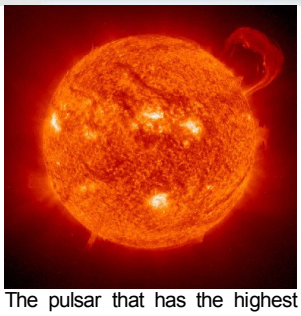
RSS of Astronomy News Blog Remove from the mailing-list

Issue Number 4
April 2010

Curiosity

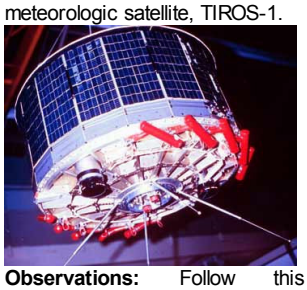


The pulsar that has the highest known rotation speed is the pulsar PSR J1748-2446ad that has a frequency of 716 rotations per second (716 Hz). To make an idea of this rotation speed think that the fastest kitchen blenders have frequencies of about 500 Hz.

Astronomy Calendar

PDF Version

April 1st: Day 91 of the gregorian calendar.
History: In 1960, the United States launched their first meteorologic satellite, TIROS-1.



Observations: Follow this month's Advanced Astronomical Observations' suggestion and try to spot the Coma Star Cluster.

April 2nd: Day 92 of the gregorian calendar.
History: On this date in 1889, the Harvard Observatory's 13" refractor arrived at Mt. Wilson. Just one month later, it went into astronomical service at Lick Observatory, located at Mt. Hamilton. It was the largest telescopes in the World from 1908 to 1948 – it was 60" for the first decade, then upgraded to 100".
Observations: Lunar Occultation of Victoria that can be seen only

EDITORIAL

This month the highlight news comes from the Collaborative Projects Working Group that has now opened season for Project Moonwalkers, that as the Eratosthenes Project Eratosthenes presented last month is one of the gemstones of this Working Goup's activity.

April is the Global Astronomy Month, an initiative promoted by astronomers without borders and that the EAAE ois proud to publicize.

On this month's issue you can find links to astronomy news the that were published on our EAAE News blog in the "It happened last month" section.

On the "First Astronomical Observations" section you will find the Moonwalkers Contest challenge for April 2010 of the EAAE Moonwalkers Project.

On the "Advanced Astronomical Observations" section we propose that you find and make pictures of the Coma Star Cluster.

On the "Astronomy Software Tools" section we bring to you SalsaJ, a nice software to treat astronomical images, especially if you want to work with .FITS images with your class.

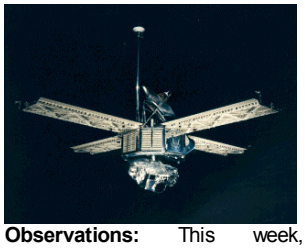
As usual we also have some activities in the Students Corner and we have sllected a beautifull astronomical picture of the Zodiacal light and the Milky Way for this month.

We wish you all clear skies during the next month.

The EAAE Webteam

in the Pacific Ocean.

April 3rd: Day 93 of the gregorian calendar.
History: In 1969, Mariner 7 was launched.



Observations: This week, Mercury is emerging from the glare of the Sun and is close to Venus. Lunar Occultation of Athamantis that can be seen only in Antartica.

April 4th: Day 94 of the gregorian calendar.
History: In 1968, Apollo 6 was launched.
In 1983, Space Shuttle Challenger made its first flight up to Space.

Observations: Mercury is making a beeline for Venus. By week's end, the two planets will be just 3º apart, an eye-catching pair in the deep-blue twilight of sunset. This is the best night to look. Lunar Occultation of Urania can be seen only between South America and North Africa.

April 5th: Day 95 of the gregorian calendar.
History: In 1973 the probe Pioneer 11 makes the first direct observations of Saturn.
In 1991 the Compton Gamma Ray Observatory was launched.
Observations: In 2007, a faint star in the constellation Bootes, the Herdsman, made astronomical history. A team of astronomers, led by the french Jean-Francis Donati and Claire Montau, caught the star Tau Bootis flipping its north and south magnetic poles while these astronomers were mapping the magnetic fields of stars. This was the first time a magnetic reversal was observed on any star other that the Sun. Try to find Tau Bootis tonight.

