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Issue Number 1
January 2010

Curiosity

The Moon has always the same side facing Earth. For this reason some people say that the Moon has no rotation. This is not true. The Moon is in synchronous rotation, which means it rotates about its axis in about the same time it takes to orbit the Earth. This results in it keeping nearly the same face turned towards the Earth at all times.

Astronomy Calendar

PDF Version

January 1st: Day 1 of the gregorian calendar.
History:. In 1925, in a meeting of the American Astronomical Society and of the American Association for Science Development in Washington, D.C., Edwin Hubble reports that he has discovered cepheids in the "spiral nebulae".

This was the beginning of the fall of the hipothesis that said that our Milky Way was the entire Universe, because it led to the discovery that we live in one of many galaxies.
In 2001, the NEAT (Near Earth Asteroid Tracking) mission

EDITORIAL

Welcome to 2010!

With a new year, EAAE brings you a new outreach: the EAAE newsletter.

Every month the newsletter will try to present you with the relevant facts about what been happening within the organization, and also provide you direct access to information about the major astronomical discoveries that happened during the previous month.

The newsletter will have a section (left side) where you can find a curiosity as well as what happened along history during this month in astronomical terms. You can also see what are the observational highlights for each day of the month.

There will be a focus on a major discovery ("Research News") that has been made during the previous month and direct links to all our blog's news about astronomical discoveries ("It happened last month")..

Two sections about astronomical observations will also be available. The first section ("First Astronomical Observations") is a section with simple observations that can be made during the next month with school classes using naked eyes, binoculars and/or small telescopes. The second section ("Advanced Astronomical Observations") gives highlight to celestial objects that require a very good background knowledge of the sky and might imply the use of a bigger telescope (20 cm or 8" diameter).

We will also have a section about astronomical software and a review of an internet tool that can be used in school projects.

The newsletter will also have a ludic activity on a section we called "Students Corner". This month we selected a "Solar System Sudoku" and a crossword puzzle.

Every month we will also select a picture of celestial object that will be explained.

On the sections that are intended to support school activities a clean .pdf document with the content is usually available by clicking the link " **PDF Version**" that appears at the topof the articles.

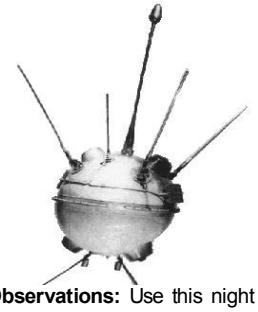
We hope you enjoy it.

EAAE News

EAAE/IAU SUMMER SCHOOL AND GENERAL ASSEMBLY

descovers an asteroid with a diameter of 1.5 km that passes near Mars (2001AA). This object was dubbed with nickname of Millenium Asteroid.
Observations: Moon at perigee at 21h (UT).

January 2nd: Day 2 of the gregorian calendar.
History:. In 1959, the soviet probe Luna 1was launched .



Observations: Use this night to observe the Great Orion Nebula (M42).

January 3rd: Day 3 of the gregorian calendar.
History:. In 1999, the probes Mars Polar Lander and Deep Space 2 were launched.
In 2000, the probe Galileo made a flyby near Jupiter's moon Europa at a height of 351 km.
Observations: Earth at perihelion at 00h (UT). Mars 7° N. of Moon at 12h (UT). The Moon makes an occultation of Hygea at 17h (UT), but this is only visible from the southern hemisphere near Australia and New Zealand.

January 4th: Day 4 of the gregorian calendar.
History:. In 1610, 400 years ago the next days were probably the most important days of Astronomy History.

Since 1609 Galileo Galilei has been pointing his telescope to the sky and observed the craters of the Moon, sunspots that allow him to deduce the Sun's rotation, and the stars of the Milky Way.
Observations: Mercury in inferior conjunction at 19h (UT). Regulus is 3.7ºN of Venus. The occultation of the asteroid Echo by the Moon at 04h (UT) is only visible in Asia.

Between the November 26th and December 1st, 2009, the EAAE's WG3 held a teacher training course in Madrid that had the attendance of teachers from all over Europe. This course direct cooperation between the EAAE and IAU.

A workshop about the Moon during the Summer School.

During the six days of the course, General Lectures, Workgroups, Workshops, and discussion activities were promoted and animated by specialists that presented several ideas about didactical materials that teachers can use in there class room.

The EAAE's General Assembly gathered in Madrid on December 1st, 2009, after the end of the Summer School. The General Assembly elected the Executive Council which is now composed as follows:

President: Rosa M. Ros
Vice-president. Veselka Radeva
Tresaurer: Alan Pickwick
Secretary: Cristina Palici di Suni
Editor/Webmaster: Alexandre Costa
Charles Henri Eyraud
Irma Hannula
Janet Hilton
Felisbela Martins

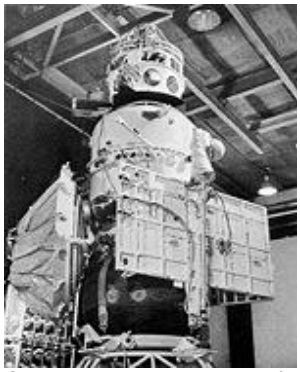
Co-opt: Olympiads. Anders Västerberg
Co-opt. Summer Schools: Francis Berthomieu

A group picture of some of the participants.

The elected Executive Council would like to thank to all teachers that teach Astronomy for their cooperation in this common objective. We hope to be useful for Astronomy in Europe. Of course all we would like to involve all the members in the activities that we believe that can begin to run in the EAAE future.

