and a Meade 8 inch reflector for members to borrow. Please contact John at 791-5240 or kocis@catskill.net if you are interested in borrowing any of these.

Astronomy News:

Here are some articles from various sources that might be of interest.

Extrasolar meteors hint at distant planet formation

Radar telescopes could trace dust grains back to neighbouring solar systems

by Nicolle Wahl

University of Toronto, January 6, 2003

University of Toronto astronomers say that detecting microscopic meteors from other solar systems could provide clues about the formation of planets like Earth.

Dust streams from our sun's stellar neighbours consist of tiny grains of pulverized rock ejected from a disk of dust and debris that commonly surrounds young stars, says Joseph Weingartner, a post-doctoral fellow at U of T's Canadian Institute for Theoretical Astrophysics. According to Professor Norman Murray, associate director of CITA and co-author of the study, "if we can detect these grains and trace them back to the star system that they came from, we'd have very good evidence of planet formation going on in that system." Weingartner presented the study Jan. 6 at the American Astronomical Society meeting in Seattle, Wash.

The tiny grains are created by collisions of large objects such as boulders and asteroids during or slightly after the process of planet formation, he explains. The collisions create a disk of particulate grains (each grain is about 100 times smaller than a grain of sand).

Some of these grains are then ejected from a disk after "slingshotting" around a planet. Weingartner says the speeds of the grains entering our solar system can range from a few kilometers to 100 kilometres per second. If the grains are travelling at high velocities, researchers know that they originate from outside our solar system.

Weingartner and Murray propose that future radar telescope facilities that can examine roughly one million square kilometers of space be used to detect dust streams coming from nearby stars. By detecting the speed and direction of grains when they hit the Earth's atmosphere, scientists could potentially trace the path of the tiny grains back to star systems where planet formation may be occurring.

"In astronomy, if you want information, you always rely on

radiation like visible light or infrared light,” says Weingartner. “You can think of these radar facilities as a different type of telescope - a telescope for collecting dust rather than a telescope for collecting light.”

Among the star systems whose dust streams could be studied is beta Pictoris, a 10-to-20 million-year-old star located roughly 63 light years from the sun. Weingartner and Murray estimate that in the dust disk around beta Pictoris, the mass of the particles with a radius of one centimeter or smaller is about 19 times the mass of the Moon.

“We have a real opportunity to open a new window on these kinds of systems,” says Weingartner. He and Murray say that their study is a first step in a new approach to astronomical research, and note that further studies will require the construction of large radar telescope facilities with expanded sky coverage.

The study was funded by the Natural Sciences and Engineering Research Council of Canada.

Nicolle Wahl is a news services officer with the department of public affairs.

>Date: Tue, 7 Jan 2003 12:59:40 -0500 (EST)

>From: NASANews@hq.nasa.gov

>Subject: BIGGEST ‘ZOOM LENS’ IN SPACE EXTENDS HUBBLE’S REACH

The Advanced Camera for Surveys (ACS), aboard NASA’s Hubble Space Telescope, has used a natural “zoom lens” in space to boost its view of the distant universe. Besides offering an unprecedented and dramatic new view of the cosmos, the results promise to shed light on galaxy evolution and dark matter in space.

Hubble peered straight through the center of one of the most

massive known galaxy clusters, called Abell 1689. This required Hubble to gaze at the distant cluster, located more than 2.2 billion light-years away, for more than 13 hours. The gravity of the cluster's trillion stars, plus dark matter, acts as a 2-million-light-year-wide "lens" in space. This "gravitational lens" bends and magnifies the light of the galaxies located far behind it.

The Advanced Camera's IMAX movie-quality sharpness, combined with the behemoth lens, reveals remote galaxies previously beyond even Hubble's reach. A few may be twice as faint as those photographed in the Hubble Deep Field, which previously pushed the telescope to its sensitivity limits. Though much more analysis is needed, Hubble astronomers speculate that some of the faintest objects in the picture are probably over 13 billion light-years away.

In the image, hundreds of galaxies, many billions of light-years away, are smeared by the gravitational bending of light into a spider-web tracing of blue and red arcs of light. Though gravitational lensing has been studied previously, with Hubble and ground-based telescopes, this phenomenon has never been seen in such detail.

The Advanced Camera picture reveals 10 times more arcs than would be seen by a ground-based telescope. The ACS is five times more sensitive, and provides pictures that are twice as sharp, as the previous workhorse Hubble cameras. It can see the very faintest arcs with greater clarity. The picture presents an immense jigsaw puzzle for Hubble astronomers to spend months untangling. Interspersed with the foreground cluster are thousands of galaxies, which are lensed images of the galaxies in the background universe.

