The Spectrogram

Newsletter for the Society of Telescopy, Astronomy, and Radio

October 2004

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S*T*A*R
P.O. Box 863
Red Bank, NJ 07701
On the web at:
http://www.starastronomy.org

October's Meeting

The next meeting of S*T*A*R will be Thursday, October 7th.

Our speaker will be Dr Hank Bartol, of Newark Academy who will talk about "Constellation Myths". There will also be a vote on changing our meeting venue.

The meeting will begin promptly at 8:00pm at the King of Kings Lutheran Church, 250 Harmony Road, Middletown.

Please Pay Your Annual Dues at October's Meeting

Membership fees for 2004-5 of $25 per individual and $35 per family are due in September. Thanks to everybody who paid on time last month. Please make payments to Paul Nadolny at the October meeting so we can collect the remainder quickly. If you can't make the meeting, please mail a check made payable to STAR Astronomy Society Inc to:

STAR Astronomy Society
P.O. Box 863
Red Bank, NJ 07701

Thanks to Contributors!

Thanks to all this month's contributors to the *Spectrogram* (Steve Walters, Ernie Rossi, Greg Cantrell, Steve Fedor, Randy Walton, Greg Crinklaw). If you'd like to follow in their footsteps, **the deadline for the next edition of the *Spectrogram* is Friday October 29th** .

Calendar

September 2, 2004
History of the Telescopes
Ernie Rossi

October 7, 2004
Constellation Myths
Dr Hank Bartol, Newark Academy

November 4, 2004
X-Raying the Hearts of Supernova Remnants
Jeremy Carlo, Columbia University

December 2, 2004
Eclipse!
Ken Legal

January 6, 2005
Imaging by the S*T*A*Rs

February 3, 2005
ATM Group Presentation

March 3, 2005

April 7, 2005

May 5, 2005

June 2, 2005
AGM

Please email any contributions to gwarnes1@comcast.net.

President's Corner

By Steve Walters

Wow, is it October already? The fall is getting started in earnest. Cool weather means no bugs, better transparency and longer nights. It also means digging out those winter boots and clothing to stay warm under the night sky. But what a view you can get!

My own September outings included a trip to Cherry Springs and the Black Forest Star Party. We had four glorious cloud-free nights. Jordan Feder was there for the last two nights, we had a great time. I have finally gotten past the learning curve on my new CCD camera and got some really nice photos.

One event occurred at the BFSP that needs to be mentioned. Gary Honis, one of the regulars at Cherry Springs, got zapped in the eye by a green laser pointer. Howie Glatter did this accidentally just after sunset while demonstrating his latest model. Gary was around 75 feet away when this occurred and it took a while to figure out what had happened. He was just suddenly blinded and until his friends saw green laser light moving randomly on their tent, no one realized what had happened. His eye didn't work properly for the entire evening so the next day, Gary returned home to have an eye exam. Two weeks later, his vision is ok but it is not certain yet whether there may be some permanent damage.

I realize that people have divided opinions on these devices. Certainly they are useful for pointing out objects to novices and this has educational value. However, others feel that these pointers intrude on the beauty of the night sky and should not be used at all. Personally I feel they are a compact source of light pollution that degrades the quality of the astronomy experience. No matter what you think, please exercise caution if using one and be respectful of other astronomers. You don't want to be responsible for ending someone's observing trip and face possible litigation because you weren't careful with your pointer.

As I mentioned last month, Chris Olszewski, has relocated to Buffalo, NY. We have a new club Secretary, Steve Fedor, who was elected at our September meeting. Thanks to Steve for stepping up to this position! And at our October meeting, we will be discussing a possible change in meeting location.

Lastly, on Saturday Oct 9, S*T*A*R has secured the use of Allaire State Park for an overnight observing/campout. This is a great opportunity to get together and enjoy the fall skies as a club. If enough of us attend, nearly every eyepiece on the market will be there so you can try them out. If you're considering getting a larger scope, you'll have a chance to try side-by-side scopes of different apertures and types. It's a short trip from home, you won't need to bring a lot of food or other comforts, just be sure you can stay warm. So dig out your tent, pack up the kids and come to Allaire for a fun evening! And if you don't want to camp, come and stay as late as you can!

