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June 2011

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EDITORIAL

The Eratosthenes Project expected to join schools all around Europe (and eventually world-wide) on an experiment to achieve a measurement of Earth's Perimeter on June 21st, 2011 has began to receive registrations from schools and for participation on the videoconference. All astronomy educational institutions can also participate on the measurement without participating on the videoconference.

Catch a Star is also coming to an end with the deadline on July 1st, 2011.

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

On the "Astronomical Observations" section we invite you to try several observations of the events and major objects visible this month.

On the " Software and Internet Astronomy" section we will present you *Ice Hunters*, a fantastic new online tool created by the Zooniverse team that is still released in beta version.

As usual we also have some activities in the Students Corner and we have selected a beautiful astronomical picture of NGC253 or this months "Picture Gallery".

We wish you all clear skies during the next month.

The EAAE Webteam

EAAE's Activity News

Last opportunity to participate in *Catch a Star* project

This year's edition of Catch a Star is getting to the end.

As Monday, July 1st, 2011, at 17h00 (Central European Time) approaches school teachers and students work to finish their projects before the deadline.

If you haven't made a project yet you can still make a group with one or two colleagues and try to make some observations and work on time to submit it for the contest, Unique observational opportunities might be given as a prize for your work.

The EAAE has launched *Catch a Star* on February 1st. "Catch a Star!" is a contest that has been held for several years as a result of the collaboration between the European Association for Astronomy Education (EAAE) and European Southern Observatory (ESO).

This year other organizations like ESA, the Faulkes Telescope and Rosen Observatory have joint the organization to help provide wonderful observational prizes for the winning schools.

The goal of this European Astronomy Contest "Catch a Star" is to stimulate the creativity and independent work of students, to strengthen and expand their astronomical knowledge and skills, and to help the spread of information technologies in the educational process. Schools are welcomed to present their works. Don't leave this to the last days because *internet* submission might be conditioned.

Links:
Catch a Star project

Don't forget the *Eratosthenes Project* on June 21st

Summer Solstice is coming and again an opportunity to reproduce the historical experiment made by Eratosthenes more than 2000 years ago, that was the first accurate determination of Earth's circumference. Besides the opportunity to teach about history and astronomy, the Eratosthenes Experiment is a chance to teach young students that sometimes you need very expensive equipment to make Science evolve, but every time, the most important thing is human genius and the capability to use apparently insignificant and not connected information.

Once again in 2011 EAAE has launched Eratosthenes Experiment. Though still with some time until the June 21st event, several schools have already made their registration. School teachers and astronomy promoters of other organizations (science museums, planetariums and astronomical observatories) are welcomed to join the big experiment that already has registered participants from all around the world.

If you are a school teacher and you want to make a registration for the videoconference between schools on global scale you will have to make your registration on the website in advance in order to receive instructions on what to do.

A screenshot of the project's webpage.

Every school in Europe is invited to participate in this global experience in order to measure the Earth circumference. With the only help of the shadow projected by a stick, the participating students will be able to repeat the Eratosthenes calculation. Moreover, a video conference will allow all participants to see how the activity is performed in the Bibliotheca of Alexandria, the mythic place where this measure was done by the greek mathematician more than 2000 years ago. All information concerning the event will be held on http://eaae-astronomy.org/eratosthenes/.