After the election of the Executive Council, the General Assembly decided to promote a vote of laudation for

January 5th: Day 5 of the gregorian calendar.
History:. In 1969, the soviet probe Venera 5 is launched to Venus.



Observations: Mercury is 3.4ºN of Venus.

January 6th: Day 6 of the gregorian calendar.
Observations: Saturn 8°N of Moon at 19h (UT).

January 7th: Day 7 of the gregorian calendar.
History:. In 1610 Galileo observed with his telescope what he described at the time as "three fixed stars, totally invisible by their smallness," all close to Jupiter, and lying on a straight line through it. Observations on subsequent nights showed that the positions of these "stars" relative to Jupiter were changing in a way that would have been inexplicable if they had really been fixed stars. On January 10th, Galileo noted that one of them had disappeared, an observation which he attributed to its being hidden behind Jupiter. Within a few days he concluded that they were orbiting Jupiter: He had discovered three of Jupiter's four largest satellites (moons): Io, Europa, and Callisto.
Observations: The Moon is at Last Quarter at 10h (UT) . Spica 3.2ºN of the Moon at 23h (UT).

January 8th: Day 8 of the gregorian calendar.
History:. In 1977 the sovietmission Luna 21 was launched.
In 1994, the russian cosmonaut Valeri Polyakov departs on the Soyuz TM-18 to Mir. where he will stay until March 22nd, 1995, with a record of 437 days in Space.

the work of the previous President Fernand Wagner which was unanimously approved.

The work of Fernand Wagner as Vice-President for 7 years and as President of the EAAE for another 7 years were the support to Rosa Maria Ros's proposal for his nomination as Honorary President of the EAAE. This proposal was approved unanimously.

For now the GA decided to create 2 new Working Groups and to continue with the Working Group of the Summer Schools. The Working Groups that are now official are:

WG1: Cooperative projects
Chairperson: Charles-Henri Eyraud

WG2: Catch a Star
Chairperson: Janet Hilton

WG3: Summer Schools
Chairperson: Rosa M. Ros

All people interested to be included in a WG should please contact the chairperson.

The General Assembly has decided that one of our main goals should be the EAAE website. It has been decided to have a bery active web activity because it is our "window" to teachers and society.

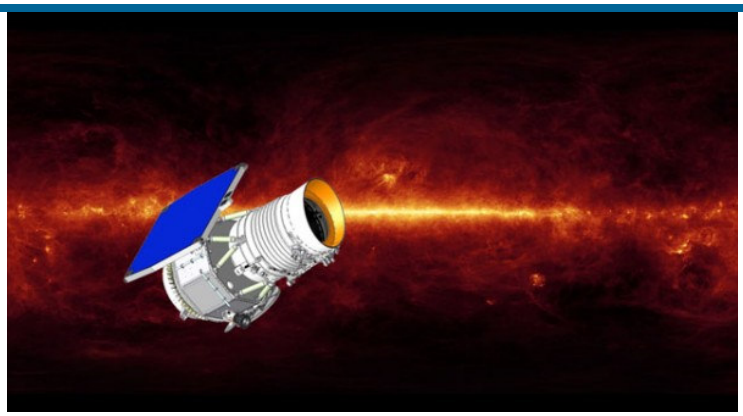
We plan to have a blog, a Newsletter every month, didactic materials from previous Summer Schools, details of Olympiads and current information about all the WG.

The EAAE members that will work in the website are: Alexandre Costa (webmaster), Francis Berthomieu, Charles Henry Eyraud, and Anders Västerberg.

Links:
The EAAE/IAU Summer School's Diary
Day 1
Day 2
Day 3
Day 4
Day 5
Day 6

Research News

WISE INFRARED SATELLITE MISSION



Artist's impression about the WISE mission.
Source: WISE Home

An unmanned NASA satellite will soon survey the entire sky to discover millions of uncharted stars and galaxies, asteroids, and planetary “construction zones,” providing valuable new information on our solar system, the Milky Way and the universe.

NASA’S Wide-field Infrared Survey Explorer (WISE) was launched on Monday, December 14th, at 6:09:33AM Pacific Standard Time, from Vandenberg Air Force Base

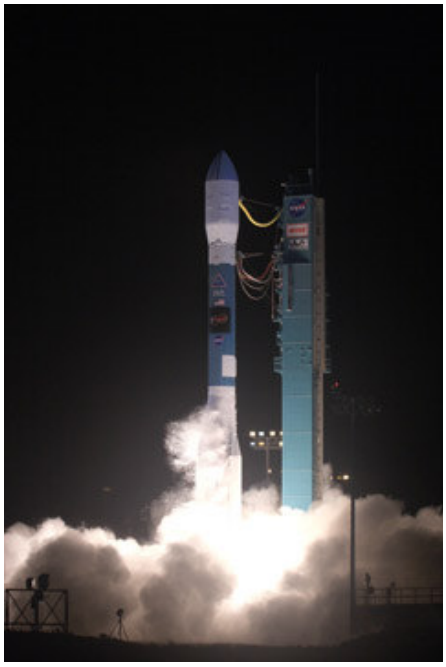
Observations: The Pegasus Squre is still high in the sky. Try to find out where the Andromeda Galaxy is. You can see it with small binoculars (7x50).

January 9th: Day 9 of the gregorian calendar.
Observations: The occultation of the asteroid Victoria by the Moon at 01h (UT) is only visible in the Indian Ocean and in Australia.

