RSS of Astronomy News Blog Remove from the mailing-list

Issue Number 2
February 2010

Curiosity

The astronauts on board the ISS now have access to the internet (mainly for personal use).

Astronomy Calendar

PDF Version

February 1st: Day 32 of the gregorian calendar.
History:. In 1999, 19th flyby of the probe Galileo near Europa. In 2003, the Space Shuttle Columbia desintegrates during its entrance in the atmopheres killing the seven astronauts aboard: Rick D. Husband, William C. McCool, Michael P. Anderson, Ilan Ramon, Kalpana Chawla, David M. Brown e Laurel Clark.

Observations: The Moon and Saturn will rise late tonight. At 04h (UT) the Moon occults the asteroid Echo and this occultation is visible from most of Europe.

February 2nd: Day 33 of the gregorian calendar.
History:. In 1964, the america probe Ranger 4 arrived to the Moon.

EDITORIAL

This month a lot of activity has been developed in our Association.

New webpages and social websites, new projects and many other thing have been done. In this issue we tell you all about the recent activity that has been developed by the webteam and we present you the new EAAE project for schools: the EAAE Sunrise Project.

We hope you enjoy it.

EAAE News

EAAE on the World Wide Web

Following the EAAE web strategy that was proposed in Madrid on the General Assembly, considerable efforts were made in order to give visibility to the organization in the world wide web.

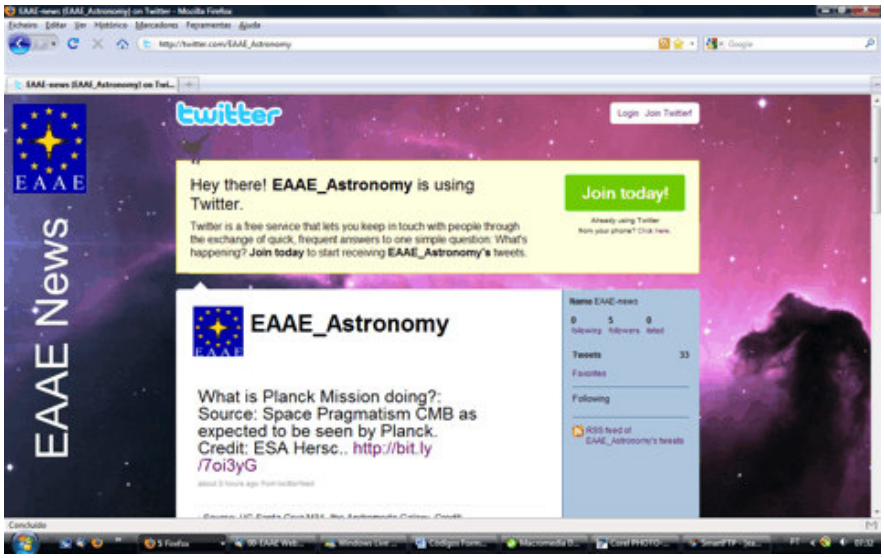
This effort is believed that will have a great effect on promoting EAAE's name worldwide.

Let's take a look on what has been done.

EAAE News on Twitter

EAAE News blog is now posting directly on Twitter. **Twitter** is a free social networking and microblogging service that enables its users to send and read messages known as *tweets*. Senders can restrict delivery to those in their circle of friends or, by default, allow open access, as has been done on our microblogging system. Tweets are text-based posts of up to 140 characters displayed on the author's profile page and delivered to the author's subscribers who are known as *followers*. Users can send and receive tweets via the Twitter website, Short Message Service (SMS) or external applications.

The address of our microblogging page on Twitter is http://twitter.com/EAAE_Astronomy.



A screenshot of the Social Bookmark at Twitter.

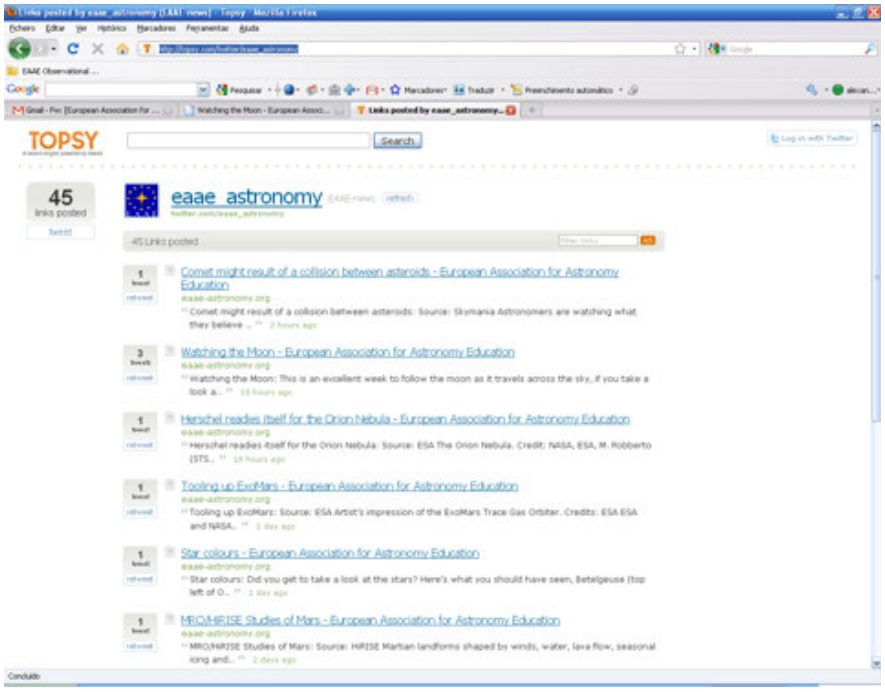
Associated to the Twitter feeds we also have a page on Topsy. The URL is http://topsy.com/twitter /eaae_astronomy.

Observations: At nightfall and early evening, people at mid-northern latitudes see the famous Belt of Orion. In Orion constellation lies one of the most famous stars of the sky, ruddy-hued Betelgeuse. Betelgeuse is a red supergiant, and one of the largest and most luminous stars known. For comparison, if it was at the center of our solar system its surface might extend out to between the orbits of Mars and Jupiter, wholly engulfing Mercury, Venus, the Earth and Mars. Kids like Betelgeuse, because its name sounds so much like "beetle juice." Try to see it in your home's sky.

February 3rd: Day 34 of the gregorian calendar.
History: In 1984, Space Shuttle program: STS-41-B Mission is launched to International Space Station
Observations: Last night we suggested Betelgeuse. Orion's two brightest stars – Betelgeuse and Rigel – lodge at an equal distance above and below Orion's Belt. So tonight try to look at Rigel that is 775 light-years away. At the same distance as the Sun it would be 40 000 times brighter.