Links:
The EAAE Eratosthenes Project

It happened last month

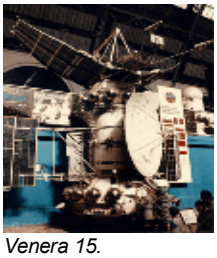
Last Month's highlights from EAAE News

- Dead galaxies ... Are they?
- Hubble views the star that changed the Universe
- A Rare Eclipse of the Midnight Sun
- ESA launches Cool Comet campaign
- Satellite observations show potential to improve ash cloud forecasts
- Zapping deadly bacteria using space technology
- New 3-D map of Universe is the best one yet
- NASA'S Spitzer Sees Crystal "Rain" In Outer Clouds Of Infant Star
- Scientists make lunar watershed discovery
- Most distant object ever discovered by SWIFT
- Has Fermi glimpsed dark matter?
- Hubble finds rare 'Blue Straggler' star sin Milky Way's hub
- Nearby supernovas may aid in understanding of star lifecycles
- Carina Nebula: Nearby supernova factory ramps up
- VLT finds a brilliant but solitary Superstar
- NASA concludes attempts to contact Mars Rover Spirit
- Portuguese school contacts the International Space Station
- Altimetry Is Defining Mercury's Shape
- 50 years ago-Public decision to go to the Moon
- Black holes spin faster and faster
- Kepler's Astounding Haul of Multiple Planet Systems
- Satellites monitor Icelandic ash plume
- How to Learn a Star's True Age
- Galileo: Europe prepares for October launch
- A prominence breaks free
- Radio Telescopes capture best-ever snapshot of Black Hole Jets
- Cassini spacecraft and VLT see violent Saturn storm
- AMS: ready to discover the particle universe
- Galaxy Evolution Explorer finds Dark Energy repulsive
- Measuring Mercury's magnetic field
- NASA mission will observe Earth's salty seas for climate clues
- Free-Floating Planets May Be More Common Than Stars
- NASA's Fermi Spots 'Superflares' In The Crab Nebula
- Blazing Lights Over Unused Sports Fields
- Galileo's data reveals magma Ocean under Jupiter's Moon
- Galaxy NGC 4214: A star formation laboratory
- Dawn spacecraft captures first image of nearing asteroid
- Europe's first EGNOS airport to guide down giant Beluga aircraft
- Raging storms sweep away galactic gas
- 100 Orbits and Counting
- Mars Express sees deep fractures on Mars
- NASA's Gravity Probe B Confirms Two Einstein Space-Time Theories
- NASA Selects Investigations For Future Key Planetary Mission
- Two views of a lopsided galaxy
- NASA Dawn Spacecraft Reaches Milestone Approaching Asteroid
- Measuring Mercury's Surface Composition
- Tycho's Supernova Remnant: NASA'S Chandra Finds New Evidence on Origin of Supernovas
- Space sensor helps produce 'greener' glass
- From Earth to the Solar System" Lifts Off"

ASTRONOMY CALENDAR

JUNE'S CALENDAR

June 1st: Day 152 of the gregorian calendar.
Observations: New Moon at 21h03 (UTC).Partial Solar Eclipse. The partial eclipse will be visible in most parts eastern Asia, Alaska, northern Canada, and Greenland.


Venera 15.

June 2nd: Day 153 of the gregorian calendar.
History: In 1966, Surveyor 1 becomes the first american probe to land on the Moon.
In 1983, the Venera 15 probe, a double mission (coupled with Venera 16), was launched with the mission to explore Venus.

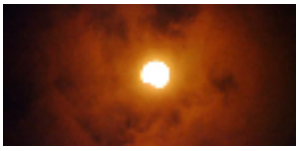
In 2003, the Mars Express, probe transporting the british "lander" Beagle 2, was launched by the the russian rocket Soyuz-Fregat from Baikonur at 17:45 GMT.
Observations: Try to take a picture of M13.

Gemini 4 mission space walk .

June 3rd: Day 154 of the gregorian calendar.
History: In 1965 Gemini 4, the first crewed mission of several days was launched.

On this same day Edward White made the first human space walk the took him about 21 minutes.

Observations: The Waxing Crescent of Moon is bellow Castor and Pollux.



June 4th: Day 155 of the gregorian calendar.
History: In 780 B.C. a solar eclipse was registered for the first time in China.

Observations: The Waxing Crescent of Moon is between Procyon and the Twin stars(Castor and Pollux).

Montgolfier brother's flight

June 5th: Day 156 of the gregorian calendar.
History: In 1783 the Montgolfier brothers made their first flight on a hot air baloon.

Observations: Saturn is high in the early night sky.

Soyuz 11 crew.

June 6th: Day 157 of the gregorian calendar.
History:In 1971 Soyuz 11 was launched.

June 7th: Day 158 of the gregorian calendar.
Observations: Try to make a picture of Saturn with your telescope. You might make a picture of it close to the double star Gamma Virginis.

Giovanni Cassini .

June 8th: Day 159 of the gregorian calendar.
History: In 1625, the italian astronomer Giovanni Cassini was born.
Cassini was the first to describe Jupiter's bands and spots, he discovered four moons of Saturn and the Cassini division on Saturn's rings (between rings A and B).