EAAE News

EAAE MOONWALKERS PROJECT

Following the deliberations approved at the EAAE GA held in Madrid in December 2009, Working Group 1 "Collaborative Projects" has began to work in a new project related to the Observation of the Moon.

The project intends to be a project by which the schools can learn more about the Moon.

Lunar Eclipse - September 2007
(Click on the image to see a bigger image)

Our intent is to propose to teachers and students to observe the Moon on every clear night along two months to discover changes of the Moon's phases, to discuss the motion of the Moon and the Earth around the Sun as well as the origin of the Moon; it's also our intent that they can become familiar with the many interesting features on the Moon and can learn many active objects on the Moon's surface.

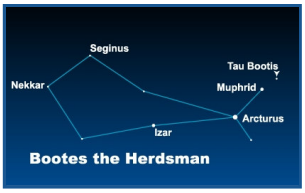
On the "First Astronomical Observations" section bellow you will find the Moonwalkers Contest that is suggested for April 2010. The team of students and teacher who send the best essay about the contest proposed observations will receive a special certificate from EAAE as the best Moonwalkers of the month

This project is coordinated by Veselka Radeva, a long time member of the EAAE.

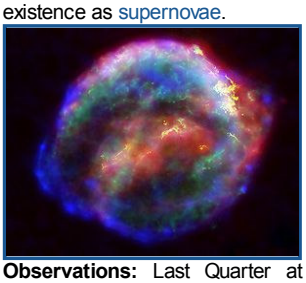
Links:
The EAAE Moowalkers Project

It happened last month

Last Month's highlights from EAAE News Blog



April 6th: Day 96 of the gregorian calendar.
History: In 1993, NASA astronomers using the Internacional Ultraviolet Explorer (IUE), discover direct evidence that red supergiants end their existence as supernovae.



Observations: Last Quarter at 09h37 (TDT).

April 7th: Day 97 of the gregorian calendar.
History: In 1991, the Compton Gamma Ray Observatory was activated.
In 2001 the first sucessuful flight of Proton M.
In 2001 the probe Mars Odyssey was launched.
Observations: Try to make a picture of Mars with your telescope. Have you considered using a webcam? Try to find out how it can be done.

April 8th: Day 98 of the gregorian calendar.
History: In 1964, the unmanned mission Gemini 1 was launched.

Observations: Tonight Mercury has its greatest evening elongation(19.3°E at 23h TDT).

April 9th: Day 99 of the gregorian calendar.
History: In 1994, the STS-59 mission of space shuttle Endeavour was launched.
Observations: Moon at Apogeeat a distance of 404999 km from Earth at 03h (TDT). Lunar Occultation of Hebe can be seen only between in Patagonia, Antartica and South Africa. Lunar Occultation of Laetitia can be seen only between in Antartica and South Oceania.

April 10th: Day 100 of the gregorian calendar.
History: In 1981, the first launch

EAAE News

- The Light and Dark Face of a Star-Forming Nebula
- Global Astronomy Month – GAM 2010
- The Constellation of Leo
- APEX Snaps First Close-up of Star Factories in Distant Universe
- Newly Discovered Planet Could Hold Water
- The Multiplying Mystery of Moonwater
- Planck sees tapestry of cold dust
- First Temperate Exoplanet Sized Up
- Jupiter's Spot Seen Glowing
- Ten Craters on Mercury Receive New Names
- Seeking Dark Matter on a Desktop
- Phobos flyby images
- The constellation of Cancer
- ESA presents European participants in 520-day simulated mission to Mars
- Solar 'Current of Fire' Speeds Up
- Extreme Jets Take New Shape
- Messier Marathon
- Heavy antimatter created in gold collisions
- The Many Colors of Star Birth
- The constellation of Gemini
- Something is not right about Phobos
- Asteroid killed off the dinosaurs
- Cerro Armazones is the probable location for E-ELT
- The late winter early spring sky
- The Cosmic Bat – An Island of Stars in the Making on the Outskirts of Orion
- Dark Matter still in the darkness
- Mars Express heading for closest flyby of Phobos
- Eratosthenes Project Launched

attempt of the mission STS-1 (the first mission of a Space Shuttle) was aborted in the last moment due to computer failure.

Observations: At dawn you can see a crescent Moon above Jupiter.