February 4th: Day 35 of the gregorian calendar.
History:. In 1906, birth of Clyde Tombaugh, famous for the discovery of Pluto, in 1930. He also discovered many asteroids.

In 1932 the asteroid 1239 Queteleta was discovered by Eugène Joseph Delporte.
In 1934 the asteroid 2824 Francke was discovered by Karl Wilhelm Reinmuth.



A screenshot of the Social Bookmark at Topsy.

EAAE on Facebook

EAAE News blog is now posting directly on Facebook. The URL at Facebook is http://www.facebook.com/pages/EAAE-News/343623555244.

A screenshot of the Social Bookmark at Facebook.

To feed Twitter and Facebook a Feed at Feedburner had to be created (http://feeds.feedburner.com/eaae-astronomy). The direct upload of the posts to Facebook and Twitter has been granted using Twitterfeed.

EAAE Observational Highlights

EAAE has a blog for Observations that is being managed by Bob Larcher. Bob Larcher's posts are also being fed into the EAAE News Blog and therefore having visibility in all EAAE feeds.

Observations: Try to make pictures of Mars with your telescope.

February 5th: Day 36 of the gregorian calendar.
History:. In 1971, Apollo 14 landed on the Moon, in the Fra Mauro formation.

Observations: The Moon reaches Last Quarter at 23h48 (UT). Tonight Mars and M44, the Beehive cluster(also known as the Praesepe) will be in the same field when seen with binoculars. Occultation of Nausikaa at 06h(UT) not visible from Europe.

February 6th: Day 37 of the gregorian calendar.
History: In 1959, the first ballistic missile Titan was launched from Cape Canaveral.

Observations: Tonight try to find the Double Cluster in Perseus, near Cassiopeia. Occultation of Victoria at 01h(UT) parcially visible from Eastern Europe.

February 7th: Day 38 of the gregorian calendar.
History:. In 1979, Pluto "moved" to an orbital position closer to the Sun than Neptune for the first time after its discovery.
In 1984, the astronauts Bruce McCandless II and Robert L. Stewart make the first space walk using the Manned Manouver Unit during the mission STS-41-B of the Space Shuttle program.
In 1991, Salyut 7 desintegrates in the atmosphere above Argentina.
In 2001, mission STS-98, of the Space Shuttle Atlantis is launched, transporting the "Destiny" module of the International Space Station (ISS). The launch at sunset is considered by many as one of the most beautiful launches that was ever made.

A screenshot of the Social Bookmark at Facebook.

If you want to visit EAAE Observational Highlights directly the URL is http://www.eaae-observations.blogspot.com/.

EAAE on Wikipedia

As a follow up of previous strategic developments like feed sites for the EAAE News blog on Twitter and on Facebook, the EAAE now has a webpage that can be read at Wikipedia, joining other big institutions like NASA, IAU, CERN, ESO and ESA.

A screenshot of the Wikipedia webpage about EAAE.

The wiki entry for the EAAE can be found at http://en.wikipedia.org/wiki/EAAE_-_European_Association_for_Astronomy_Education or just going to Wikipedia and making a search for EAAE.

EAAE on Portal to the Universe

The EAAE is now also on the Portal of the Universe. You can find the page concerning EAAE News at http://www.portaltotheuniverse.org/blogs/feeds/view/593/. The posts that are in bold have been considered posts to be featured this means of major relevance that deserve to be marked to alert readers.

Released during the European Week of Astronomy and Space Science (JENAM 2009), taking place this week at the University of Hertfordshire, UK, the Portal To The Universe website has been eagerly anticipated by journalists, science communicators, scientists, educators and members of the general public alike. The Portal To The Universe provides a global portal for online astronomy content, serving as an index and aggregator.

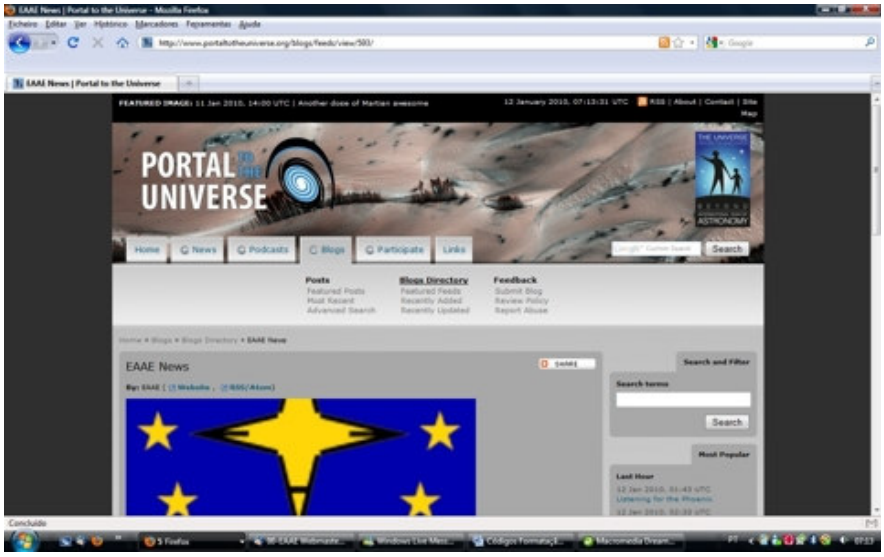
Observations:. Use this night to find Cassiopeia with the help of Stellarium or a planisphere.At this time of year – and at this time of night – this constellation has the shape of the letter M, and you might imagine the Queen reclining on her starry throne. But, at other times of year or night, Cassiopeia's Chair dips below the celestial pole. And then this constellation appears to us on Earth more in the shape of a W. Occultation of Athamantis at 03h(UT) not visible from Europe. Occultation of Antares at 19h(UT) not visible from Europe.

February 8th: Day 39 of the gregorian calendar.
History:. In 1974, after 84 days in Space, the crew of the first american Space Station, Skylab, returns to Earth.
In 1994, initial flight of the CZ-3A (China).
Observations: Occultation of Egeria at 10h(UT) visible from Western Europe.

February 9th: Day 40 of the gregorian calendar.
History: In 1986, comet Halley returned for its periodic visit after a 76 year absence.

Observations: After Moonless sunsets in February and March one has the best opportunities of year to see zodiacal light in the evening sky. The light appears when all traces of twilight have left the sky. It looks like a hazy pyramid of light in the west after true darkness falls.

February 10th: Day 41 of the gregorian calendar.
History: In 1992, the Ulysses probe uses Jupiter's gravity to slingshot to explore the Sun's poles.



A screenshot of the Portal of the Universe webpage for the EAAE's blog.

The site itself features news, blogs, video podcasts, audio podcasts, images, videos and more. Web 2.0 collaborative tools, such as the ranking of different services according to popularity, help the user to sift constructively through the wealth of information available and will promote interactions within the astronomy multimedia community. A range of "widgets" (small applications) have also been developed to tap into all sorts of existing "live data", such as near-live pictures of the Sun, live positions of spacecraft or live observations from telescopes.