January 10th: Day 10 of the gregorian calendar.
History:.In 1969, the probe Venera 6 (USSR) was launched. It reached Venus on May 17th, 1969. The atmopheric research send back data to Earth until 11 km above surface where the probe was destroyed.
Observations: The occultation of the asteroid Athamantis by the Moon at 03h (UT) is only visible from Antartica and the occultation of the asteroid Ausonia by the Moon at 19h (UT) is only visible from middle of the Pacific Ocean.

January 11th: Day 11 of the gregorian calendar.
History:. In 1787, William Herschel discovers Oberon and Titania, the biggest moons of Uranus.
Observations: Venus is in superios conjunction at 21h (UT). The occultation of the star Antares by the Moon at 13h (UT) is only visible from North America and Greenland. In Europe in the evening Antares will be about 1º-2ºS of the Moon.

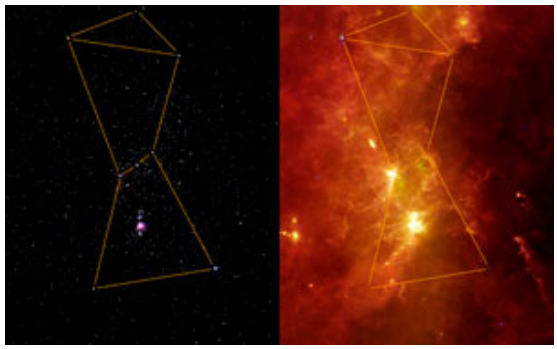
January 12th: Day 12 of the gregorian calendar.
History:. In 1820 the "British Royal Astronomical Society" is founded.



The WISE was launched from Vandenberg Air Force Base, California, USA.
Credit: United Launch Alliance
(Click on the image to see a bigger image)

The Wide-field Infrared Survey Explorer, or WISE, will scan the entire sky in infrared light, picking up the glow of hundreds of millions of objects and producing millions of images. The mission will uncover objects never seen before, including the coolest stars, the universe's most luminous galaxies and some of the darkest near-Earth asteroids and comets. Its vast catalogs will help answer fundamental questions about the origins of planets, stars and galaxies, and provide a mountain of data for astronomers to mine for decades to come.

Thanks to next-generation technology, WISE's sensitivity is hundreds of times greater than its predecessor, the Infrared Astronomical Satellite, which operated in 1983. WISE will join two other infrared missions in space – NASA's Spitzer Space Telescope and the Herschel Space Observatory, a European Space Agency mission with important NASA participation. WISE is different from these missions in that it will survey the entire sky. It is designed to cast a wide net to catch all sorts of unseen cosmic treasures, including rare oddities.



Difference between visible and infrared vision of Orion.
Credits: Visible image: Howard McCallon; Infrared image: NASA/IRAS
(Click on the image to see a bigger image)

The closest of WISE's finds will be near-Earth objects, both asteroids and comets, with orbits that come close to crossing Earth's path. The mission is expected to find hundreds of these bodies, and hundreds of thousands of additional asteroids in our solar system's main asteroid belt. By measuring the objects' infrared light, astronomers will get the first good estimate of the size distribution of the asteroid population. This information will tell us approximately how often Earth can expect an encounter with a potentially hazardous asteroid. WISE data will also reveal new information about the composition of near-Earth objects and asteroids — are they fluffy like snow or hard like rocks, or both?

The next closest targets for WISE are cool "failed" stars called brown dwarfs.These Jupiter-like balls of gas form like stars but fail to gather up enough mass to ignite like stars.The objects are cool and faint, and nearly impossible to see in visible light. WISE should uncover about 1,000 in total, and will double or triple the number of star-like objects known within 25 light-years of Earth. What's more, if a brown dwarf is lurking closer to us than the closest known star, Proxima Centauri, WISE will find it and the little orb will become famous for being the "closest known star."

Advancing Astronomy and Geophysics

In 2005 the probe Deep Impact was launched from Cape Canaveral.
Observations: The Moon is at its furthest south position in the sky (-25.7º).

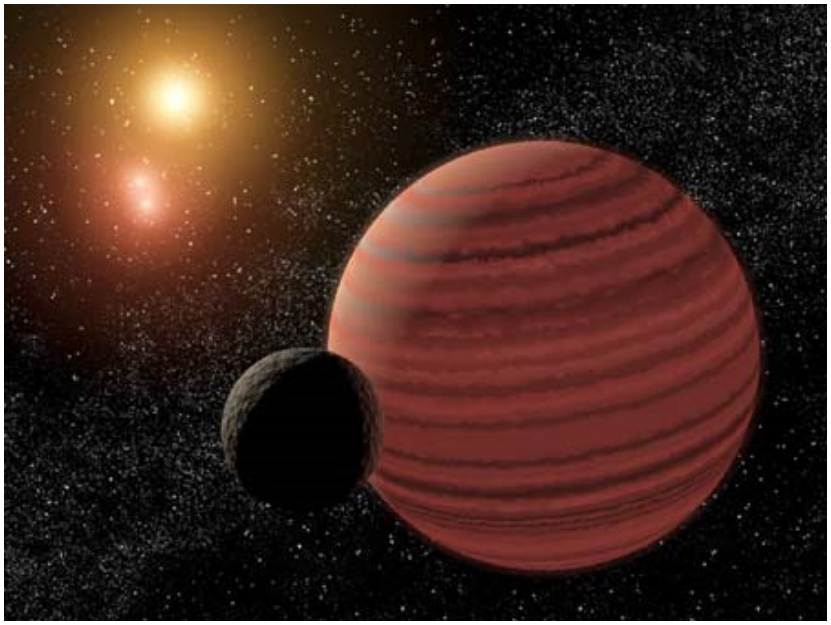
January 13th: Day 13 of the gregorian calendar.
History:. In 1610, Galileo discovered the fourth galilean moon, Ganymede.