In 1975, Venera 9 (USSR) was launched.

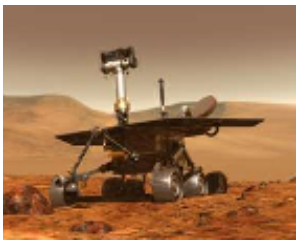
In 2004 occurred the last Venus transit an event the hadn't occurred for over 120 years.

Observations: This month you can observe Venus in the early morning. If you have a telescope try to see the phases change.

Johann Gottfried Galle.

June 9th: Day 160 of the gregorian calendar.
History: In 1812, the german astronomer Johann Gottfried Galle was born. He later on became the first astronomer to observe Neptune . He used the calculations of Urbain Le Verrier to know where to look.

Observations: Moon at First Quarter at 02h10 (UTC)

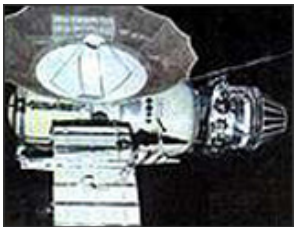

Spirit Rover

June 10th: Day 161 of the gregorian calendar.
History: In 2003 the Spirit Rover was launched and NASA's Mars Exploration Rover.

Observations: A gibbous Moon passes bellow Saturn and Spica.

Johann Georg Palitzsch

June 11th: Day 162 of the gregorian calendar.
History: In 1723, the german astronomer Johann Georg Palitzsch was born. Palitzsch was a German astronomer who became famous for recovering Comet 1P/Halley (better known as Halley's Comet or Comet Halley) on Christmas Day, 1758. The periodic nature of this comet had been deduced by its namesake Edmond Halley in 1705, but Halley had died before seeing if his prediction would come true.


Venera 4 .

June 12th: Day 163 of the gregorian calendar.
History: In 1967 the Venera 4 probe was launched. It would become the first probe to bring samples from another planet (Venus) to Earth.

In 2004, a 1.3 kg meteorite hits a house in Ellserslie, New Zeland.

Observations: At 2h, the Moon is at its Perigee at a distance of 367,185 km from Earth. Its apparent diameter will be 0.542°.

Pioneer 10 .

June 13th: Day 164 of the gregorian calendar.
History:. In 1983 the probe Pioneer 10 becomes the first human artifact to leave the solar system.

Observations: In the Lyra constellation use your telescope to try to spot M57 the Ring Nebula.

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June 14th: Day 165 of the gregorian calendar.
History: In 1967 the mission Mariner 5 (USA) was launched.
Observations:

June 15th: Day 166 of the gregorian calendar.
History: In 2000, scientists discover sugar in space.
Observations: Full Moon at 20h15 (UTC). **Total Lunar Eclipse**. The eclipse will be visible throughout Europe, most of South America, Africa, Asia, and Australia (view more information bellow in the Astronomical Observations Section).

Valentina Tereshkova.

June 16th: Day 167 of the gregorian calendar.
History: In 1963, Valentina Tereshkova becomes the first woman in space aboard the ship Vostok 6.

In 1999, occurred the closest approach ever of the asteroid 1685 Toro to Earth (0.757 UA).

Observations: Tonight is maximum of the June Lyrids meteor shower The nearly full Moon might make it difficult to observe.

June 17th: Day 168 of the gregorian calendar.
History: In 1909, A. Kopff discovered the asteroid Hagar (682).
Observations: Tonight there is lunar occultation of 28 Sagittarii (magnitude 5.4) at about 2h25 (UTC)

Sally Ride.

June 18th: Day 169 of the gregorian calendar.
History: In 1178, 5 monks of Canterbury assist to the formation of what probably is crater Giordano Bruno.

In 1983, Sally Ride became the first american female astronaut in space.

Observations: Try to observe Lyra's Ring Nebula (M57).

June 19th: Day 170 of the gregorian calendar.
History: In 1976, probe Viking 1 started to orbit Mars after 10 months of mission.
Observations: Mars and the Pleiades fit in a binoculars field of view before dawn.

June 20th: Day 171 of the gregorian calendar.
History: In 1990, asteroid Eureka was discovered.

Eratosthenes

June 21st: Day 172 of the gregorian calendar.

History: In 240 b.C. it was around this day that Eratosthenes "measured" Earth's perimeter.