The EAAE News blog was accepted as one of the blogs to be published on this website on January 6th, 2010, and since that date blog articles have been published on a daily base, many times more than one article per day.

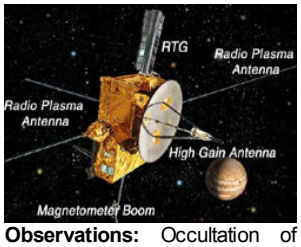
EAAE Projects

EAAE - Sunrise Project

By Sakari Ekko and Rosa M. Ros

The EAAE is proud to announce the EAAE Sunrise Project.

The project intends to be a school collaborative project by which the schools can learn more about the Sun's apparent movement and about photography using a pinhole camera. Though the technique is in theory quite simple, pinhole camera's are very didactical, as they allow students to learn about photography theory and practice and might allow students to obtain very beautiful images.



Observations: Occultation of Themis at 15h (UT) is not visible from Europe.

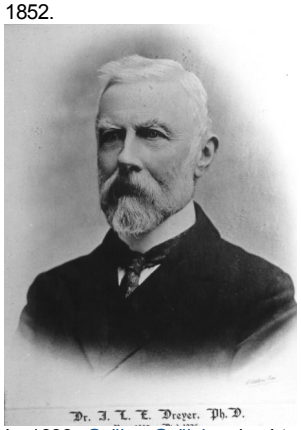
February 11th: Day 42 of the gregorian calendar.
History: In 1997, Space Shuttle Discovery was launched with the mission to repair Hubble Space Telescope .

Observations: Occultation of Flora at 15h(UT) is not visible from Europe.

February 12th: Day 43 of the gregorian calendar.
History:. In 2001, the probe NEAR Shoemaker became the first human spacecraft to land on an asteroid, the 433 Eros.

Observations: Since its Friday night why won't stay up a little longer and, if its your case, observe Saturn for the first time this year?

February 13th: Day 44 of the gregorian calendar.
History:. Johan Ludwig Emil Dreyer, the man that compiled the New General Catalogue of Nebulae and Clusters of Stars (NGC), was born on this date in 1852.



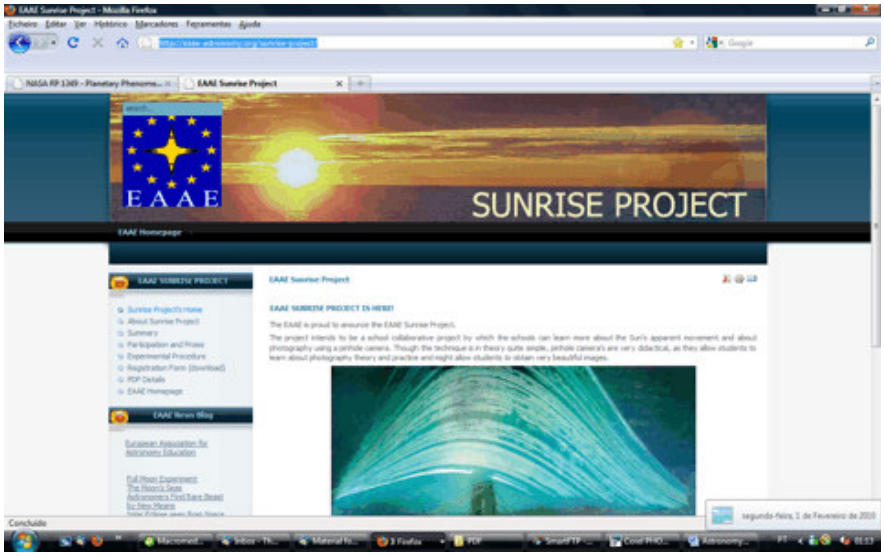
In 1633, Galileo Galilei arrived to

Sun paths in Turku, Finland in January (lowest arch) – April (highest arc), photographed with two curved-back pinhole cameras around the 20th of every month.
This project, we will photograph only the left hand (sunrise) part of the March (vernal Equinox) curve.
Credit: Sakari Ekko.

The EAAE Sunrise project intends to promote the simultaneous development of astronomy, maths and photography skills among students.

This project is coordinated by Sakari Ekko, a long time member of the EAAE that has been very active in astronomical photography among other areas (see this month's Picture Gallery at the end of this newsletter). Schools that are interested in participating on the project should make their registration and contact Sakari Ekko until February 15, 2010.

More details about the project can be found on the project's website .



A screenshot of the SEAAE Sunrise Project's Webpage.

PDF Version of the Project's concept

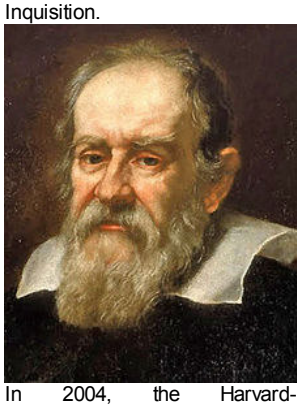
It happened last month

Last Month's highlights from EAAE News Blog

EAAE News

- Solar Eclipse seen from Space
- Black Hole Hunters Set New Distance Record
- WISE discovers its first asteroid
- Solar Dynamics Observatory ready to launch
- Neutralino dark matter stars can not exist
- A first direct measurement of the intergalactic medium temperature around a quasar at z=6
- Cat's Paw Nebula stunning view
- Comet might result of a collision between asteroids
- Herschel readies itself for the Orion Nebula
- Tooling up ExoMars
- MRO/HiRISE Studies of Mars
- Chemical similarities between Galactic bulge and local thick disk red giants
- Annular Eclipse on Southeastern Countries
- The quest for Extragalactic Exoplanets begins…
- Celebrating the fifth anniversary of Huygens' Titan touchdown
- Finding Galaxy Clusters at redshift ~1.8
- Asteroid 2010 AL30 passes close to Earth
- Formation of Dwarf Galaxies explained
- UI astronomers capture first-of-kind image at distant star
- Formation of massive planets in binary star systems
- VLT Captures First Direct Spectrum of an Exoplanet
- Hubble sequence explained
- What is Planck Mission doing?
- New tidal streams found in Andromeda reveal history of galactic mergers
- Violent explosions in space
- We thank our existence to supernovas
- How are the Mars rovers going?
- Strange Genius: The Life and Times of Paul Dirac

Rome to be judged by the Inquisition.



In 2004, the Harvard-Smithsonian Center for Astrophysics claims the discovery of the biggest diamond of the known Universe, the white dwarf BPM 37093.

Observations: Here is a great night to try to look at our suggested "Advanced Observation" object NGC 2287 (M41) as an homage to Johan Dreyer.