In 2000, black holes were discovered drifting along the Galaxy.
Observations: Mercury is 4.5ºN of the Moon at 16h (UT). The occultation of the asteroid Sylvia by the Moon at 11h (UT) is only visible from the southeastern part of Europe and during daytime and the occultation of the asteroid Themis by the Moon at 14h (UT) is only visible from Antartica.

January 14th: Day 14 of the gregorian calendar.
History:. In 2005 the probe Huygens landed on Saturn's moon Titan.

Observations: Saturn is stationary at 18h(UT).

Jan 15th: Day 15 of the gregorian calendar.
History:. In 1965, the Soviet Union launched Soyuz 5.



Artists impression of a Brown Dwarf with a planet orbiting it.
Credit: NASA

The most distant objects that will stand out like ripe cherries in WISE's view are tremendously energetic galaxies. Called ultraluminous infrared galaxies, or ULIRGs, these objects shine with the light of more than a trillion suns.They crowd the distant universe, but appear virtually absent in visible-light surveys. WISE should find millions of ultra-luminous infrared galaxies, and the most luminous of these could be the most luminous galaxy in the universe.

Other WISE finds will include: newborn stars; disks of planetary debris around young stars; a detailed look at the structure of our Milky Way galaxy; clusters of galaxies in the far universe and more. The most interesting discoveries will lay the groundwork for follow-up studies with other missions, such as NASA's Spitzer Space Telescope, the Herschel Space Observatory, NASA's Hubble Space Telescope, NASA's upcoming SOFIA airborne telescope and NASA's upcoming James Webb Space Telescope. Powerful ground-based telescopes will also follow up on WISE discoveries.

As with past all-sky surveys, surprises are sure to come. For example, one of the most surprising finds to come out of the Infrared Astronomical Satellite mission was the discovery of excess infrared light around familiar stars like Vega and Fomalhaut. Astronomers soon determined that the excess light comes from pulverized rock in disks of planetary debris. The findings implied that rocky planets like Earth could be common. Today hundreds of astronomers study these debris disks, and Hubble recently captured an actual photograph of a planet orbiting Fomalhaut within its disk.WISE will orbit Earth at an altitude of 525 kilometers (326 miles), circling Earth via the poles about 15 times a day. A scan mirror within the WISE instrument will stabilize the line of sight so that snapshots can be taken every 11 seconds over the entire sky. Each position on the sky will be imaged a minimum of eight times, and some areas near the poles will be imaged more than 1,000 times. About 7,500 images will be taken every day at four different infrared wavelengths.The mission's sensitive infrared telescope and detectors are kept chilled inside a Thermos-like tank of solid hydrogen, called a cryostat. This prevents WISE from picking up the heat, or infrared, signature of its own instrument. The solid hydrogen, called a cryogen, is expected to last about 10 months and will keep the WISE telescope a chilly 12 Kelvin (minus 438 degrees Fahrenheit).

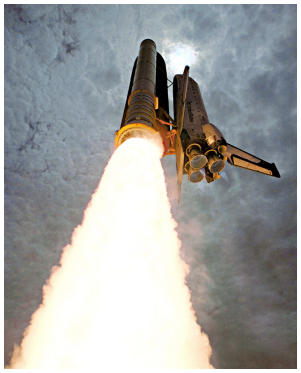
Links
WISE Home

It happened last month

Last Month's highlights from EAAE News Blog

Observations: An annular eclipse of the Sun is visible from within a 300-km-wide track that traverses half of Earth through the middle of Africa until the Eastern part of Asia. Unfortunately the phenomena that starts at 07h (UT) is only partially seen from the Western Europe.Venus 1.4ºS of the Moon at 09h (UT). Mercury stationary at 19h(UT).

January 16th: Day 16 of the gregorian calendar.
History:. In 2007 Space Shuttle Columbia was launched for mission STS-107, that would be its last..



January 17th: Day 17 of the gregorian calendar.
History:. In 2003, a Delta 2 rocket that transported GPS2R satellite explodes 13 seconds after ignition leaving 250 tons of burned debris on the lauching platform.
Observations: The Moon is at apogee at 01h(UT). Neptune 3.3ºS of the Moon at 20h(UT). The occultation of the asteroid Iris by the Moon at 18h (UT) is only visible from Antartica.

January 18th: Day 18 of the gregorian calendar.
History:. In 1896 Roentgen presented the first X-ray detector.
Observations: Jupiter is 4.2 ºS of the Moon at 06h(UT).

January 19th: Day 19 of the gregorian calendar.
History:. In 1747, Johann Bode, the author of Titius-Bode law, was born.
In 1851, Jacobus Kapteyn was born. He created the first modern model of the dynamic of the Milky Way.