September Meeting Minutes

By Steve Fedor

The 2004/2005 season for S*T*A*R Astronomy kicked off at approximately 8:15 pm on Thursday 9/2. There were about 25 members in attendance. President Steve Walters began by welcoming first time attendees and reminding everyone that the club dues are due.

Against the backdrop of his astro-photo of the Cocoon nebula, Steve announced the new format of the meetings, which is:

Opening remarks

Guest speaker

Scope and Tell

Coffee break/ selling of 50/50 tickets

Jordan's "Object of the Month"

Events and announcements

Reports from the S.I.G.'s

50/ 50 winner

S*T*A*R's own Ernie Rossi gave an excellent presentation on "The History of the Telescope." The talk encompassed developments in optics all the way from the very first lenses and astronomical mirrors to the modern day use of adaptive optics while acknowledging the pioneers in the field of telescope design. The talk also included a presentation on the evolution of eyepieces including Ernie's image intensifying I3.

During coffee break, Randy Walton displayed his Solarscope and Heliopad solar finder.

Jordan Feder began "Object of the Month" by describing his views of the Atlas 2AS rocket that was easily visible to many amateur astronomers the night of 8/31 and was a hot topic on the discussion board.

Other objects Jordan discussed were: Comet Machholtz Q2,

Globular Cluster 6934, proto-planetary nebula 7027, Globular Cluster M71. Charts of these objects will be posted on the discussion board.

Jordan also presented the idea of group contributions to purchase additional Baader solar film for members to make solar filters at the ATM sessions.

The various Special Interests Groups (S.I.G.'s) gave an update of recent activities.

ATM- Gordon Waite announced the ATM group will not meet on Monday 9/6 due to the Labor Day holiday. The alternate week schedule will resume on 9/13.

Observing- Tim Tierney announced there will be a public star party at Allaire State park on Friday 9/17 from 8:30 til 10:30. He asked the membership of to help out as much as possible. In return, S*T*A*R will have the use of Allaire State park for a private overnight observing session on Saturday 10/9. Steve Walters encouraged members to attend the private start party even if they can't help with the public event.

Gavin Warnes asked for volunteers for another Star Watch public star party at Cheesequake Park in Matawan on Sat. 9/18 at 7.30pm.

Imaging- Steve Walters announced that the imaging SIG meetings will resume at his house on Thursday 9/23 at 6:00 and invited all to attend regardless of their interest in imaging. Steve and Dave Britz both showed their captivating movies of the Venus transit.

Jordan Feder asked for donations to sponsor the Clear Sky Clock for Coyle field. Sponsorship will give the clock priority when being updated. A suggestion was made that the clock be jointly sponsored by S*T*A*R and ASTRA. Randy Walton will bring up the topic at the next ASTRA meeting. A total of $38 was collected.

Steve Walters announced the speaker lineup for future meetings. Please refer elsewhere in the newsletter for details.

Gavin Warnes stated the library flyers will be replenished and distributed.

Steve Fedor was thanked for his efforts in putting together the very successful club picnic. Steve acknowledged the contributions made by Gavin Warnes and Dee Strauss.

Due to Chris Olszewski relocating, a special election was held for the office of club secretary. Steve Fedor accepted a nomination from Steve Walters and won the election unopposed.

The 50/50 was drawn.

The meeting was adjourned. Afterwards many people stayed to observe through Gavin's 15 inch Obsession and the club owned 8 inch Newt.

Allaire Park Overnight Star Party

On Saturday October 9th, S*T*A*R is holding an overnight star party at the campgrounds at Allaire State Park. All are welcome. For further details please contact Tim Tierney at ttierney@optonline.net or see the Events & Observing Plans section of the discussion board.

Ernie's Telescope Corner

By Ernie Rossi

This has to be one of the most versatile telescopes since it packs combination of portability, excellent images, wide field views of star clusters and nebula, as well as high power views of the moon planets and splitting double stars. This telescope is a 4-inch F5.4 apochromat refractor. The four element special-dispersion-plus-fluorite objective permits the use of a broad range of eyepiece focal lengths. The optical tube weighs in around 11 pounds and is 32" in length. Many astrophotographers use this telescope since it has a very flat format as well as all the other qualities mentioned. This telescope has high quality components, with a large 2" focuser and diagonal with a 1 ¼" adapter, dew shield built in that slides past the front end of the objective, large focusing knobs, and diagonal. In front of the objective a threaded lens cap which screws on or off for added protection. The finder is a one power Starbeam that is the aiming device that can be adjusted for brightness. The Genesis is mounted on the TV Gibraltar alt-azimuth mount. For photography you will need the equatorial systems mounting. The entire telescope weighs less than thirty pounds and breaks down or assembled in less than 5 minutes. The optical tube assembly comes in a custom foam case. I probably use this telescope most when I go on trips and local school star parties.