In 2004, SpaceShipOne becomes the first private space ship to fly in space.

In 2006, the recently discovered moons of Pluto are officially called Nix and Hydra.

Observations: June Solstice. The June solstice occurs at 17:16 UTC. This is the first day of summer (summer solstice) in the northern hemisphere and the first day of winter (winter solstice) in the southern hemisphere.
Join the Eratosthenes Project and help to measure Earth's Perimeter. You can get your results during the next four days. The measurement differences won't be big during this period. The Eratosthenes Experiment is possible because the North Pole of the earth will be tilted toward the Sun, which will have reached its northernmost position in the sky and will be directly over the Tropic of Cancer at 23.44 degrees north latitude.

Greenwich Observatory.

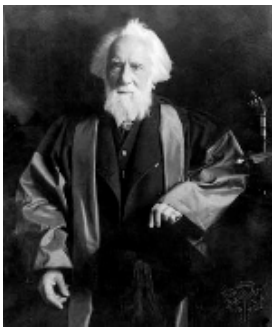
June 22nd: Day 173 of the gregorian calendar.

History: In 1675 the Royal Observatory of Greenwich was founded.

In 1978 James Christy, from the US Naval Observatory in Flagstaff, Arizona, discovered Pluto's satellite called Caronte.

Observations: The June Boötids meteor shower peaks between today and the 27th, but isn't expected to be a great event.

June 23rd: Day 174 of the gregorian calendar.
Observations: Moon is at Last Quarter at 11h50 (UTC)


William Huggins.

June 24th: Day 175 of the gregorian calendar.
History: In 1881, Sir William Huggins makes his first spectral picture of a comet (1881 III) and discovers the emission of cyanide (CN) at ultraviolet wavelengths. This discovery induced mass hysteria, when Earth passed the tail of the Halley Comet 29 years later when people thought that everybody would die poisoned.

In 1938, a 450 ton meteorite hits Earths near to Chicora, Pennsylvania, USA.

Observations: At 4h, the Moon is at its Apogee at a distance of 404,282 km from Earth. Its apparent diameter will be 0.493°.

June 25th: Day 176 of the gregorian calendar.
History: In 1997, MIR collides with the spaceship Progress.
In the same year, the Galileo probe passes the jovian moon Calisto at a distance of 415 km.
Observations: As the Summer Triangle gets higher you can try to observe several objects of the Summer sky. Tonight try to spot the double star Albireo.

Charles Messier.

June 26th: Day 177 of the gregorian calendar.
History: In 1730 Charles Messier was born. Messier was a French astronomer most notable for publishing an astronomical catalogue consisting of deep sky objects such as nebulae and star clusters that came to be known as the 110 "Messier objects". Messier made his catalogue because he was a comet hunter and year after year he found these "fuzzy" objects that made him waist time that he wanted to devote to search for comets. Strangely, Messier is better known by the objects that bothered him than by the comets he discovered.

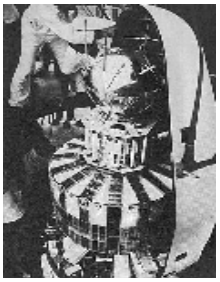
Observations: If you can see the Scorpius constellation from your latitude, try to observe the globular cluster M4 near Antares and the open clusters M6 and M7.

June 27th: Day 178 of the gregorian calendar.
Observations: Still have time to take a picture of Saturn.

Nakhla meteorite.

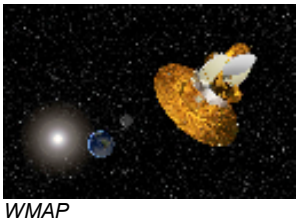
June 28th: Day 179 of the gregorian calendar.
History: In 1911, rocks from the meteorite Nakhla felt near to Alexandria, Egypt.
It was discovered later that these 40 meteorites most probably came from Mars.

Observations: Pluto at opposition.


Three satellites, Transit 4A, Injun 1 and Solrad 3, inside launch vehicle nose cone

June 29th: Day 180 of the gregorian calendar.
History: In 1961 the first nuclear satellite (Transit 4A) was launched.

Observations: Before dawn, a very thin crescent of the Moon forms a triangle with Mars and Aldebaran.