Moon at Apogee at a distance of 406542 km from Earth at 02h(UT).

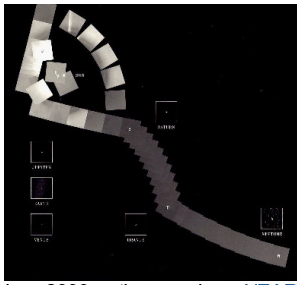
February 14th: Day 45 of the gregorian calendar.

Happy Valentine's Day.

History: In 1747, astronomer James Bradley presented his evidence of Earth's wobble, called nutation.

In 1898, Fritz Zwick, was born. He was the first astronomer to identify supernovas as a different class of objects and to suggest the possibility of neutron stars' existence.

In 1990, Voyager 1's cameras pointed to the Sun and took a series of images of the stars and its planets making the first "portrait" of our Solar System from outside.



In 2000, the probe NEAR becomes the first to orbit an asteroid, the 433 Eros.

Observations: The Moon is at New Moon at 02h51 (UT). Neptune in conjunction with the Sun at 17h(UT).

February 15th: Day 46 of the gregorian calendar.

History: In 1564, Galileo Galilei, was born. He was the first to use the telescope to observe space.

In 1828, Jules Verne was born.

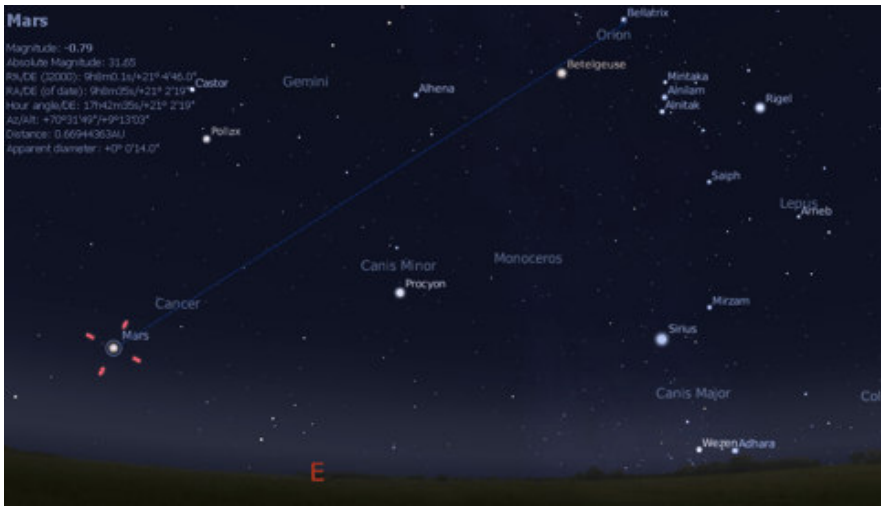
- Flying Telescope Passes Key Test
- Second smallest exoplanet found to date discovered at Keck
- WISE sees "First Light"
- Why Won't the Supernova Explode in Computer Models?
- Astronomers say Alien dust is nothing to sneeze at
- Astronomers are finding millisecond pulsars faster than ever
- Massive Stars: Good Targets for Planet Hunts, Bad Targets for SETI
- Galaxy Exposes Its Dusty Inner Workings in New Spitzer Image
- Hubble finds most distant primeval galaxies
- Sagittarius A: New data about the Milky Way's central black hole
- Earth-Like Planet Probably A Wasteland
- Is Earth threatened by a nearby supernova?
- Astronomers discover waltzing pairs of black holes
- Kepler Discovers Five Exoplanets
- Closing the Loop for ALMA
- Astronomers Find World with Thick, Inhospitable Atmosphere and an Icy Heart
- An indication for the binarity of P Cygni from its seventeenth century eruption
- NASA's Mars Rover Has Uncertain Future on Sixth Anniversary
- MN112: a new Galactic candidate Luminous Blue Variable
- A Lunar Eclipse on New Year's Eve

FIRST ASTRONOMICAL OBSERVATIONS

Let's make some observations of Mars

PDF Version

If you have made the observation suggested last month, and you have been following Observational Highlights that Bob Larcher has been posting, you must be quite familiar with Orion and were probably curious to learn more about some of the bright stars that are near to Orion from the constellations on its vicinity. You probably saw a red dot (in fact its orange) that you can find imagining a straight line starting Bellatrix(Orion) passing by Betelgeuse(Orion) and getting away from Orion between Procion and Pollux (see image bellow).

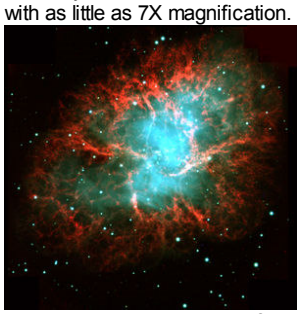


Mars can be found drawing a straight line from Bellatrix(Orion) passing Betelgeuse(Orion) and between Procion(Canis Minor) and Pollux(Gemini).This image was made using *Stellarium* (see Astronomy News, Number 1).
Click on the image to see a bigger and clearer version.

Mars came into Opposition on January 29, 2010 in the constellation of Cancer. Two days before, on January 27, 2010, the planet came to its closest approach to Earth during this apparition: 99.33 million km (0.66399 AU). This is not very close, as Mars was quite close to its aphelion at the time of this opposition; the aphelion is passed on March 31, 2010. Now its the Northern Spring and Southern Autumn on Mars, so the Northern hemisphere of Mars is the primarly visible part of Mars.

If you have the will you will have time to see the end of Mars retrogradation along this year. The planets have an apparently retrograde movement at some point. This apparent motion can be seen with naked eye in the cases of Mercury, Venus, Mars, Jupiter and Saturn. From ancient times, astronomers were fascinated by the retrogradation of Mars and found it difficult to understand. Retrogradation was easily explained by the heliocentric model and was one the most important arguments that Copernicus could present against Ptolomy's geocentric model. Today, retrogradation is explained easily using mathematical laws of celestial mechanics.

During his life he wrote 54 science fiction related books.
In 1999, the IKONOS 2 Athena 2was launched.
Observations: Try to observe the Crab Nebula. Finding M1 isn't very difficult: it can be seen with as little as 7X magnification.

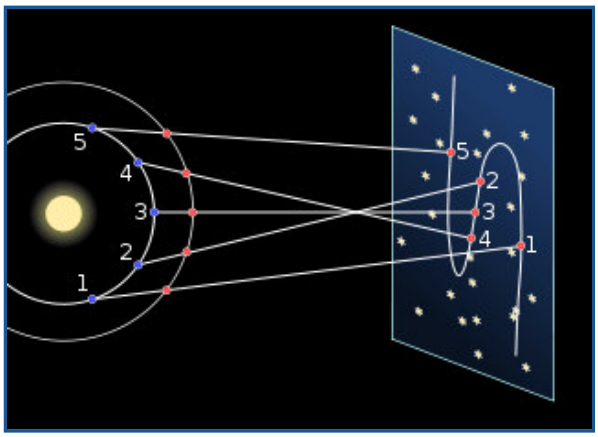


Locate Zeta Tauri (about halfway between Orion's ''head'' and the southernmost bright star in Auriga) and aim about 1 degree northwest (Right Ascension: 05h 34min 32s; Declination: -22º 00' 42").