This telescope will fit in even a small car, either in the back seat or trunk. You can't take it on a plane unless you want to put it in baggage because it's too long to fit in the overhead storage compartment. So far aperture for aperture I haven't seen any other telescope beat this one on the moon and planets and wide field deep sky views. I have taken this telescope to dozens of star parties and everyone seems to rave about how sharp the images are. On shoot-outs comparing different telescopes with the same aperture 4" Mogey refractor, 4" Unitron refractor, 4" Celestron apochromat, plus other top quality refractors and none could beat it. Some were about equal, but overall this refractor is tops. I also had this refractor up against larger scopes such as the 8" Schmidt Cass. And for planetary views the Genesis due to its high contrast and razor edge optics more detail could be seen. The new 101 TV has ED glass for the front doublet, which is supposed to correct for false color even more, but sells for over $3,000. If you can find a used Televue SDF scope for under $2,000 in good shape it's a bargain.

What have I seen with this telescope under excellent conditions? Just to name a few.

A. Jupiter with as many as 6 belts, detail in the red spot, and many transits of Jupiter's moons.
B. Saturn the Cassini division and caught glimpses of the Crepe ring, Ring shadow and as many as 5 moons.

C. The Trapezium in the nebula M42 as many as 6 stars.

This is just some of the more difficult detail that I have been able to see. It's capable of magnifications less than 20x, and on nights of excellent seeing approach 300x with razor sharp views. Open bright clusters are just great since there is little problem in seeing star fields greater than 4 degrees. For terrestrial viewing an upright diagonal can be used for terrific views of the landscape and wildlife. So if you find someone selling an SDF Televue Refractor and it's at an affordable price, buy it before someone else grabs it.

Hunting Gravitational Waves: Space Technology 7

By Patrick L. Barry and Dr. Tony Phillips

Among the mind-blowing implications of Einstein's general theory of relativity, direct verification is still missing for at least one: gravitational waves. When massive objects like black holes move, they ought to create distortions in space-time, and these distortions should spread and propagate as waves--waves in the fabric of space-time itself.

If these waves do exist, they would offer astronomers a penetrating view of events such as the birth of the Universe and the spiraling collisions of giant black holes. The trick is building a gravitational wave detector, and that's not easy.

Ironically, the gravitational waves spawned by these exceedingly violent events are vanishingly feeble. Gravitational waves exert a varying tug on objects, but this tug is so weak that detecting it requires a device of extraordinary sensitivity and a way to shield that device from all other disturbances.

Enter Space Technology 7 (ST-7). This mission, a partnership between NASA's New Millennium Program and the European Space Agency (ESA), will place a satellite into a special orbit around the Sun where the pull of the Earth's and Sun's gravities balance. But even the minute outside forces that remain -- such as pressure from sunlight -- could interfere with a search for gravitational waves.

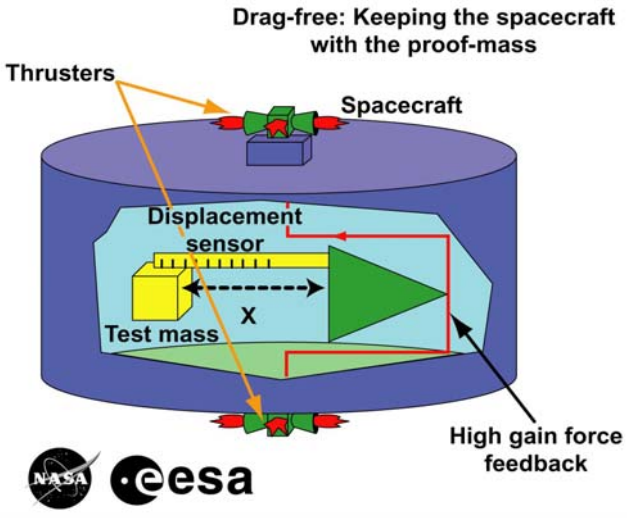
To make the satellite virtually disturbance-free, ST-7 will test an experimental technology that counteracts outside forces. This system, called the Disturbance Reduction System (DRS), is so exquisitely sensitive that it can maintain the satellite's path within about a nanometer (millionth of a millimeter) of an undisturbed elliptical orbit.