EAAE News

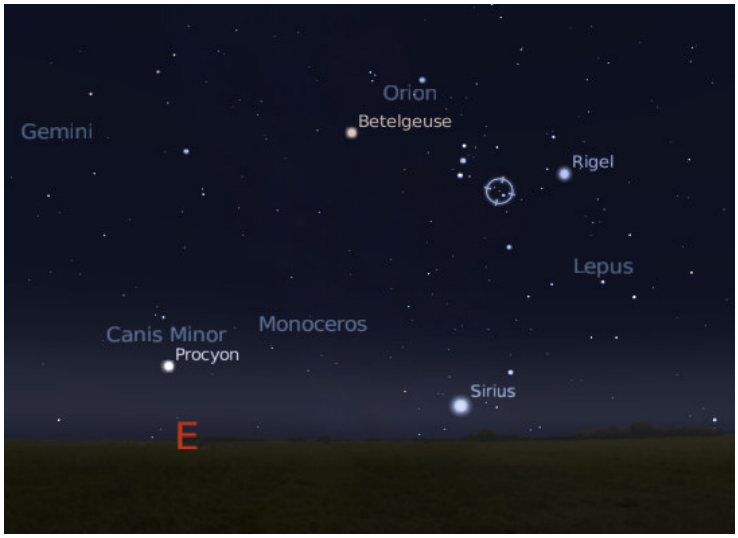
- Cassini Holiday Movies Showcase Dance of Saturn's Moons
- Voyager Makes an Interstellar Discovery
- 365 Days of Astronomy goes into 2010
- Cassini Spacecraft to Monitor North Pole on Titan
- A Quarter Century of Infrared Astronomy
- How old is the Universe?
- A Flash of Light from Titan
- Colliding Auroras Produce Explosions of Light
- Close-up Photos of Dying Star Show Our Sun's Fate
- First pictures from the new VISTA
- Magnetic Dance of Titan and Saturn To Be Main Attraction during Flyby
- ESA's Tigers on prowl for solar corona's secrets
- IC 4970 and NGC 6872: Galaxy Collision Switches on Black Hole
- Newly discovered star one of hottest in Galaxy
- Extra Star Found in the Big Dipper
- First image of cool extrasolar planet around Sun-like star

FIRST ASTRONOMICAL OBSERVATIONS

TAKE A LOOK AT ORION

PDF Version

During this month, at 21h00 you will be able to see Orion going up to its heightest nearly in southeast direction. As you know all the sky makes an apparent movement from east to west, but in the northern hemisphere this movement is curved southward. Depending on which latitude you live Orion's rising will have slight differences but about 22h it will be visible in nearly all Europe. In the image bellow yo can see how it will be seen in Southern Europe (Portugal, Spain, France, Italy and Greece) at about 21 hours.

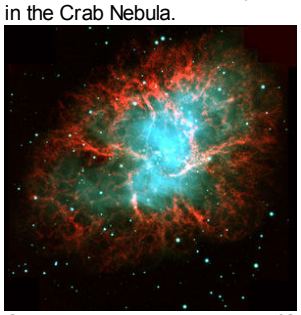


Orion at southeast in southern Europe at 21h in the middle of January.This image was made using *Stellarium* (See two articles bellow).

The Orion Nebula (also known as Messier 42, M42, or NGC 1976) is a diffuse nebula situated south of Orion's Belt. It is one of the brightest nebulae, and is visible to the naked eye in the night sky. M42 is located at a distance of 1,344 ± 20 light years and is the closest region of massive star formation to Earth. The M42 nebula is estimated to be 24 light years across. Older texts frequently referred to the Orion Nebula as the Great Nebula in Orion or the Great Orion Nebula.

Observations: This is a nice time to make observations of the Moon looking at the lunar terminator with a small telescope.

January 20th: Day 20 of the gregorian calendar.
History:. In 1969, Jocelyn Bell discovers the first known pulsar in the Crab Nebula.



Observations: Uranus is 5.4ºS of the Moon at 06h(UT). The occultation of the asteroid Thisbe by the Moon at 08h (UT) is only visible from the Eastern part of Asia.

January 21st: Day 21 of the gregorian calendar.
History:. In 2004, NASA "lost" contact with the rover Spirit, a problem that would be solved remotely on February 6th.

Observations: Imediatelly after sunset, in souther european countries it is still possible to see Vega the "Summer Star" before it sets in the Northwest.

January 22nd: Day 22 of the gregorian calendar.
History:. In 1968, Apollo 5 was launched transporting the first lunar module.
In 1992, Roberta Bondar became the first canadian woman in Space on board of the STS-42.

The constellation of Orion. The pink nebulosity is the Big Orion Nebula (M42) and can be observed even with small binoculars.

Links:
Wikipedia - M42
SEDS - M42

ADVANCED ASTRONOMICAL OBSERVATIONS

ACCRETION DISK ON IRAS 05436-0007

PDF Version

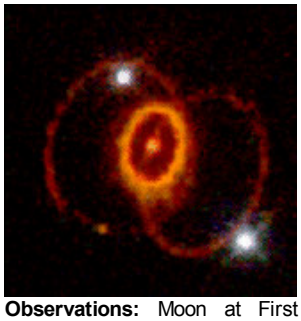
During this month travel a finger-width northeast of Zeta Orionis for a delightful area of bright nebulae called M78 (Right Ascension: 05h 46min 47s; Declination: +00º 00' 50").

The 1 600 light-year distant M78 is part of the vast complex of nebulae.

Messier 78 (also known as **M 78** or **NGC 2068**) is a reflection nebula in the constellation Orion. It was discovered by Pierre Méchain in 1780 and included by Charles Messier in his catalogue of comet-like objects that same year.

In 2000 the launch platform Vandenburg was demolished.
In 2003, contact with the probe *Pioneer 10* was lost.