WMAP

June 30th: Day 181 of the gregorian calendar.
History: In 1908, the great impact of Tunguska (Siberia) occurred.
In 2001, WMAP (Wilkinson Microwave Anisotropy Probe) was launched from Kennedy Space Center.

ASTRONOMICAL OBSERVATIONS

Observational Highlights in June

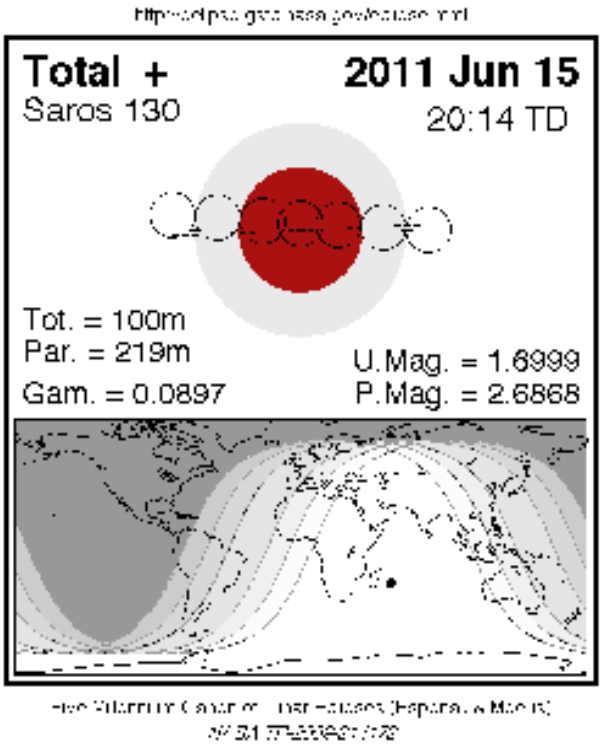
June nights usually mark the beginning of great weather for observations in southern European countries but very short nights in northern countries. On clear nights out of towns, in places where the sky is dark, you can see anywhere up to about 1,500 to 2, 000 stars, depending on your age and your eyesight. of course light pollution is a problem and if you are in city you will see much less.

This month's greatest feature is the lunar eclipse. There will also be two partial solar eclipses but they will only be seen on polar regions. In Europe only Northern most Norway, Sweden and Finland might have a glimpse of the June 1st eclipse. The July 1st solar eclipse will only be seen close to the South Pole.

The lunar eclipse will be happening on June 15th there will be a full Moon and a total lunar eclipse! We'll get a good view across Europe because the Moon starts to move into the Earth's shadow in early evening so this will be great for observations even with children.

The first lunar eclipse of 2011 occurs at the Moon's ascending node in southern Ophiuchus about 7° west of the Lagoon Nebula (M8). The Moon passes deeply through Earth's umbral shadow during this rather long event. The total phase itself lasts 100 minutes. The last eclipse to exceed this duration was in July 2000. The Moon's contact times with Earth's umbral and penumbral shadows are listed below.

- Penumbral Eclipse Begins: 17:24:34 UT
- Partial Eclipse Begins: 18:22:56 UT
- Total Eclipse Begins: 19:22:30 UT
- Greatest Eclipse: 20:12:37 UT
- Total Eclipse Ends: 21:02:42 UT
- Partial Eclipse Ends: 22:02:15 UT
- Penumbral Eclipse Ends: 23:00:45 UT