April 11th: Day 101 of the gregorian calendar.
History: In 1862, William Wallace Campbell was born.
In 1960, the first radio search for extraterrestrial civillizations directed by Frank Drake (Project Ozma) begins.
In 1986, at a distance of 65 million kilometers, Comet Halley makes its closest approach to Earth on the 30th known visit to our planetary neighbourhood.
In 2002 dies the amateur astronomer Yuji Hyakutake, that discovered "Comet Hyakutake" in 1996.
Observations: At dawn you can see a crescent Moon side by side with Jupiter.

April 12th: Day 102 of the gregorian calendar.
History: In 1849, de Gasparis discovers asteroid Hygiea.
In 1961, the russian cosmonaut Yuri Alekseyevich Gagarin becomes the first human in Space.

In 1981 the mission STS-1 of Space Shuttle Columbia is finally launched.
Observations: Lunar Occultation of Industria that can be seen only in Antartica.

April 13th: Day 103 of the gregorian calendar.
History:. "Houston, we have a problem". These were the words of the astronaut Jack Swigert on this day in 1970 after the oxygen tank number 2 of the service module of the Apollo 13 mission exploded.The astronomers were able to return safely to Earth after emergency procedures with perfect coordination between mission control and the crew.

FIRST ASTRONOMICAL OBSERVATIONS

MOONWALKERS CONTEST

PDF Version

As told previously the EAAE has launched "Project Moonwalkers" and the first of the activities of this project is the Moonwalkers Contest. Here is the first challenge.

A photograph of a certain region of the Moon can be seen bellow.

Lunar region to be considered on the Moonwalkers Contest - April 2010.
(Click on the image to see a bigger image)

Your task is to understand what type of objects are seen on the photograph, and how some of them are called. Find these objects on the Moon, observe them and calculate the sizes of some of them. Write an essay about the objects in this region of the Moon by including interesting scientific and historical information; describe the observations of some of the objects, and determine their sizes.

Send the essays to the following e-mail address: eaae.mmon@gmail.com until May 30th 2010. A jury of teachers-members of EAAE will read and judge your essays. The team of students and teacher who send the best essay will receive a special certificate from EAAE as the best Moonwalkers of the month.

ADVANCED ASTRONOMICAL OBSERVATIONS

THE COMA STAR CLUSTER

PDF Version

During this month our challenge is for you to make a picture of the Coma Star Cluster. The Coma Star Cluster in Coma Berenices, also designated Melotte 111, is a small but nearby *star cluster* in our galaxy, containing about 40 stars between magnitude 5 to 10 with a common proper motion. The open cluster is approximately 450 million years old.

The Coma star cluster used to be known to represent Leo's tufted tail, but Ptolemy III, in around 240 BC, renamed it for the Egyptian queen Berenice's sacrifice of her hair in a legend.

Observations: With no Moon this is a wonderfiul night to try to esplore deep-sky objects.

April 14th: Day 104 of the gregorian calendar.
History: In 1629, Christian Huygens was born. He discovered Titan the largest moon of Saturn, as well as this planet's rings.

Observations: New Moon at 12h31 (TDT).

April 15th: Day 105 of the gregorian calendar.
Observations: Take the night to try to make a nice picture of Saturn with your telescope.

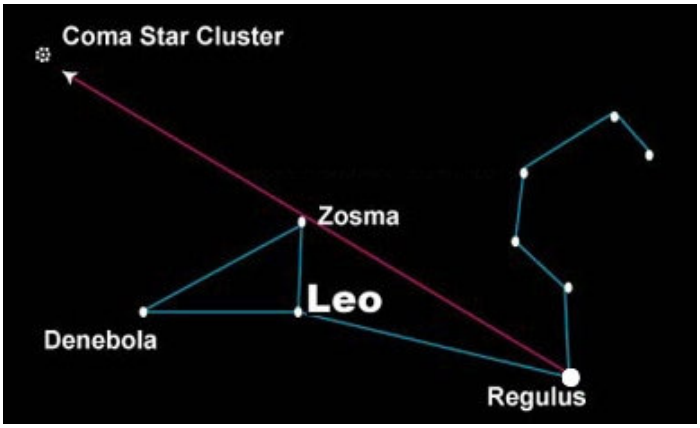
April 16th: Day 106 of the gregorian calendar.
History: In 1972, the United States of America launched Apollo 16 to the Moon.