January 23rd: Day 23 of the gregorian calendar.
History:. In 1987, a supernova in the Great Magellanic Cloud became visible as the result of the explosion of the blue supergiant Sanduleak 69. Known as SN1987A, it was the first "close" supernova of the last three centuries.



Observations: Moon at First Quarter at 10h(UT).

January 24th: Day 24 of the gregorian calendar.
History:. In 1969 the probe Mariner 6 was launched.
In 1979, the probe Solwind P78-1was launched.
In 1996 the probe Polar was launched.

January 25th: Day 25 of the gregorian calendar.
History:. In 2004, the rover Opportunity(MER-B) lands on the surface of Mars.

January 26th: Day 26 of the gregorian calendar.
History:. In 1978 the satellite "International Ultraviolet Explorer" (IUE) is launched into a geosynchronous orbit.

M78
Credit: Sloan Digital Sky Survey

M78 is the brightest diffuse reflection nebula of a group of nebulae that include NGC 2064, NGC 2067 and NGC 2071. This group belongs to the Orion Molecular Cloud Complex and is about 1 600 light years distant from Earth. M78 is easily found in small telescopes as a hazy patch and involves two stars of 10th magnitude. These two stars, *HD 38563A* and *HD 38563B*, are responsible for making the cloud of dust in M78 visible by reflecting their light.

About 45 variable stars of the *T Tauri* type, young stars still in the process of formation as well as some 17 Herbig-Haro objects are known in M78. On January 23, 2004, a teenager named Jay McNeil took some long exposure photos of M78 and made a huge discovery. As he looked at the photographs he had made, there was a nebulous patch on them that had no designation anywhere he could find! After reporting his findings to professionals, Jay McNeil realized he had stumbled onto something unique, a variable accretion disk around a newborn star—IRAS 05436-0007. McNeil's Nebula is a brightened by a variable star and therefore may not be bright enough to be easily seen (just south of M78) because circumstances play a big role on its observation.

M78
Credit: Adam Block (KPNO Visitor Program), NOAO, AURA, NSF

McNeil's Nebula teaches you a big lesson. Before you assume that being "just" a school astronomer has no real importance to science, remember this teenager in a Kentucky backyard with an ordinary telescope… catching what every professional had missed before!

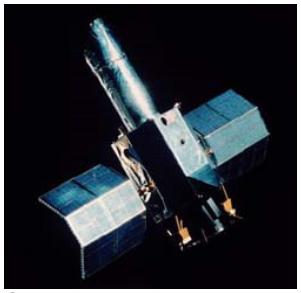
Links:
Astronomy Picture of the Day - McNeil Nebula
Wikipedia - M78

ASTRONOMY SOFTWARE TOOLS

STELLARIUM

PDF Version

Stellarium is a free open source planetarium for your computer. It shows a realistic sky in 3D, just like what you see with the naked eye, binoculars or a telescope. It is being used in planetarium projectors because it is a free software planetarium, licensed under the terms of the GNU General Public License, available for Linux, Windows and Mac OS X. It uses OpenGL to render a realistic sky in real time. With Stellarium, it's possible to see what one cannot see with the naked eye, binoculars or a small telescope. This is a very



Observations: The Moon is at its furthest North position in the sky (+25.7º). The occultation of the asteroid Nemesis by the Moon at 22h (UT) is only visible in equatorial regions.

January 27th: Day 27 of the gregorian calendar.
History:. In 1613, Galileo observes for the second time Neptune, marking it as a star (the first time was in December 28th, 1612).
In 1967, the astronauts of Apollo 1 - Virgil (Gus) Grissom, Edward H. White II e Roger B. Chaffee - are killed in a fire during test Apollo 204 (AS-204), of what was intended to be the first manned mission to the Moon.

Observations: Mercury at its greatest western elongation (25º) at 08h(UT). Mars at its nearest position relative to Earth at 19h(UT).

January 28th: Day 28 of the gregorian calendar.
History:. In 1611, Hevelius was born. He would be the first astronomer to observe the phases of Mercury and he died on the same day in 1687.

In 1986, Space Shuttle Challenger explodes 73 seconds after take-off.

January 29th: Day 29 of the gregorian calendar.
History:. In 1986 the incident Height 611 occurred.
Observations: Mars is at opposition at 19h(UT).

January 30th: Day 30 of the gregorian calendar.

nice tool to use with your students in classroom and in night-time observations preparation. One can see past, present and future events like eclipses, Venus and Mercury transits or even reproduce Galileo's observations about Jupiter's moons.

A screenshot from Stellarium

Stellarium is developed by the French programmer Fabien Chéreau, who launched the project in the summer of 2001. Other developers include Robert Spearman, Johannes Gajdosik, Matthew Gates, Nigel Kerr and Johan Meuris. John Meuris is responsible for most of the the artwork done with the constellations and landscapes. This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

Stellarium was featured on SourceForge in May 2006 as Project of the Month.

Link:
Stellarium webpage

ONLINE ASTRONOMY

ZOONIVERSE

PDF Version

Galaxy Zoo team has launched Zooniverse. Galaxy Zoo has been an enormous success where professional astronomers, amateur astronomers, and scientists from other disciplines, have work to make discoveries about the Universe. The new website will be a platform for science projects where the public can take their pick of where and how they can make meaningful contributions to new scientific discoveries.