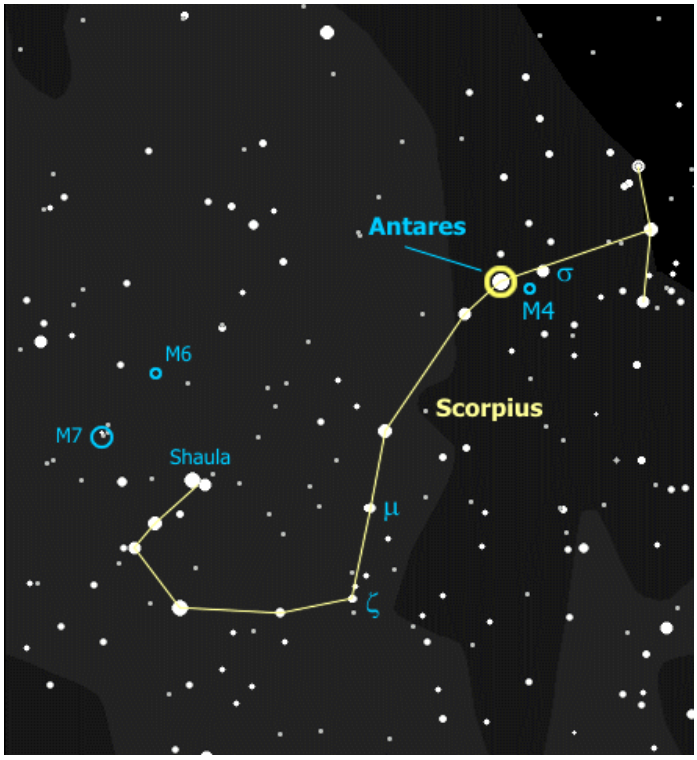


Click on the image to see a complete information sheet about the eclipse by Fred Espenak.

When totality begins the moon is expected to take on a reddish glow. It's a stunning sight and yep, you can look directly at it with no problem of hurting your eyes. It will be fun to take some pictures. If you want to, you can send them to us and we will publish them on our website.

It is now possible to see summer constellations, so you can try and find Scorpius. Lying near the center of the Milky Way and rising in the east is really the only zodiac constellation that does, in fact, look like its namesake, the giant constellation of Scorpius or the 'Scorpion.'

It's one of the easiest constellations to pick out as it's also one of the few that does look like what it's supposed to represent. Now, look for the red heart of the Scorpion, the star known as Antares. It's a red giant star that is hundreds of times bigger than our Sun!



(Click on the image to see a bigger image)

Scorpius is a fabulous part of the sky to scan with a pair of binoculars. You can easy globular clusters (M4) and open clusters (M6 and M7) just using a pair of binoculars in a dark place.

In June it is also possible to observe the Solar System's brightest planets. The eastern morning sky in June is dominated by two very bright planets, and they are, of course, Venus and Jupiter. After sunset use your telescope or borrow a friend's to look at the planet Saturn high in the north. You should be able to see those magnificent rings just opening up.

Links:
Fred Espenak's Eclipse Page for NASA

SOFTWARE AND ONLINE ASTRONOMY

Zooniverse is testing a new tool and asks for help: Ice Hunters

We present you a new online tool for astronomy education (and more). Once again it comes from the Galaxy Zooteam that has been releasing a lot of software tools that can be used by everybody and that might help develop student awareness to astronomy issues and also help you develop new projects with your students. It also allows you to be a direct participant on an online research project. They now released a demo version of a program called Ice Hunters and they are requesting people to use this new software tool.

A sinuous channel on the Moon. Credit: Moon Zoo.

Building on astronomy community's success at finding real object in the residuals of subtracted images, Zooniverse is getting ready to launch a new Zoo called "Ice Hunters (http://demo.icehunters.org/)." They have launched an early beta version of this brand new site.

Ice Hunters uses data from ground-based images to look for Kuiper Belt Objects, Variable Stars, and Asteroids. The ultimate goal is to find the Kuiper Belt Object (or Objects) that the New Horizons spacecraft will be redirected to after in flies past Pluto in 2015. The images for this search are being taken right now at some of the most amazing observatories around the world, including: CFHT, Subaru, and Magellan.

You can try and access the beta version with your Zooniverse login. If you can't do it now, probably you can explore it by the end of the of the month from the final version's official site.

Link:
Ice Hunters beta site

PICTURE GALLERY

Almost at NGC 253. Image credit: Hubble Legacy Archive, ESA, NASA; *Processing and additional imaging* - Robert Gendler

(click on the image to see a bigger version)

This is a fantastic false-color composition of a close up to the beautiful spiral galaxy NGC253. It is one of the brightest spiral galaxies in our night sky. Observed from Earth it is nearly edge-on. At a distance of 13 million light-years, it is the largest member of the Sculptor Group of galaxies, that lies close to our Local Group of galaxies. The detailed close-up view is a five frame mosaic based on data assembled from the Hubble Legacy Archive. Beginning on the left near the galaxy's core, this magnificent vista spans nearly 50,000 light-years and follows dusty filaments, interstellar gas clouds, and even individual stars toward the galaxy's edge at the right where you can see pair of background galaxies.

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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