DRS works by letting two small (4 cm) cubes float freely in the belly of the satellite. The satellite itself shields the cubes from outside forces, so the cubes will naturally follow an undisturbed orbit. The satellite can then adjust its own flight path to match that of the cubes using high-precision ion thrusters. Making the masses cube-shaped lets DRS sense deviations in all 6 directions (3 linear, 3 angular).

ST-7 is scheduled to fly in 2008, but it's a test mission; it won't search for gravitational waves. That final goal will be achieved by the NASA/ESA LISA mission (Laser Interferometer Space Antenna), which is expected to launch in 2011. LISA will use the DRS technology tested by ST-7 to create the ultra-stable satellite platforms it needs to successfully detect gravitational waves.

If ST-7 and LISA succeed, they'll confirm Einstein (again) and delight astronomers with a new tool for exploring the Universe.

Read more about ST-7 at http://nmp.jpl.nasa.gov/st7 . For kids in a classroom setting, check out the "Dampen that Drift!" article at http://spaceplace.nasa.gov/en/educators/teachers_page2.shtml .



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

Messier Objects - October

By Greg Cantrell

M29 (NGC6913) – This small magnitude 6.6 open cluster is found in Cygnus the swan. Binoculars reveal a small fuzzy patch in a rich field of stars, while a small telescope resolves the cluster into about 20 magnitude 8 stars. Right Ascension (RA) 20 23.9, Declination (Dec) + 38 32.

M39 (NGC7092) – At magnitude 4.6, this large bright open cluster in Cygnus may be observed by the naked eye under dark sky conditions. Easily observed with binoculars, this cluster resolves into bright widely spaced members when observed telescopically. RA 21 32.3, Dec +48 26.

M71 (NGC6838) – A magnitude 8.3 globular cluster residing in Sagitta, this object is easy to find and nicely observable even in binoculars. A medium sized scope is required to begin to resolve this compressed, V-shaped mass of stars. RA 19 53.8, Dec + 18 47.

M31 (NGC224) – The famous Andromeda Galaxy, easily naked eye visible at magnitude 3.4, is a spectacular object to observe, even in the smallest telescope. RA 00 42.7, Dec + 41 16.

M32 (NGC221) – An 8.1 magnitude elliptical galaxy, companion to the Andromeda Galaxy, is an easy binocular object. Telescopically M32 appears slightly oval and brighter than M110. RA 0042.7, Dec +40 52.

M110 (NGC205) – Like M32, M110 is an 8.1 magnitude galaxy and companion to the Andromeda Galaxy. However, M110 is larger and appears less bright when observed through binoculars or a telescope. RA 00 40.4, Dec +41 41.

M72 (NGC6981) – Found in Aquarius, this small magnitude 9.4 globular cluster is a very difficult binocular object. In small telescopes, this object appears as a faint patch of light that gradually brightens towards its core. RA 20 53.5, Dec -12 32.

M73 (NGC6994) – This magnitude 8.9 asterism in Aquarius, comprised of 3 or 40 stars, is located 1.5 degrees west of M72. RA 20 59.0, Dec -12 38.

M2 (NGC7089) – Small and bright, this magnitude 6.5 globular cluster in Aquarius appears as a small fuzzy patch of light at low telescopic powers. In binoculars, M2 looks like a small, fuzzy star. RA 21 33.5, Dec -00 49.

M30 (NGC7099) – A magnitude 7.5 globular cluster in the constellation Capricornus, this object is difficult to find in binoculars appearing as a small fuzzy star. Small telescopes show a faint patch of light, gradually brightening towards its core. RA 21 40.4, Dec -23 11.