Observations: Venus 4.1°S of Moon at 13h (TDT).

April 17th: Day 107 of the gregorian calendar.
History: After days of tension Apollo 13 finally lands on Earth.
Observations: Follow the tail of the Big Dipper and you will find the star Arturus (Alpha-Bootes). If you continue the arch you will find the star Spica (Alpha Virgo).

Melotte 111, taken from a rural location in England in March 2003.
Source: Wikipedia.
(Click on the image to see a bigger image)

To observe the Coma star cluster you must first look for the Constellation of Leo. There are wo distinctive star patterns make the Lion fairly easy to identify. Leo's brightest star – Regulus – dots a backward question mark of stars, and asterism known as *The Sickle*. If you could see a Lion in this pattern of stars, *The Sickle* would outline the Lion's mane.



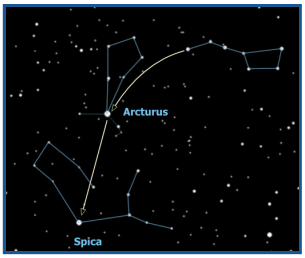
Finding Melotte 111
Adapted from EarthSky.
(Click on the image to see a bigger image)

A triangle of stars highlights the Lion's tail and hindquarters. Denebola is an Arabic term meaning *the Lion's Tail*.

Now try to star-hop to the Coma star cluster. Draw a line from Regulus through the top star of the triangle (Zosma), and go about twice this distance to locate the cluster. This open cluster is at a distance of 288 light-years and covers an area of more than 5 degrees on the sky.

Although the Coma cluster is visible to the unaided eye in a dark country sky, you may need binoculars to see it if your skies are beset by light pollution.

Links:
Wikipedia - Coma Star Cluster
SEDS-Melotte 111



Earth Sky - Star-hop from Leo to the Coma Star Cluster

April 18th: Day 108 of the gregorian calendar.
Observations: Lunar Occultation of Diotima that can be seen only in Far East Asia. Lunar Occultation of Hementaria that can be seen only in the Artic Regions (North of Europe and America).

April 19th: Day 109 of the gregorian calendar.
Observations: Lunar Occultation of Hermione that can be seen only in South Pacific.

April 20th: Day 110 of the gregorian calendar.
History: In 1972, the Apollo 16 mission lands on the Moon and becomes one of the six successful manned missions to the Moon.

Observations: Lunar Occultation of Parthenope that can be seen only in the Arctic Regions (North of Europe and America).

April 21st: Day 111 of the gregorian calendar.
History: In 2002, a solar eruption provides an excellent data acquisition opportunity for the probes SOHO, TRACE e RHESSI and test the Lin & Forbes model for CMEs (coronal mass ejections).
Observations: First Quarter at 18h15 (TDT).

April 22nd: Day 112 of the gregorian calendar.
History: In 1970 Earth's Day was celebrated for the first time.
Observations: Mars 4.6°N of Moon at 10h (TDT). Lunar Occultation of Hygiea that can be seen only in the Arctic Regions (North of Europe, Asia and America).

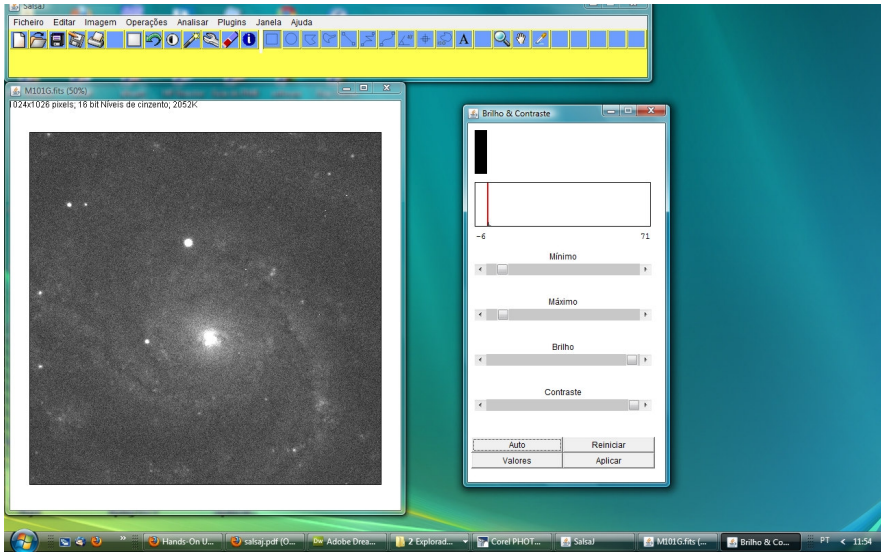
April 23rd: Day 113 of the gregorian calendar.
History: In 1967, the Russian mission Soyuz 1 was launched.
Observations: Lunar Occultation of Eurynome that can be seen only from East Mediterranean Regions to North Oceania.

