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1. Welcome

Dear D-Spacers,

This is the 6th newsletter of the Discovery Space (D-Space) service. In the previous issues you could find information about the 2 past SkyWatch contests, those of 2005 and 2006. In this issue you will be informed about the last one, which just ended. The awards



ceremony took place in the framework of the Educational Symposium with title: **"Designing the Science Laboratory for the School of Tomorrow: Advanced Technologies in Education"** which took place in **Athens, Greece, on 26-27 January 2007**. You can also find here future astronomical events, in order to be ready to explore the universe. Don't forget that D-Space service is always there waiting for you, ready to virtually move you in Crete or Athens in Greece, Israel and Canary Islands. Just visit: www.discoveryspace.net

Clear Skies,

Nikos Dalamagkas
Editor of the D-Space Newsletter

2. ATE 2007 conference

2.1 About the conference

Within the context of the Discovery Space (D-Space) project an Educational Symposium organized with title: **"Designing the Science Laboratory for the School of Tomorrow: Advanced Technologies in Education"** which took place in **Athens, Greece, on 26-27 January 2007**. The aim of the symposium was to present Today's Achievements, Future Challenges and Expectations in the field of educational technology.

Powerful new technologies promise to transform education and training in ways previously unimaginable.





Rapid advancements in educational technologies in the years ahead could enable new learning environments using simulations, visualizations, immersive environments, game playing, intelligent tutors and avatars, reusable building blocks of content, address distributed communities of learners, and many more.



There are many challenges in the process of educational innovation that must be addressed in order to take advantage of these technologies to



improve learning. Advanced technologies developed to meet other purposes must be translated into affordable tools for learners to use. Technical standards must be deployed to help guide the development of educational content that will be drawn from countless sources throughout the world. The technology community has to form stronger partnerships with the educational community. The educational institutions need to prepare for rapid technological change.



In this framework, the symposium aimed to bring together individuals and teams from a wide range of technology and education fields to look into the future and to share their visions as to what the learning experiences and educational technologies could be like. A rich collection of examples of futuristic scenarios and visions will be presented and discussed in detail. These will offer a glimpse of a future in which learners could explore worlds and cultures beyond their own, both in distance and time, as if they were there. And they will serve to remind us that we must strive to apply the power of technology in ways that empower people, enlighten the mind and enrich our lives.



2.2 Symposium Topics

The themes of the symposium were:

- **Augmented and Virtual Reality applications (applications in teaching and learning)**
- **Robotic Technologies in education**



- Wearable technologies in education
- Mobile Technologies for Ad-hoc learning (tools, methodologies, case studies)
- Connecting Formal and Informal Learning,



Connecting schools, science museums and centers

- The role of Science Centers and Research Laboratories in Education
- Evaluation methodologies
- Quality and Standardization Issues in Education

2.3 More information

More Information for the conference can be found at: <http://www.ea.gr/ep/ate2007>

You can find the agenda, speakers presentations and pictures. For more information you can contact us at ate2007@ea.gr

3. SkyWatch 2007 contest

3.1 About the Contest

The D-Space project's objectives are focused on raising public awareness for scientific and technological developments by motivating the wider public to actively participate in the process of realizing the beneficial impact of science and technology on our day-to-day lives. One way of successfully

raising awareness and interest on science, especially among the youth, is to present science and scientific research through challenging activities combining intelligence, existing knowledge and innovation. Within the framework of the abovementioned objectives, a scientific contest in the general field of astronomy and astronomical observations is launched in September 2006.



The SkyWatch 2007 contest was addressing three age groups.

The contest topics, evaluation criteria and presentation format were common for each age group, but eventually there were be six (6) final winners, three (3) from each group. The age groups were defined according to educational level and perceptual abilities, as follows:

Age group 1: Students < 15 years old

Age group 2: Students between 15 and 18 years old

Age group 3: Adults (Teachers, Researchers, Amateur Astronomers)

All participants were allowed to enter the contest either individually or in pairs.

Description of the 1st phase of the SkyWatch 2007 contest (September 11th-November 27th)

During 1st phase, the participants utilized a data base of astronomical observations conducted by the telescopes of the D-Space network of observatories.



According to their selection from the pool of the 5 suggested contest topics, the participants were expected to design, develop and implement projects and activities with the use of the provided telescopes' data base and under the guidance and the continuous support of a team of experts in the field. The contest participants were asked to create



scenarios and well-defined small projects to express their ideas, to seek for answers to scientific issues and to subsequently analyze and interpret the material used, formulating their final answer or viewpoint that will conclude their project. Participants in age groups 1 and 2 were expected to submit projects under the supervision of teachers, while contestants of age group 3 had to create their educational scenarios, based on the selected observations. All projects were presented and assessed following specific criteria that were applied by the project's scientific committee.



Participants described their request for new observations that were conducted by the D-Space Network of Robotic Telescopes for those succeeded in qualifying to the 2nd phase of the contest.

Description of the 2nd phase of the SkyWatch 2007 contest (November 27th-January 12th)

The observation requests of the best teams qualified to the 2nd phase of the contest were scheduled in the

software of the D-Space Network of Robotic Telescopes. In this phase the participants were assigned a specific task based on each project's main idea.