M27 (NGC6853) – Known as the Dumbbell Nebula, this magnitude 7.3 planetary nebula can be found in the constellation Vulpecula. While this object can be glimpsed in binoculars, a small telescope begins to show the rectangular shape of this nebula. RA 19 59.6, Dec +22 43.

Upcoming Events

Star parties and other astronomy-related events are an important part of the amateur astronomy experience. Listed below are several events offering dark skies.

October 16 The Novac Star Gaze will be held at C.M. Crockett Park in Fauquier County, Virginia. Details at www.novac.com/gaze/

November 7-14 The Chiefland Fall Star Party will be held at the Chiefland Astronomy Village, FL. Details at www.c-av.com

Total Lunar Eclipse on October 27th!

Oct 14 **Oct 20** **Oct 28** **Nov 5**

Are you a S*T*A*R Member?

S*T*A*R is a member of United Astronomy Clubs of New Jersey (UACNJ) and the International Dark Sky Association (IDA). Meetings are the first Thursday of each month, except July and August, at 8:00 PM at the King of Kings Lutheran Church, 250 Harmony Rd. in Middletown . Meeting generally consist of lectures and discussion by members or guest speakers on a variety of interesting astronomical topics.

Memberships: ( )Individual....$25
( ) Family...$35 ( ) Institutional $25

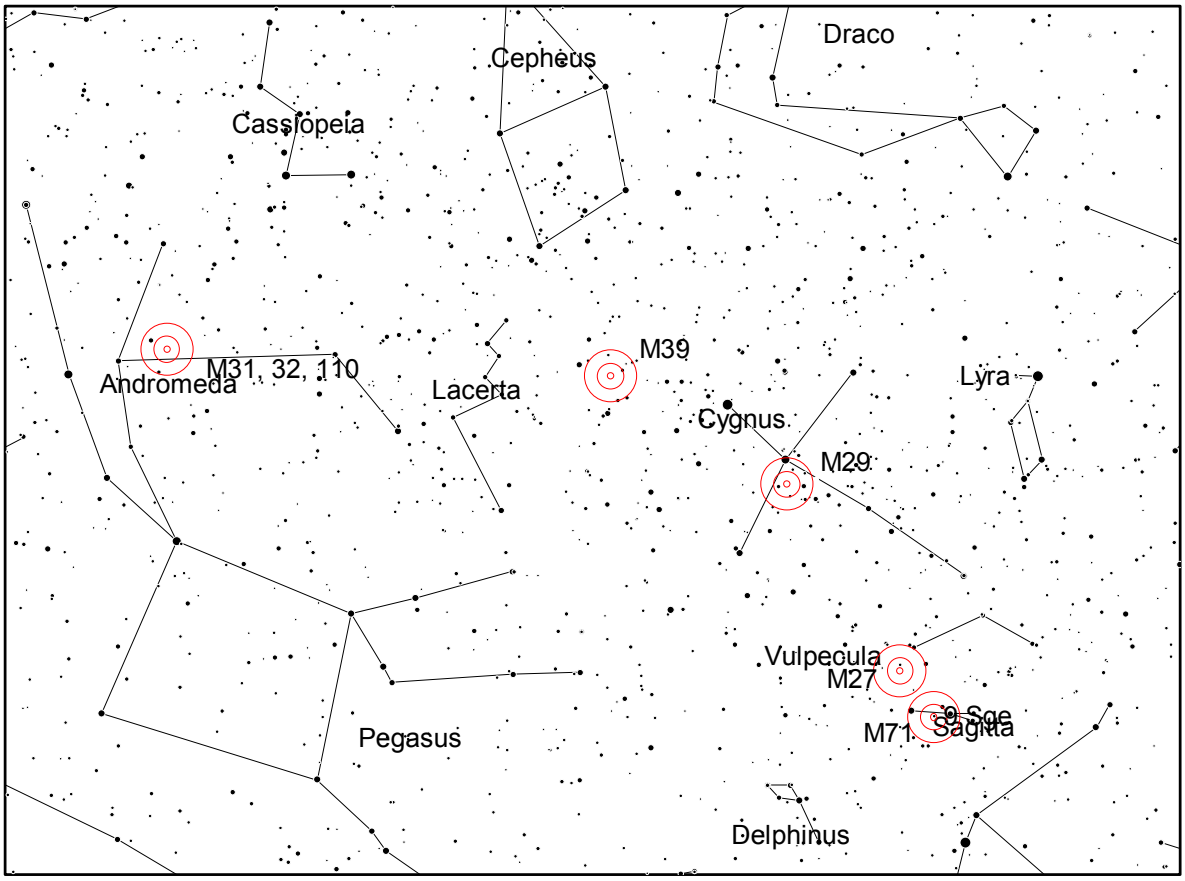
Name_____

Address_____

City_____State___Zip_____

Phone_____

Email_____
Make checks payable to: STAR Astronomy Society, Inc. and mail to P.O. Box 863, Red Bank, NJ 07701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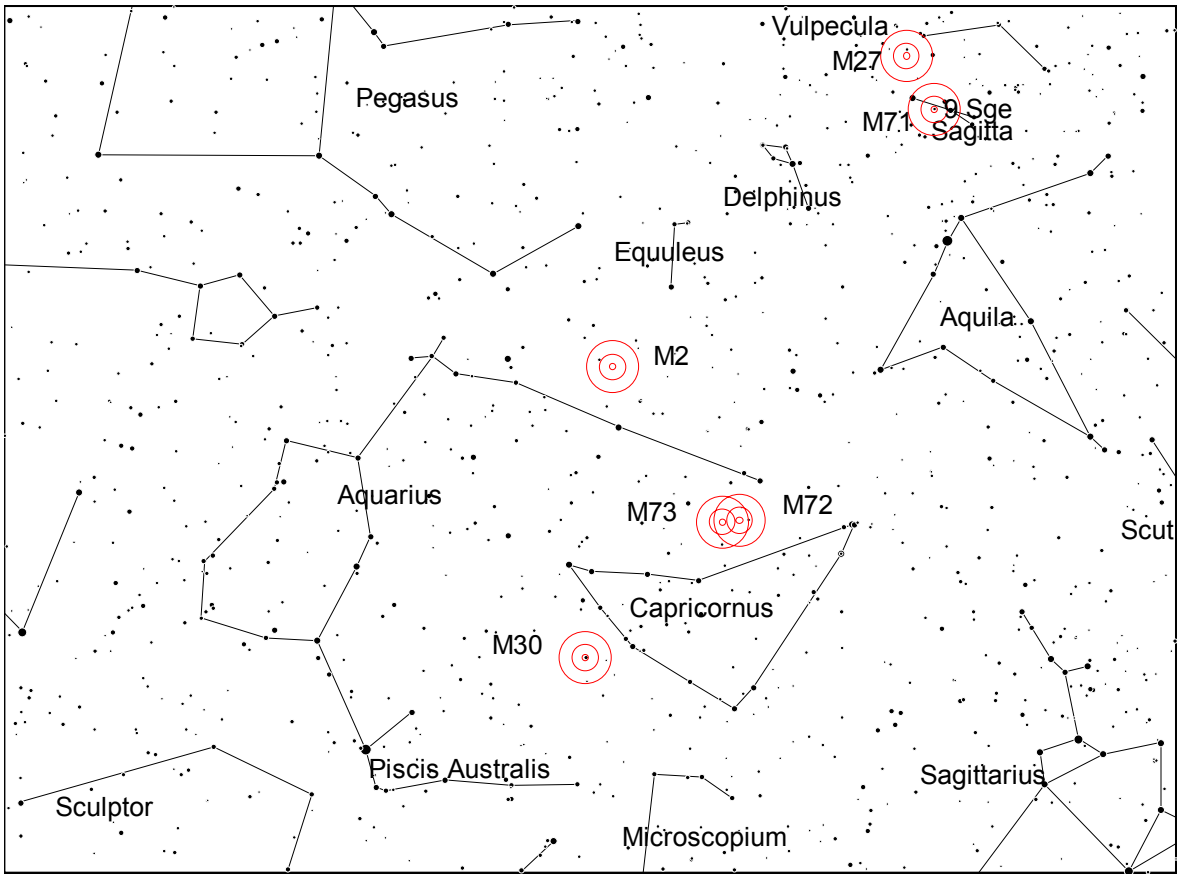
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Capricornus
M30
Piscis Australis
Sagittarius
Sculptor
Microscopium