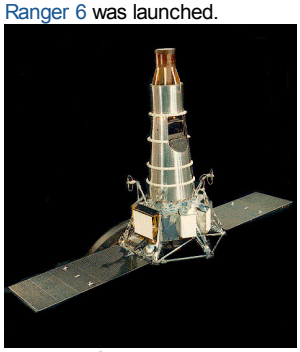
Zooniverse will provide a home not just for the previous project Galaxy Zoo (and its friends like the Mergers and Supernova Hunting), but for our ever-growing suite of projects.

These will include new astronomy projects but also from the rest of science and beyond. There's one common thread; each project needs your help to increase our understanding of the Universe, and will produce results that could not happen without you. We hope you'll explore, and soon be able find a project for every occasion.

For those who were happy using Galaxy Zoo, and who don't want to be distracted by whatever's coming next, you should notice very little difference. The Galaxy Zoo blog has found a new home, but that's about it. For everyone else, the enormous amount of programming work that's has been done on the computers that power Zooniverse website should make it easy to move from project to project as the mood takes the user along.

Link:
Zooniverse

History:. In 1964, the probe Ranger 6 was launched.



In 1996, Comet Hyakutake was discovered by Yuji Hyakutake.
Observations: Full Moon at 06h(UT). The Moon is at perigee at 08h(UT). The occultation of the asteroid Hygiea by the Moon at 21h (UT) is visible from Western Europe.

January 31st: Day 31 of the gregorian calendar.
History:. In 1862, Alvan Graham Clark Jr. discovers the faint companion of Sirius, dubbed Sirius B.
In 1958, Explorer I, the first american satellite was launched.

In 1966, Luna 9 was launched.
In 1971, Apollo 14 was launched to the Moon.
Observations: Regulus 3.7ºN of the Moon.

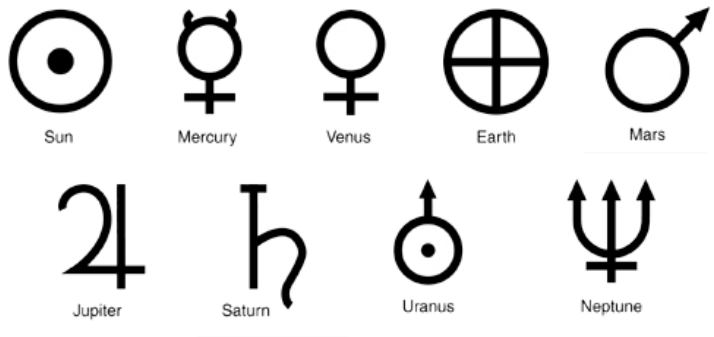
STUDENTS CORNER

SOLAR SYSTEM SUDOKU

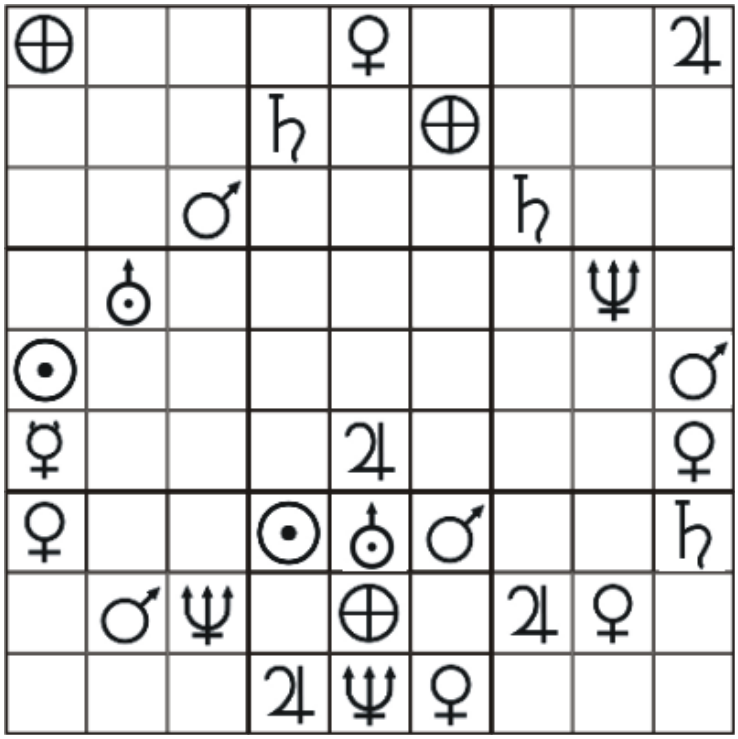
PDF Version

Solar System Sudoku is an EAAE transformation of the famous Japanese Sudoku. You have to put on each the nine symbols on each row, each column and each of the nine small nine spaces squares. This means each one of the nine symbols has to appear nine times on the Sudoku puzzle.

Instead of numbers, we use symbols of the nine major celestial objects of the solar system (Sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune).