February 16th: Day 47 of the gregorian calendar.
History: In 1926, the rocket launched by Robert H. Goddard becomes the first working on liquid fuel; Goddard becomes convinced that rockets will eventually land human beings on the Moon.

In 1966 the Gemini 8 was launched.
In 1999, the team of the Lunar Prospector at the NASA Ames Research Center announces discoveries that confirm that the Moon's mass is in its majority provenient of material ejected from Earth during a past impact with an object about the size of Mars.
Observations: The movie "Face Off" with Nicholas Cage and John Travolta had a great

A schematic explanation of retrogradation is given in the following image.



As Earth (blue) passes a superior planet, such as Mars (red), the superior planet will temporarily appear to reverse its motion across the sky.. Credit: Wikimedia.

Retrogradation occurs because the speed of these planets in their orbits is higher or lower than the Earth's speed that is about 30 km/s. In the case of Mars, its speed is only 24 km/s. Therefore when the Earth catches up with Mars and overtakes it (at the point of opposition or Sun-Earth-Mars alignment), Mars seems to move backwards. This apparent retrograde motion lasts an average of 73 days. In the beggining of February Mars is in the middle of the loop.

Retrograde Mars. Credit & Copyright: Tunc Tezel

Take some time to look at the red planet this month.

Links:
Wikipedia - Mars
NASA's Mars Exploration Program

ADVANCED ASTRONOMICAL OBSERVATIONS

NGC 2287 (M41) an Open Cluster close to Sirius

PDF Version

This Month's suggestion isn't very difficult but is an homage to Johan Ludwig Emil Dreyer, the man that compiled the New General Catalogue of Nebulae and Clusters of Stars (NGC), that was born in February 1852.

Located about two finger-widths south of Alpha Canis Majoris (Right Ascension: 06h46min00s; Declination: 20º46'00"), only an open cluster as bright as NGC 2287 could stand up against the light of brilliant Sirius.

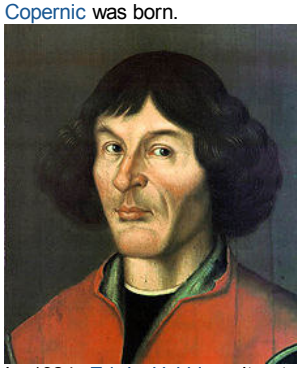
inspiration in Astronomy. In the two bad brothers where Pollux Troy and Castor Troy. Do you have any idea where those names came from? Try to find out tonight where the stars that inspired those names are.

February 17th: Day 48 of the gregorian calendar.
History: In 1958 the first probe working on solar energy, the Vanguard 1, was launched.
Observations: Occultation of Thisbe at 15h(UT) is not visible from Europe.

February 18th: Day 49 of the gregorian calendar.
History: In 1930, while analyzing photographic plates made in January, Clyde Tombaugh discovers Pluto. At the time it was dubbed the ninth planet until 2006, when it was included in the dwarf planet category.
In 1977, the Space Shuttle Enterprise is launched from the back of a Boeing 747.

In 2001, astronomers saw first light of one of the most ancient structures in the Universe: quasar RD J030117+002025 in the Whale constellation; the quasar lies at 13 thousand million light-years from us, which means it is seen at a time when the Universe had only 8% of its present age.
In 2003, comet C/2002 V1 (NEAT) at perihelion, is seen by SOHO.
Observations: You have been looking around the Orion constellation. Have you found the star Capella yet?

February 19th: Day 50 of the gregorian calendar.
History: In 1473, the founder of the heliocentric system, Nicolas Copernic was born.



In 1924, Edwin Hubble writes to Harlow Shapley: "You might be interested to know that I have found a cepheid variable in the Andromeda Nebula" (now known as Andromeda Galaxy).
In 1986, the Soviet Union launches Space Station Mir.
In 2002, the Mars Odyssey probe started to map the surface

M41can be found bellow Sirius on the southeastern sky at about 20h (local time).This image was made using *Stellarium*(see Astronomy News, Number 1).

From a dark-sky location, your unaided eye can even spot this magnitude 4.5 "star vault" as a hazy patch. Aristotle saw it as early as 325 BC! Officially discovered by Hodierna, we know it best by the designation Messier Object 41.

M41, an open cluster in the constellation Canis Major. Credit: NOAO.

Even from 2,300 light-years away, the cluster's brightest star, an orange giant, stands out clearly from the stellar nest. With large aperture, you'll notice other K-type stars, all very similar to Sol. Although small scopes and binoculars won't reveal too much color, you might pick up on the blue signature of young, hot stars. NGC 2287 could be anywhere from 190 to 240 million years old, but its stars shine as brightly now as they did in Aristotle's day.

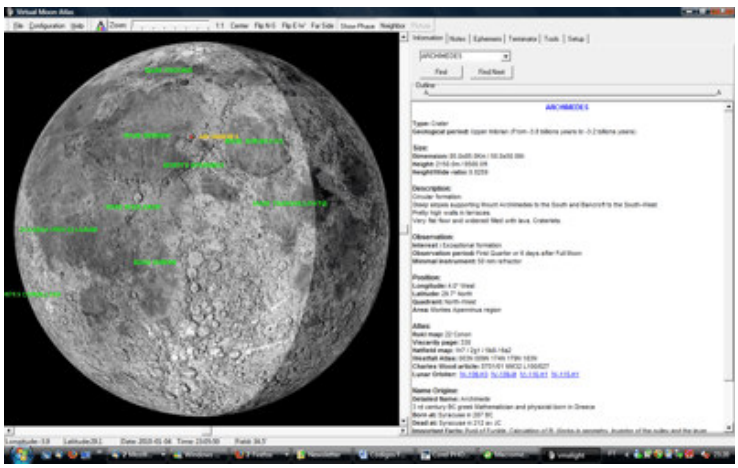
Links:
Wikipedia - M41
SEDS - M42
NOAO - M41

ASTRONOMY SOFTWARE TOOLS

VIRTUAL MOON ATLAS

PDF Version

Virtual Moon Atlas is a software developed by Patrick Chevalley and Christian Legrand that allows you to visualize the Moon at any date and hour and can also be used to drive computerized telescopes to explore the Moon surface. The authors have made the software free for amateur astronomers, lunar observers and students who wish to practice selenography. The "Virtual Moon Atlas" is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License.