October Celestial Events

Compiled by Randy Walton

Day	Date	Time(EDT)	Event
Fri	1	00:45	Saturn Rises
		03:30	Venus Rises
		06:15	Jupiter Rises
		06:30	Mars Rises
		06:45	Mercury Rises
		06:57	Sunrise
		18:41	Sunset
		20:18	Moon Rise
Wed	6	06:12	Last Quarter Moon
		14:59	Moon Sets
Tue	12	00:10	Saturn Rises
		02:50	Venus Rises
		05:19	Moon Rise
		05:45	Jupiter Rises
			Zodiacal Light in E before morning twilight for next two weeks
		07:08	Sunrise
Wed	13	18:22	Sunset
		18:36	Mercury Sets
		22:48	New Moon
Wed	20	04:05	Venus Rises
		05:25	Jupiter Rises
		07:16	Sunrise
		17:59	First Quarter Moon
		18:13	Sunset
		18:35	Mercury Sets
		23:00	Orionid meteors peak
		23:40	Saturn Rises
		23:46	Moon Sets
Wed	27	20:45	Penumbra first visible
		21:14	Moon enters Umbra
		22:23-23:45	Total Lunar Eclipse
Thu	28	00:54	Moon leaves Umbra
		01:25	Penumbra last visible
Sat	30	04:28	Venus Rises
		04:57	Jupiter Rises
		06:10	Mars Rises
		07:27	Sunrise
		17:59	Sunset
		22:00	Saturn Rises

In the Eyepiece

If you are not worn out by all of October's Messier objects, here is a list of more objects for this month. This is reproduced from www.skyhound.com with the kind permission of its creator and author of SkyTools Greg Crinklaw.

Object(s)	Class	Con	RA	Dec	Mag
Andromeda Galaxy	Galaxy	Andromeda	00h42m44.3s	+41°16'09"	4.3
The Sculptor Galaxy -- NGC 253	Galaxy	Sculptor	00h47m33.1s	-25°17'18"	8.2
NGC 7789	Open Cluster	Cassiopeia	23h57m01.9s	+56°43'42"	7.5
NGC 278	Galaxy	Cassiopeia	00h52m04.4s	+47°33'01"	11.5
NGC 288	Globular Cluster	Sculptor	00h52m38.2s	-26°35'43"	8.9
NGC 247	Galaxy	Cetus	00h47m08.7s	-20°45'38"	9.7
IC 10	Galaxy	Cassiopeia	00h20m23.1s	+59°17'35"	11.8
The Bubble Nebula	Diffuse Nebula	Cassiopeia	23h20m42.0s	+61°12'00"	--
NGC 40	Planetary Nebula	Cepheus	00h13m01.0s	+72°31'19"	10.7
The Blue Snowball	Planetary Nebula	Andromeda	23h25m53.9s	+42°32'06"	9.2
NGC 246	Planetary Nebula	Cetus	00h47m03.3s	-11°52'19"	8.0
NGC 7640	Galaxy	Andromeda	23h22m06.5s	+40°50'45"	11.8
NGC 7606	Galaxy	Aquarius	23h19m04.8s	-08°29'08"	11.7
NGC 128	Galaxy	Pisces	00h29m15.1s	+02°51'51"	12.7
Jn 1	Planetary Nebula	Pegasus	23h35m53.4s	+30°27'36"	15.1
NGC 281	Open Cluster	Cassiopeia	00h52m50.1s	+56°37'17"	7.4
NGC 381	Open Cluster	Cassiopeia	01h08m21.0s	+61°35'00"	9.3
NGC 289	Galaxy	Sculptor	00h52m42.4s	-31°12'22"	11.8
Gamma Cassiopeia Nebula	Diffuse Nebula	Cassiopeia	00h57m30.0s	+61°09'00"	--
Hu 1-1	Planetary Nebula	Cassiopeia	00h28m15.0s	+55°57'54"	13.3
M 2-55	Planetary Nebula	Cepheus	23h31m51.3s	+70°22'11"	--
NGC 7492	Globular Cluster	Aquarius	23h08m28.7s	-15°36'28"	11.2
Hickson 94	Galaxy Group	Pegasus	23h17m18.2s	+18°43'31"	13.1
Gyulbudaghian's Nebula	Variable Reflection Nebula	Cepheus	20h45m54.2s	+67°57'51"	14