ASTRONOMY SOFTWARE TOOLS

SALSA J

PDF Version

Salsa J is the software developed for the EU-HOU program has been designed to be a multi-platform, multi-lingual experience for image manipulation and analysis in the classroom. Its design enables easy implementation of new facilities and basically requires no in-situ maintenance. For the software and each pedagogical resource, different levels of utilisation will be implemented (i.e. middle, high schools…). A Salsa J manual can be found at http://www.euhou.net/docupload/files/salsaj.pdf.



A screenshot from the treatment of a G filter image of M101 with Salsa J.

The EU-HOU project "Hands-On Universe, Europe. Bringing frontline interactive astronomy to the classroom" is an astronomy project that has funding from the Lifelong Learning Programme that has "the general goal of renewing the teaching of science". this project tries to promote a "re-awakening of interest for science in the young generation is foreseen through astronomy and the use of new technologies, which should challenge middle and high schools pupils." The primary target group are the school teachers.

Link:
SalsaJ Download
EU-HOU webpage

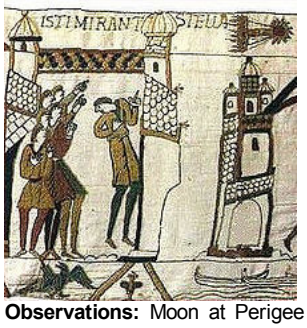
STUDENTS CORNER

SOLAR SYSTEM SUDOKU

PDF Version

Solar System Sudoku is an EAAE transformation of the famous Japanese Sudoku. You have to put on each

April 24th: Day 114 of the gregorian calendar.
History: In 1066, comet Halley was observed over England and its appearance was recorded on the Bayeux Tapestry.



Observations: Moon at Perigee at a distance of 367142 km from Earth at 21h (TDT).

April 25th: Day 115 of the gregorian calendar.
History: In 1983 the Pioneer probe passed the orbit of Pluto.
In 1990, astronauts of the Space Shuttle Discovery (STS-31) repaired the Hubble Space Telescope.

Observations: Try to find the names of the stars of the Big Dipper. There is a star called Mizar that has a star called Alcor next to it. These two stars that form a false binary system are sometimes called the "Horse and Rider," and the ability to resolve the two stars with the naked eye is often quoted as a test of eyesight, although even people with quite poor eyesight can see the two stars. Can you see them?

April 26th: Day 116 of the gregorian calendar.
History: In 1920 the Shapley-Curtis debate about the nature and distance of nebula was held at the National Academy of Sciences, Washington, D.C..
In 1933 Arno Penzias was born.
Observations: It's time to start you Moonwalkers Contest observations.

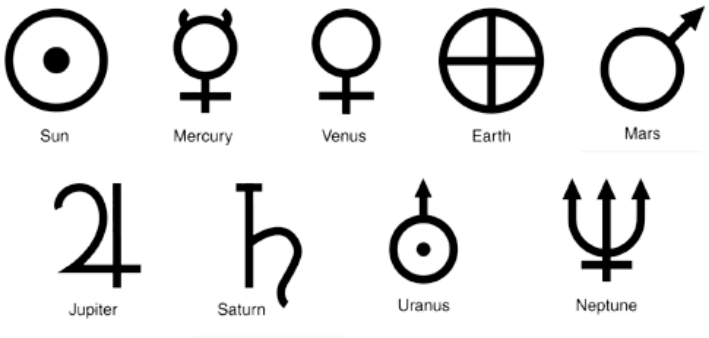
April 27th: Day 117 of the gregorian calendar.
History: In 1999 asteroid 1989 ML passed by Earth at a distance of 0.2520 AU.

Observations: As the Moon phase grows more features can be seen for the Moonwalkers Contest observations.