A screenshot from Virtual Moon Atlas

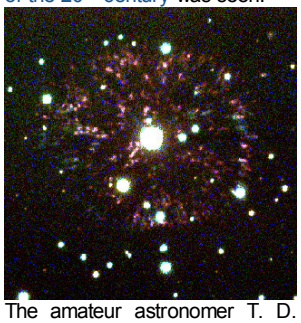
This software is the result of a collaboration between Christian Legrand, a passioned lunar observer, and

of Mars.
Observations: Venus is now starting to get away from the Sun's in our visual field. If you want to make picture of Venus' phases it would be about time to start.

February 20th: Day 51 of the gregorian calendar.
History: In 1962, the astronaut John Glenn, on Friendship 7, orbits Earth 3 times as part of the Mercury Program.

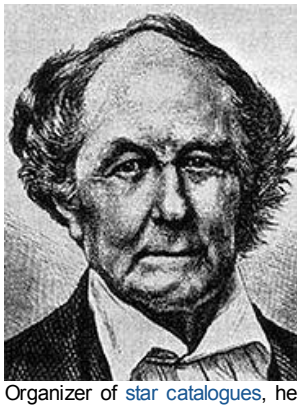
In 1965, Ranger 8 probe crashes on the Moon after making pictures of places for the landing of the Apollo missions.
Observations: Aldebaran and Betelgeuse seem a bit different from the rest of the stars in their surrounding, though they are not exactly the same color. Why?

February 21st: Day 52 of the gregorian calendar.
History: In 1901 the first Nova of the 20th century was seen.



The amateur astronomer T. D. Anderson was its first observer of the Nova.
In 1972, the russian probe Luna 20 lands on the Moon.

February 22nd: Day 53 of the gregorian calendar.
History: In 1632 Galileo's o "*Dialogo sopra i due massimi sistemi del mondo*" was published .
In 1799, F.W.A. Argelander was born.

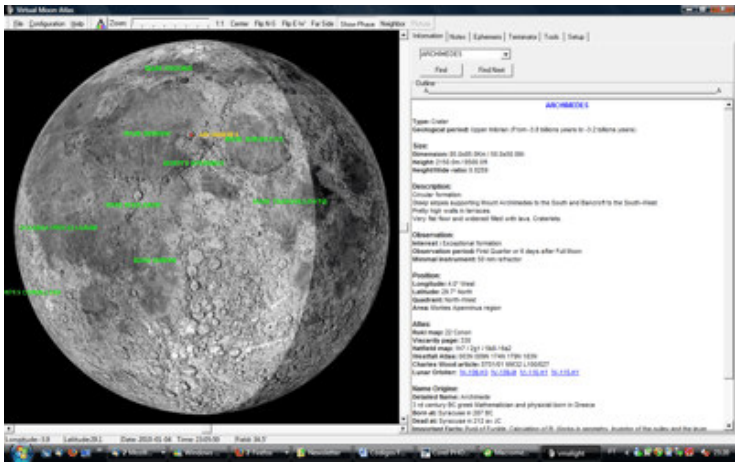


Organizer of star catalogues, he studied variable stars and co-author of the guide "Discover the Moon" published in English by Cambridge University Press and also published in French, German and Spanish, with Patrick Chevalley, author of the freeware "Cartes du Ciel / Sky Charts".

When the authors conceived the software they thought about something that could be easily used in astronomical observations, but also that could also be used at home to learn more about the Moon and its surface. It's interfaced with Patrick Chevalley's freeware "Sky Charts" which is also a good software to use with students.

This software can be used with students to study lunar formations just by clicking over a specific structure on the screen's lunar surface. It has a very big database that was compiled by Christian Legrand where one can find more than 9000 entries and a pictures library that has more than 7000 images.

The software allows the inversion of the Moon's image in N-S and E-W directions allowing to preview the exact image that is expected to be seen on the telescope.



A screenshot from the same view of the Moon on Virtual Moon Atlas but on a telescope with an inversion N-S.

It is possible to choose the language used by the software and database. To know more about the program follow the authors suggestion and read the complete manual or the quick user's guide or to look at the screens copies to see what are the possibilities.

A fantastic software...

Links:
Virtual Moon Atlas webpage
Virtual Moon Atlas download
Virtual Moon Atlas translations of the software

ONLINE ASTRONOMY

SETI@Home

PDF Version

SETI (Search for Extraterrestrial Intelligence) is a scientific area whose goal is to detect intelligent life outside Earth. One approach, known as **radio SETI**, uses radio telescopes to listen for narrow-bandwidth radio signals from space. Such signals are not known to occur naturally, so a detection would provide evidence of extraterrestrial technology.

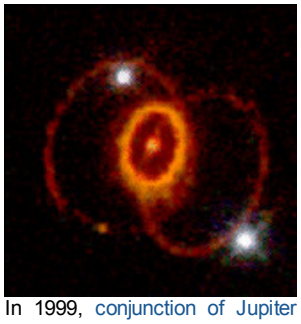
Radio telescope signals consist primarily of noise (from celestial sources and the receiver's electronics) and man-made signals such as TV stations, radar, and satellites. Modern radio SETI projects analyze the data digitally. More computing power enables searches to cover greater frequency ranges with more sensitivity. Radio SETI, therefore, has an insatiable appetite for computing power.

Previous radio SETI projects have used special-purpose supercomputers, located at the telescope, to do the bulk of the data analysis. In 1995, David Gedye proposed doing radio SETI using a virtual supercomputer composed of large numbers of Internet-connected computers, and he organized the SETI@home project to explore this idea. SETI@home was originally launched in May 1999.

Link:
SETI@home

created the first astronomical international organization named the *Astronomische Gesellschaft*.
In 1995, the cosmonaut Valeryiv Polyakov returns to Earth after breaking the record on Mir space station : 438 days.
In 1995, the asteroid 1995CR passes at 7.2 million kilometers from Earth.
In 1996, the mission STS-76 of the Space Shuttle Atlantis was launched.
Observations: The Moon is at First Quarter at 00h42 (UT). Occultation of Hermione at 16h(UT) is not visible from Europe except for northern Finland and Norway.

February 23rd: Day 54 of the gregorian calendar.
History: In 1950, discovery of the asteroid (29075) 1950 DA.
In 1987, the supernova of the Large Magellanic Cloud becomes visible in naked eye as a result of the explosion of the blue supergiant Sanduleak 69. Known as SN1987A, it was the "closest" supernova in the last three centuries.



In 1999, conjunction of Jupiter with Venus.
Observations: Occultation of Nemesis at 09h(UT) is not visible from Europe.

February 24th: Day 55 of the gregorian calendar.
History: In 1968 the first pulsar, discovery is announced on *Nature* by Jocelyn Bell Burnell. Hewish and Ryle co-directors of the project received Physics Nobel Prize in 1974, for explaining the observations with a model of a rotating neutron star.