Detailed analysis of the images promises to shed light on the mystery of dark matter. Dark matter is an invisible form of matter. It is the source of most of the gravity in the universe, because it is much more abundant than the "nor-

mal matter” that makes up planets, stars and galaxies. The lensing allows astronomers to map the distribution of dark matter in galaxy clusters. This should offer new clues to the nature of dark matter. By studying the lensed distant galaxies, astronomers expect to better trace the history of star formation in the universe over the past 13 billion years.

The picture is an exquisite demonstration of Albert Einstein's prediction that gravity warps space and therefore distorts a beam of light, like a rippled shower curtain. When the laws of relativity were formulated in the early 20th century, scientists did not know that stars were organized into galaxies beyond our own Milky Way. Great clusters of galaxies are massive enough to warp space and deflect light in a way that is detectable from Earth. The Abell cluster is the ideal target because it is so massive. The more massive a cluster is, the larger the effects of gravitational lensing.

Electronic image files and additional information are available at: <http://hubblesite.org/news/2003/01>

Forwarded to you courtesy of NASA's Near-Earth Object Program.

EMBARGOED FOR RELEASE: 2:00 a.m. PST, January 8, 2003
RELEASE NO: NOAO 03-02

First Neptune Trojan Discovered

Astronomers have discovered a small body orbiting the Sun at the distance of Neptune whose orbit makes it the first known member of a long-sought population of objects known as Neptune Trojans.

This small body, known as 2001 QR322, leads Neptune

around its orbit in such a way as to maintain — on average — approximately equal distance from Neptune and the Sun. As such, it mimics the Trojan asteroids of Jupiter, which orbit the Sun in two clouds approximately 60 degrees ahead of and behind Jupiter. The first Jovian Trojan was discovered in 1906, and approximately 1,560 such objects are known today. However, until the discovery of 2001 QR322, Trojan-like objects associated with other giant planets had not been found.

2001 QR322 was discovered in the course of the Deep Ecliptic Survey, a NASA-funded survey of the outer solar system that uses the National Science Foundation's telescopes at Kitt Peak National Observatory near Tucson, AZ, and Cerro Tololo Inter-American Observatory in Chile.

Astronomers from Lowell Observatory, the Massachusetts Institute of Technology, the University of California at Berkeley, the University of Hawaii, the University of Pennsylvania, and the Large Binocular Telescope Observatory comprise the Deep Ecliptic Survey team.

The team first detected 2001 QR322 on August 21, 2001, in deep digital images taken with the 4-meter Blanco Telescope at Cerro Tololo by Marc Buie, Robert Millis, and Lawrence Wasserman of Lowell Observatory. However, several subsequent observations, made with a variety of telescopes over the past 16 months, coupled with numerical orbit integrations of the trajectory of the asteroid, were required to prove that 2001 QR322 is indeed a Neptune Trojan. The object is estimated to be approximately 230 kilometers (140 miles) in diameter and, like Neptune, requires about 166 years to complete each circuit of its orbit.

"Neptunian Trojans were long suspected to exist and it is gratifying to finally know that they do," says team member Eugene Chiang of the University of California at Berkeley.

“The orbit of 2001 QR322 is remarkably stable; projections of its trajectory into the future reveal that it can co-orbit with Neptune for at least billions of years. It is likely that 2001 QR322 is a dynamically pristine object whose orbital eccentricity and inclination have been largely unaltered by processes that afflicted the majority of bodies in the outer solar system.”

A graphic that describes the orbit of 2001 QR322 is available.

Kitt Peak and Cerro Tololo Inter-American Observatory are part of the National Optical Astronomy Observatory (NOAO), which is operated by the Association of Universities for Research in Astronomy (AURA), Inc., under a cooperative agreement with the National Science Foundation.

The survey team’s research is supported in part by the NASA Planetary Astronomy Program through grants to Lowell Observatory, the Massachusetts Institute of Technology, and the University of Hawaii; by the National Science Foundation through a grant to the University of California at Berkeley; by the Space Telescope Science Institute through grants to University of Pennsylvania and by the University of California at Berkeley; by the University of California at Berkeley through a Faculty Research Award; and by the Friends of Lowell Observatory.