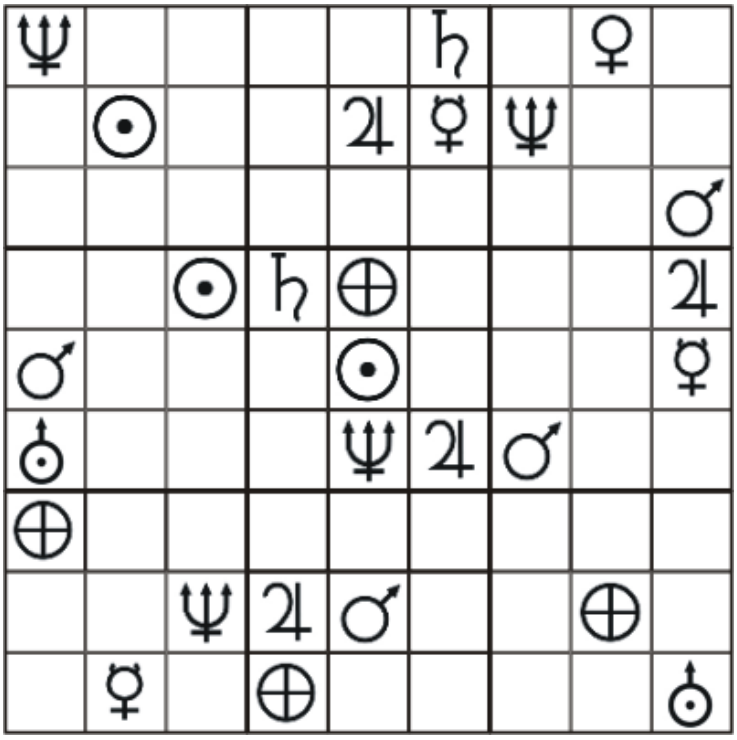
April 28th: Day 118 of the gregorian calendar.
History: In 1903, M. Wolf discovers asteroid Iolanda (509).
Observations: Full Moon at 12h19 (TDT). Mercury at Inferior

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

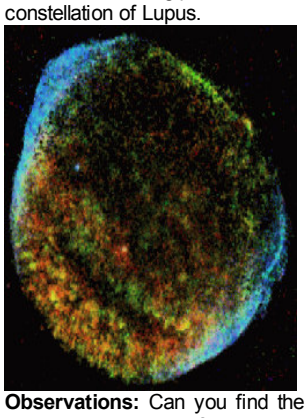
PDF Version

Conjunction at 17h (TDT).

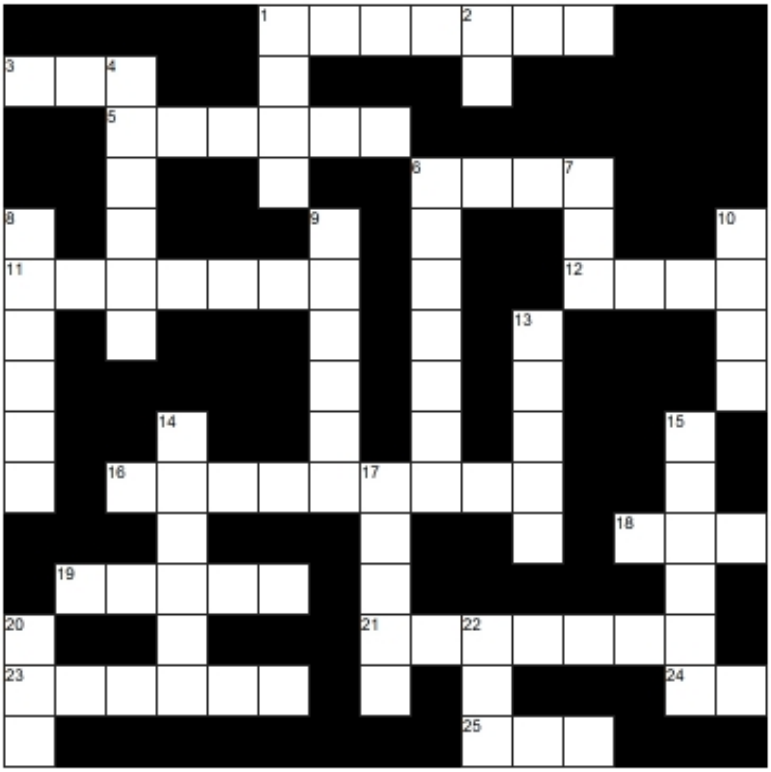
April 29th: Day 119 of the gregorian calendar.
History: In 1715, John Flamsteed observes Uranus for the sixth time.