In 1969 the american probe Mariner 6 was launched.
In 1979, launch of the Solwind P78-1 probe.

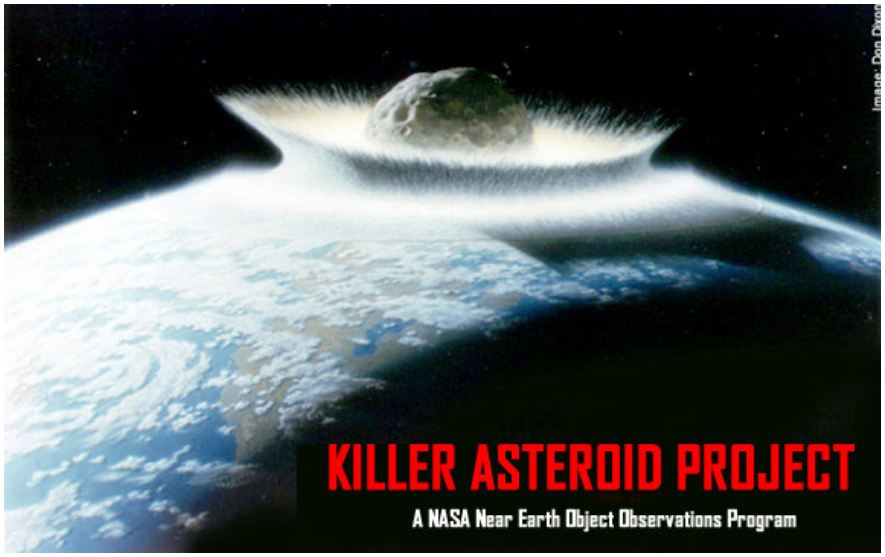
ASTRONOMY PROJECTS FOR SCHOOLS

Killer Asteroid Project

PDF Version

This month we present to you a NASA project that has been suggested to us by Veselka Radeva, the Bulgarian National Representative and also Vice-President of the EAAE.

The Killer Asteroid Project is a teacher and student research program in NASA's Near Earth Object Observations Program that allows student to measure Killer Asteroids in near real time. Included in the Killer asteroid project are research tools and astronomy software design to all teachers and student researchers to find, measure and report near earth objects in NASA's Near Earth Object Observations program to the Minor Planet Center.



The Killer Asteroid Project logo.

Why bothering to study Near Earth Objects (NEO)? There is a possible threat that the Earth could be struck by an asteroid in the future. Apophis a near earth object will have a close approach to Earth in 2029 and there is a very slim possibility for an impact in 2036!**he NEO Follow-Up Project** involves conducting Near Earth Object Observations of new objects as they are discovered by the large survey telescopes such as LINEAR, the Catalina Sky Survey, LONEOS, SpaceWatch and others. This is a relatively easy project that takes a small amount of time to learn and students will see results very quickly. NEO data on newly discovered objects is published at the Minor Planet Center (MPC) and on the NASA/JPL Horizons website.

Students can also use the Astrometrica software that can be downloaded on the webpage of the International Astronomical Search Collaboration, another NEO search project.

The research using observations provided by NASA along with student measures intends to have a real contribution to science to allow that the orbits of known Near Earth Objects will be better defined. Students who participate in NASA's Near Earth Object Observations Program will receive acknowledgement by the Astronomical Research Institute for each NEO they report measurements on using data from the NEO Follow-up Project.

Relevant Links:
Killer Asteroid Project - Home
International Astronomical Search Collaboration

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

In 1996 the Polar probe was launched to study Earth's poles.

February 25th: Day 56 of the gregorian calendar.
Observations:. Tonight is a good night to see the Moon and Mars together

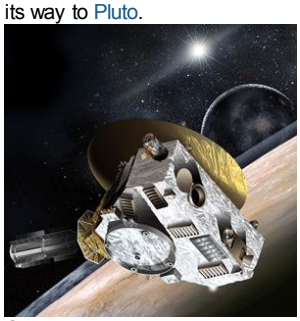
February 26th: Day 57 of the gregorian calendar.
History: In 1966, the first rocket Saturn IB, the AS-201, of the Apollo program was launched

Observations: Occultation of Angelina at 08h(UT) is not visible from Europe. Occultation of Hygiea at 23h(UT) is not visible from Europe.

February 27th: Day 58 of the gregorian calendar.
History: In 1897, Bernard Lyot, inventor of the coronograph was born.

Observations: The Moon is at perigee at a distance of 357832 km from Earth at 22h(UT).

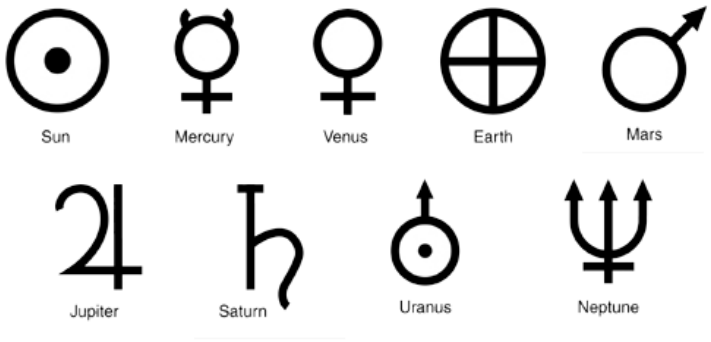
February 28th: Day 59 of the gregorian calendar.
History: In 2007, the probe New Horizons, passes by Jupiter on its way to Pluto.



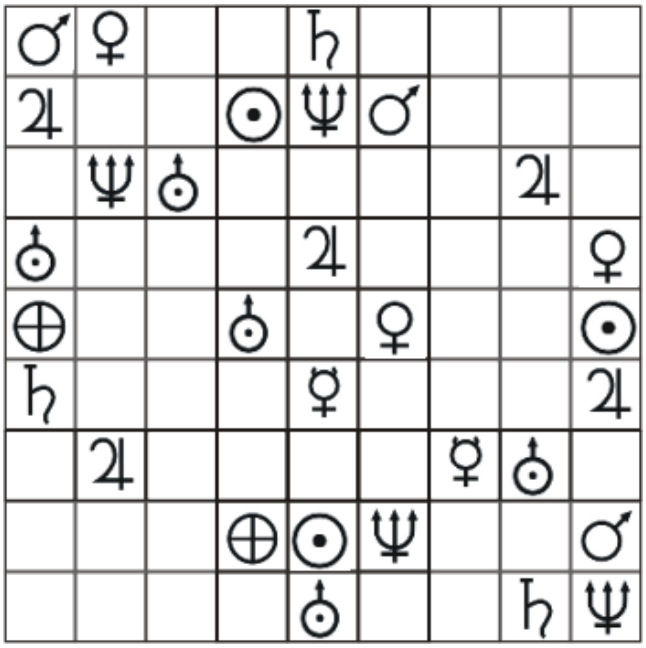
Observations: Jupiter is in conjunction with the Sun at 12h (UT). Full Moon at 16h38 (UT). Occultation of Echo at 06h(UT) is not visible from Europe.