For more information about the Deep Ecliptic Survey, see:

+Mid Evening Observing Highlights for February

Saturn is high in the sky. Jupiter is in the eastern sky. Orion is prominent in the southern sky as is the Winter Triangle of Betelgeuse, Sirius, and Procyon. Look for the open star clusters M41 just south of Sirius and M35 in Gemini. Leo is rising in the east. Higher in the eastern sky look for the open

star cluster M44 (the Beehive Cluster) in Cancer. The Big Dipper is standing on its handle in the northeast. The galaxies M81 and M82 can be found just west of the Pointer Stars in the Big Dipper (Duhbe and Merak). New moon is on February 1st and full moon is on February 16th.

Observations and Photographs

If you are interested in submitting an observation or photograph please contact John at kocis@catskill.net.

This is a picture of M44 in Orion taken by John Kocijanski with a 200mm telephoto lens on an Olympus OM-1 piggybacked on a Celestron SPC-8.



BARLOW BOB'S CORNER

Barlow Bob is a member of the Rockland Astronomy Club.

CELESTIAL SYMBOLS

USE A PLANISPHERE TO CREAT THE SKY, AS IT WOULD APPEAR AT 8:00PM ON DECEMBER 25TH. THE LARGE UPRIGHT IMAGE OF THE NORTHERN CROSS IN CYGNUS, APPEARS ON THE WESTERN HORIZON. THE M44 STAR CLUSTER IN CASER APPEARS ON THE EASTERN HORIZON. M44 IS ALSO CALLED PRAESEPE, A LATIN WORD MEANING MANGER. IN THE NORTHEAST TO EASTERN

HORIZON THE STARS CAPELLA, POLLUX, PROCYON, SIRIUS, RIGEL AND ALDEBERAN, OF THE WINTER HEXIGON, COULD BE CONNECTED, TO FORM THE POINTS OF THE STAR OF DAVID. IF A CRESCENT MOON APPEARS IN THE SKY AT THIS TIME, YOU WOULD HAVE CELESTIAL SYMBOLS OF THE CHRISTIAN, JEWISH AND MUSLIM RELIGIONS.

Barlow Bob has also made the following request.

John,

Please put this registration form for the Rockland Summer Star Party party in your newsletter. Please pass this to your members. Perhaps someone can go to this great event.

Barlow Bob

2003 SUMMER STAR PARTY & FAMILY CAMPING VACATION

Registration and Campsite Reservation Form

Date: ___/___/___

Last Name _____ First Name _____

Address _____

City/State/Zip _____ / _____ / _____

E-Mail Address _____

Phone # (_____) - _____ - _____

Please circle the dates on which you plan to arrive at, and depart from the star party.

FRI 7-25 SAT 7-26 SUN 7-27 MON 7-28 TUE 7-29 WED 7-30

THU 7-31 FRI 8-1 SAT 8-2 SUN 8-13

Please describe your camping unit so we can assign you to a campsite of the correct size.

___ Travel trailer, _____ length ___ Pop-up camper ___ Tent

___ Motor home, _____ length ___ Van camper / SUV ___ Off-site / other (see note)

Note: Off-site attendees must pay a daily 'visitor fee' of \$6.00 in place of the \$24.00 daily camping fee.

Please enter ages of children under age 18 and names of additional adults. 2nd Adult name _____ 3rd Adult name _____
4th Adult name _____

Ages of children under age 18 _____

REGISTRATION FEES

Adults – Age 18 and over How many _____ @ \$35.00* A _____

Kids – Age 11 thru 17 How many _____ @ \$20.00 B _____

Kids – Age 6 thru 10 How many _____ @ \$10.00 C _____

Total registration fees (A + B + C) D _____

Adult fee is \$25.00 for members of the Rockland Astronomy Club.

CAMPSITE RESERVATION DEPOSITS

1 to 3 nights \$24.00 4 to 6 nights \$50.00 7 to 9 nights \$75.00

Campsite fee (2 people) is \$24.00 per night. Discounted fee (2 people) for 7 nights is \$130.00.

Extra fees will be charged for additional adults and children ages 7 and older.

Above fees are for one family and one camping unit per campsite.

Please enter the appropriate deposit amount at right E _____

Enter total (D + E) F _____

Make your check payable to “RAC Summer Star Party”.

Mail this form with your check (equal to the amount on Line F) no later than July 17, 2003 to:

Rockland Astronomy Club Don Urban 73 Haring Street Closter, NJ 07624

For additional information check our web site www.rocklandastronomy.com, or call 201-768-3295, or send email to DUrban@RocklandAstronomy.com.

Remember to send in your dues for 2003