In 1861, R. Luther discovers asteroid Leto (68).
In 1902, M. Wolf discovers asteroid Pittsburghia (484)
Observations: Lunar Occultation of Dembowska that can be seen only in South Oceania.

April 30th: Day 120 of the gregorian calendar.
History: In 1006, a very bright supernova was observed by Chinese and Egiptian in the constellation of Lupus.



Observations: Can you find the Hercules constellation?
Don't forget your Moonwalkers Contest observations!



ACROSS

1 Closest Planet to the Sun.
3 G2 Class Star.
5 Jupiter's galilean moon with water
6 Astronomical Image Processing System (acronym).
11 Probe thet took a plate about Earth and Man to to salute extrassolar civilizations.
12 Space Telescope that proved the existence of cosmic microwave background radiation.
16 Observation instrument
18 Period of Earth's rotation
19 A planet that is no more.
21 Occurs when the Moon crosses a node between the Sun and Earth.
23 Gravitationally connected structure containing millions of stars, as well as clouds of gas and dust.
24 The Sun (ancient civilization)
25 Charge Coupled Device (acronym).

DOWN

1 Earth's satellite.
2 Invisible radiation next to visible light in the spectra but with smaller wavelengths
4 Invented the first reflector telescope.
6 The biggest individual radiotelescope.
7 Small Maggelanic Cloud
8 Type of Galaxies.
9 Planet that rotates on its belly
10 Project for the search of extraterrestrial life
13 Water level variation due to gravitational pull of the Moon.
14 Cloud of Gas and Dust
15 The author of the HD Catalog of Stars
17 Once it was considered the biggest asteroid.
20 New General Catalog (acronym)
22 The initials of an irregular galaxy of the Local Group.

To confirm and print the solution click here.

ASTRONOMY WORD PUZZLE

PDF Version

Figure out what words the clues represent. Then find the words in the grid. Words can go horizontally, vertically and diagonally in all eight directions. Two letter words might have more than one option but the valid option doesn't overlap any other sellected word.

M K P L U T O N Q O
E R S O N O R C R A
A E V T E U S I K D
R T I E T S O M C E
T I O A N N I M C M
H P S M M U L W B O
X U R A N U S G M R
R J W E A T H E R D
W A P O L L O Q W N
E P O C S E L E T A

Words:
1) Andromeda
2) Apollo
3) Cronos
4) Earth
5) Jupiter
6) Io
7) LMC
8) Nebula
9) Orion
10) SMC
11) Pluto
12) Saturn
13) Telescope
14) Uranus
15) WISE
16)Weather

To confirm and print the solution click here.

PICTURE GALLERY

Zodiacal Light and Milky Way- Credit: Daniel López

(click on the image to see a bigger version)

This fantastic image was taken on March 10 from Teide National Park on the island of Tenerife, one of the Canary Islands, Spain. Zodiacal light , featured near the center of this remarkable panorama. The zodiacal light is not part of our atmosphere, it is produced between the planets as sunlight is scattered by dust in the Solar System's ecliptic plane, especially in the weeks surrounding the March equinox. The zodiacal light is a softly luminous cone of white light visible from an hour or so after sunset or before dawn. It extends from where the sun is located beneath the

horizon outwards and upwards along the ecliptic, the apparent path of the sun across the stars. It is (as shown in the image)of similar brightness to the Milky Way. 1732 UT) Zodiacal light is more prominent after sunset in the northern hemisphere, and before sunrise in the southern hemisphere, when the ecliptic makes a steep angle with the horizon. In this picture, the Zodiacal light extends from the western horizon up to the Pleiades star cluster. The arc above the Pleiades is made by the stars and nebulae along the plane of our Milky Way Galaxy. This image was made by Daniel Lopéz from 4 separate pictures spanning over 180 degrees.

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.

You have received this newsletter because you have made a registration at the EAAE website. If you don't wish to receive it any more or if you receive it in duplicate, please contact us .

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