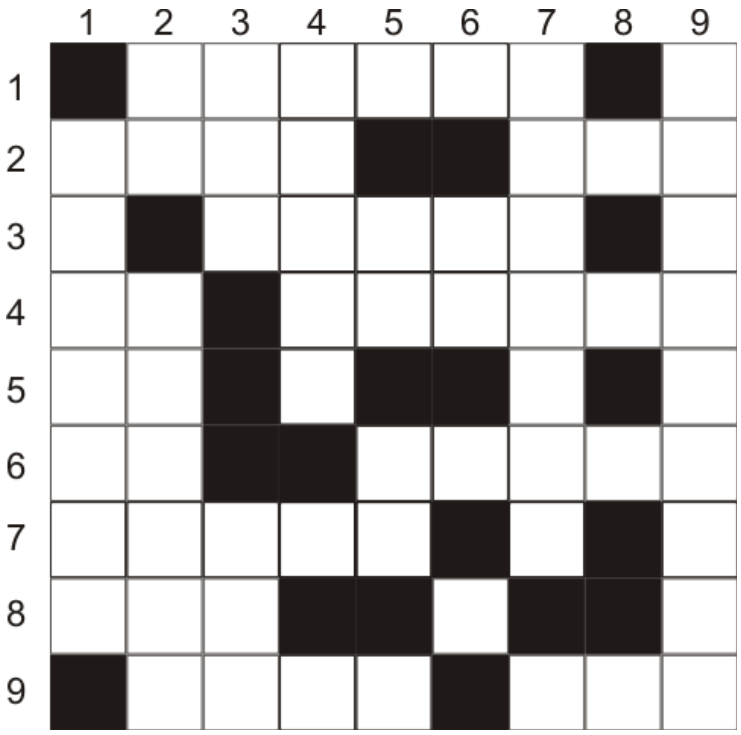
This month's challenge is the puzzle we present bellow.



To confirm and print the solution click here.

ASTRONOMY CROSSWORD PUZZLE

PDF Version



Horizontal:

1. “Lord of the Rings”.
2. Genitive for the whale constellation; Geological period of time.
3. Formerly dubbed the “ninth planet” (inv.).
4. Plutonium (C.S); representation of an entity.
5. Unit of area equal to 10000 square metres; North; Uranium (C.S.).
6. European Union; Worlds (Latin, inverted).
7. The seventh planet (Spanish and Italian); East.
8. The Egyptians called it Ra; Opposite to the North;
9. Observatory for solar research; European agency for astronautics.

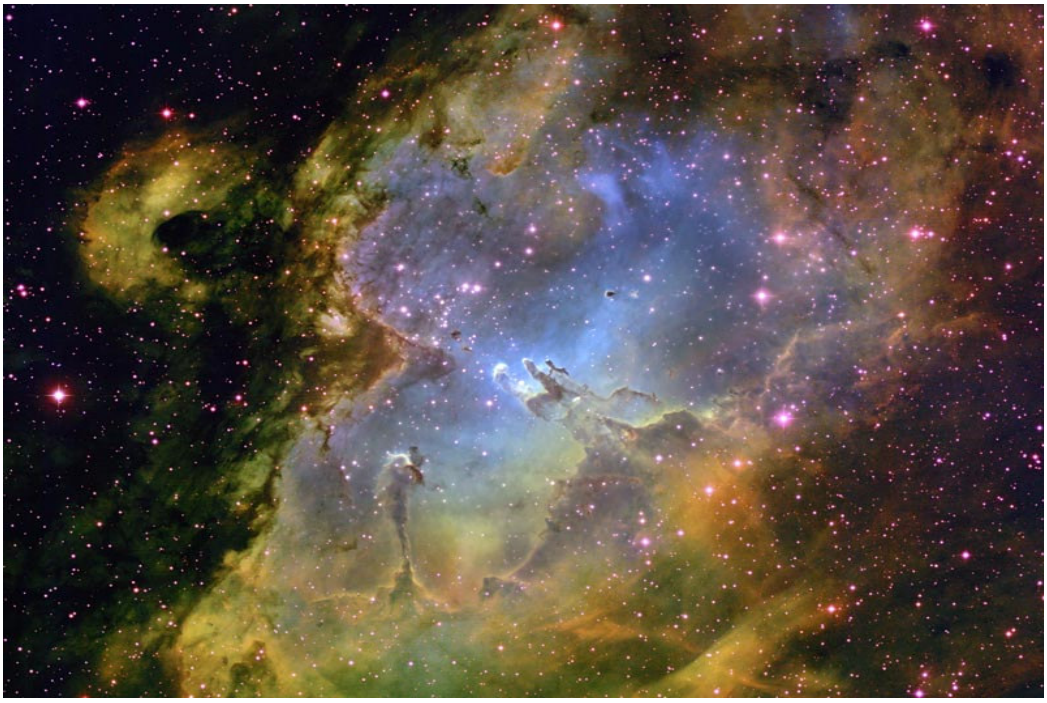
Vertical

1. The husband of Cassiopeia (constellation).
2. Southeast; The Bull (constellation).
3. Abort to orbit (acronym); year (Portuguese and Spanish).
4. The biggest moon of Saturn.
5. Ultraviolet; The closest to Jupiter of the Galilean moons.
6. Musical note.
7. This planet had a big blue spot when photographed by the Voyager 2 mission.
8. -
9. Constellation where we can find the biggest neighbour of our Local Group.

To confirm and print the solution click here.

PICTURE GALLERY

M16 - The Eagle Nebula - Credit: T. A. Rector & B. A. Wolpa, NOAO, AURA



(click on the image to see a bigger version)

This month's picture was taken with the 0.9-meter telescope on Kitt Peak, Arizona, USA. It results from the combination of three specific emitted colors. From far away, the whole resembles an Eagle. A closer look at the Eagle Nebula, however, lets us see that the light from its center comes from a large shell of dust. In this region it's possible to see a whole open cluster of stars is being formed. The Eagle emission nebula, tagged M16, lies about 6500 light years away, spans about 20 light-years, and is visible with binoculars toward the constellation of Serpens.

2010 - EAAE - European Association for Astronomy Education. Edited by Alexandre Costa. The contents of the links were active at the date of the publication of this newsletter, but some of them cannot be taken as granted to work in the future. Please don't answer to this e-mail.

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