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.

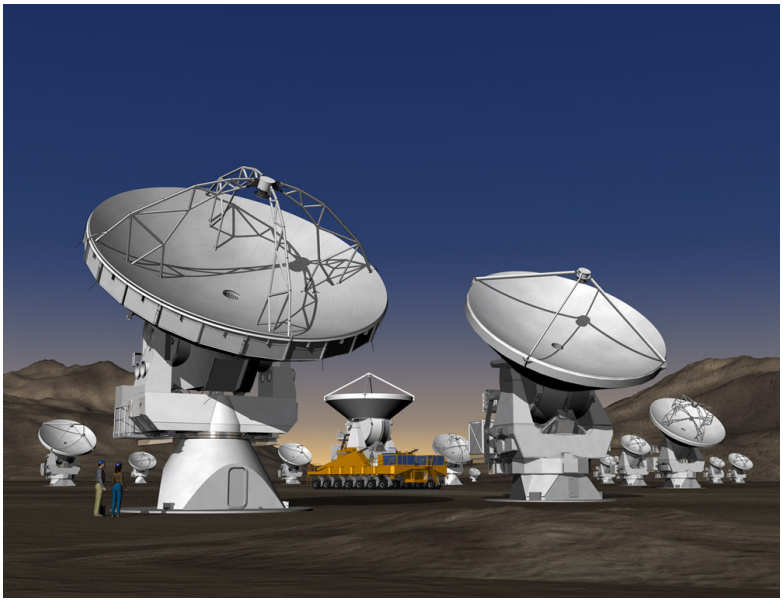


To confirm and print the solution click here.

Research News

ALMA - Atacama Large Millimeter/submillimeter Array

The Atacama Large Millimeter/submillimeter Array (ALMA), is an international astronomy facility, that is the result of a partnership of East Asia, Europe and North America in cooperation with the Republic of Chile. ALMA construction and operations are led on behalf of Europe by ESO, on behalf of East Asia by the National Astronomical Observatory of Japan (NAOJ) and on behalf of North America by the National Radio Astronomy Observatory (NRAO).



Artist's impression about ALMA.
Credit: ESO - Atacama Large Millimeter/submillimeter Array
(Click on the image to see a bigger image)

The Atacama Large Millimeter/submillimeter Array (ALMA), will be a major new facility for world astronomy and is already considered one of the largest ground-based astronomy projects of the next decade. Located at the driest place on Earth (the Atacama Desert).ALMA will have exceptional conditions to make observations. ALMA will be comprised of a giant array of 12-m submillimeter quality antennas, with baselines of several kilometers. An additional, compact array of 7-m and 12-m antennas has also been foreseen by the project authors.

The WISE was launched from Vandenberg Air Force Base, California, USA.
Credit: ESO - Atacama Large Millimeter/submillimeter Array

On January 4th, 2010, ALMA was operated for the first time with three antennas working together as an interferometer.

ESO expects that following scientific goals will be achieved by ALMA during the next decade:

- Image the redshifted dust continuum emission from evolving galaxies at epochs of formation as early as z = 10. The inverse K-correction on the Rayleigh-Jeans side of the spectral energy distribution of a dusty galaxy compensates for dimming at high redshift, making ALMA the ideal instrument for investigating the origins of galaxies in the early universe, with confusion minimized by the high spatial resolution.
- Use the emission from CO to measure the redshift of star-forming galaxies throughout the universe. The spacing between successive transitions of CO shrinks with redshift as (1 + z), and the large instantaneous total bandwidth of ALMA will make possible blind surveys in order to establish the star-forming history of the universe, without the uncertainties inherent in optical and UV studies caused by dust extinction.
- Probe the cold dust and molecular gas in nearby galaxies, allowing detailed studies of the interstellar medium in different galactic environments, the effect of the physical conditions on the local star formation history, and galactic structure. The resolution of ALMA will reveal the kinematics of obscured active galactic nuclei and quasars on spatial scales of 10-100 pc, and will be able to test unification models of Seyfert galaxies.
- Image the complex dynamics of the molecular gas at the center of our own Galaxy with unprecedented spatial resolution, thereby revealing the tidal, magnetic, and turbulent processes that make stellar birth and death at the Galactic Center more extreme than in the local Solar neighborhood.
- Reveal the details of how stars form from the gravitational collapse of dense cores in molecular clouds. The spatial resolution of ALMA will allow the accretion of cloud material onto an accretion disk to be imaged, and will trace the formation and evolution of disks and jets in young protostellar systems. For older protostars and pre-main sequence stars ALMA will show how planets form, sweeping gaps in circumstellar and debris disks.

- Uncover the chemical composition of the molecular gas surrounding young stars, including establishing the role of the freeze-out of gas-phase species onto grains, the re-release of these species back into the gas phase in the warm inner regions of circumstellar disks, and the subsequent formation of complex organic molecules. ALMA will have the large total bandwidth, high spectral resolution, and sensitivity needed to detect the myriad of lines associated with heavy, pre-biotic molecules such as those which may have been present in the young Solar System.
- Image the formation of molecules and dust grains in the circumstellar shells and envelopes of evolved stars, novae, and supernovae. ALMA will resolve the crucial isotopic and chemical gradients within these circumstellar shells, which reflect the chronology of the invisible stellar nuclear processing.
- Refine dynamical and chemical models of the atmospheres of planets in our own Solar System, and provide unobscured images of cometary nuclei, hundreds of asteroids, Centaurs, and Kuiper Belt Objects.

Links
ESO - Atacama Large Millimeter/submillimeter Array (major source of the information)
NRAO - ALMA webpage

PICTURE GALLERY

Aurora in Finland- Credit: Sakari Ekko

(click on the image to see a bigger version)

The northern part of Finland belongs to the aurora belt, and there are auroras in 60-70 % of the nights. In southern Finland, this probability is about 10 %, and during the quiet periods of the11 year solar activity cycle even less. The rise of solar activity is long overdue now. You can find the aurora forecast in www.spaceweather.com.

This photo is taken in southern Finland in 2002 during the last active period. It shows different colors at different heights: green is caused by oxygen, violet and blue by nitrogen, excited by the charged particles in the solar wind. The lowest part of auroras is at the height of about 90 km. These auroras are horizontally some hundreds of kilometers away, as we can calculate from their apparent height in the photograph. No photo can show the movement of auroras, though: at their best, they seem to dance.

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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