3.2 Contest topics

The submitted projects for the SkyWatch 2007 Contest had to deal with topics in one of the following thematic areas:

The Sun

- Sun as a Star
- Solar Rotation

Planets and Moons

- Characteristics of a Planet
- The Characteristics of the Surface of the Moon

Asteroids

- Characteristics of Asteroids
- Rotation of Asteroids

Birth and Death of Stars

- Birth of Stars
- Death of Stars

Galaxies

- Characteristics of Normal Galaxies

3.3 Winners and Prizes, Awards Ceremony

The three (3) best projects of each age category were:

1. hosted in Athens and took part in the D-Space international conference, ATE 2007 (26-27 January, 2007) and the contest Award Ceremony, with covered expenses from the project,
2. awarded distinctions from the D-Space consortium,
3. subscription for 1 year at the Sky at Night magazine
4. granted access to the D-Space network of Robotic Telescopes for one year.

The winners were:

Age group 1: Between 15 and 18 years old

Title of Project:	Asteroids attack the Earth - myth, speculation, or real danger?
Name of Author:	Ruslana Glazman
Name of Teacher:	Pustilnik Svetlana
Title of Project:	Grand fireworks in the Whirlpool galaxy
Name of Authors:	Maya Petkova and Inna Bojinova
Name of Teacher:	Veselka Radeva

Title of Project:	Birth and Death of Stars
Name of Authors:	Eftyhia Kamenaki and Ioanna Psaradaki
Name of Teacher:	Ioannis Kamenakis

Age group 2: Adults

Title of Project:	A Proposal of Asynchronous On-line Learning of Astrophysical Topics With The Use of Remotely Controlled Telescopes
Name of Author:	Vasileios Bourbounis
Title of Project:	Algorithmic solar shot system
Name of Author:	Nikos Giannakopoulos
Title of Project:	GRBs As Targets Of Robotic Telescopes
Name of Author:	Istvan Mohacsi and Zsofia Nagy

4. D-Space elected in the 2nd place at eTEN Project of the Year contest.

D-Space was elected in the second place of the voting contest 'eTEN Project of the Year 2006'. D-Space qualified in this contest, due to the nomination as November's 'Project of the Month' among other eTEN E.U. projects.

eParticipate has been elected in the first place as eTEN project of the year 2006. The project offers an open standard product that focuses on engaging with citizens in an age where voting turnout is going down.

The GEOCOMPASS project, which offers high quality GIS mapping solutions and infrastructure and marketing services to mountain and countryside tourism communities in Europe, was third.

5. Future events

March 3 - Total Lunar Eclipse. The eclipse will be visible throughout most of the Americas, Europe, Africa, and Asia. (NASA Eclipse Information)

March 19 - Partial Solar Eclipse. The partial eclipse will be visible throughout most of Asia and Alaska. (NASA Map and Eclipse Information | NASA Eclipse Animation)

April 22 - Lyrids Meteor Shower. The Lyrids are an average shower, usually producing about 20 meteors per hour at their peak. The shower will peak this year on April 22, although some meteors will be visible from April 16 - 25. The evening crescent moon will set early allowing for an excellent viewing experience. Look for meteors radiating from the constellation of Lyra after midnight.

May 5 - Eta Aquarids Meteor Shower. The Eta Aquarids are a light shower, usually producing about 10 meteors per hour at their peak. The shower will peak this year on May 6, however some meteors can be seen from April 21 - May 12. Unfortunately, viewing will not be good this year with the near-full moon obscuring all but the brightest meteors. The radiant point for this shower will be in the constellation of Aquarius. Best viewing is usually to the east after midnight.

June 6 – Jupiter, the giant planet will be at its closest approach to Earth. This is the best time to view and photograph Jupiter and its moons.

July 28 - Southern Delta Aquarids Meteor Shower. The Delta Aquarids usually produce about 20 meteors per hour at their peak. The shower will peak this year on July 28, but meteors can be visible from July 18 - August 18. The nearly full moon will be visible most of the night, obscuring all but the brightest meteors. The radiant point for this shower will be in the constellation of Aquarius. Best viewing is usually to the east after midnight.

August 13 - Perseids Meteor Shower. The Perseids is one of the best meteor showers to observe, producing up to 60 meteors per hour at their peak. The shower will peak this year on August 13, but you may be able to see some meteors from July 23 - August 22. The moon will be completely absent this year, so this should be a spectacular show with even the faintest meteors being visible. The radiant point for this shower will be in the constellation of Perseus. Look to the northeast after midnight.

August 13 – Neptune, the blue planet will be at its closest approach to Earth. This is the best time to view Neptune, although it will only appear as a tiny blue dot in all but the most powerful telescopes.

August 28 - Total Lunar Eclipse. The eclipse will be visible throughout most of eastern Asia, Australia, the Pacific Ocean, and the Americas. (NASA Eclipse Information)

September 10 – Uranus, the blue-green planet will be at its closest approach to Earth. This is the best time to view Neptune, although it will only appear



as a tiny blue-green dot in all but the most powerful telescopes.

September 11 - Partial Solar Eclipse. The partial eclipse will be visible throughout most of central and southern South America. (NASA Map and Eclipse Information | NASA Eclipse Animation)

October 21, 22 - Orionids Meteor Shower. The Orionids is an average shower producing about 20 meteors per hour at their peak. The shower will peak this year on the 21st, but some meteors can be seen from October 15 - 29. The evening gibbous moon may interfere with viewing faint meteors, but the brightest ones should still be visible from a dark location. Best viewing will be to the east after midnight.

November 17, 18 - Leonid Meteor Shower. The Leonids is one of the better meteor showers to observe, producing an average of 40 meteors per hour at their peak. The shower itself has a cyclic

peak year every 33 years where hundreds of meteors can be seen each hour. The last of these occurred in 2001. The shower peaks this year on November 18, but you can see some meteors from November 13 - 20. The first quarter moon will set around midnight, so viewing in the early morning hours should be excellent this year. Even the faintest meteors should be visible from a dark location. Look for the shower radiating from the constellation Leo after midnight.

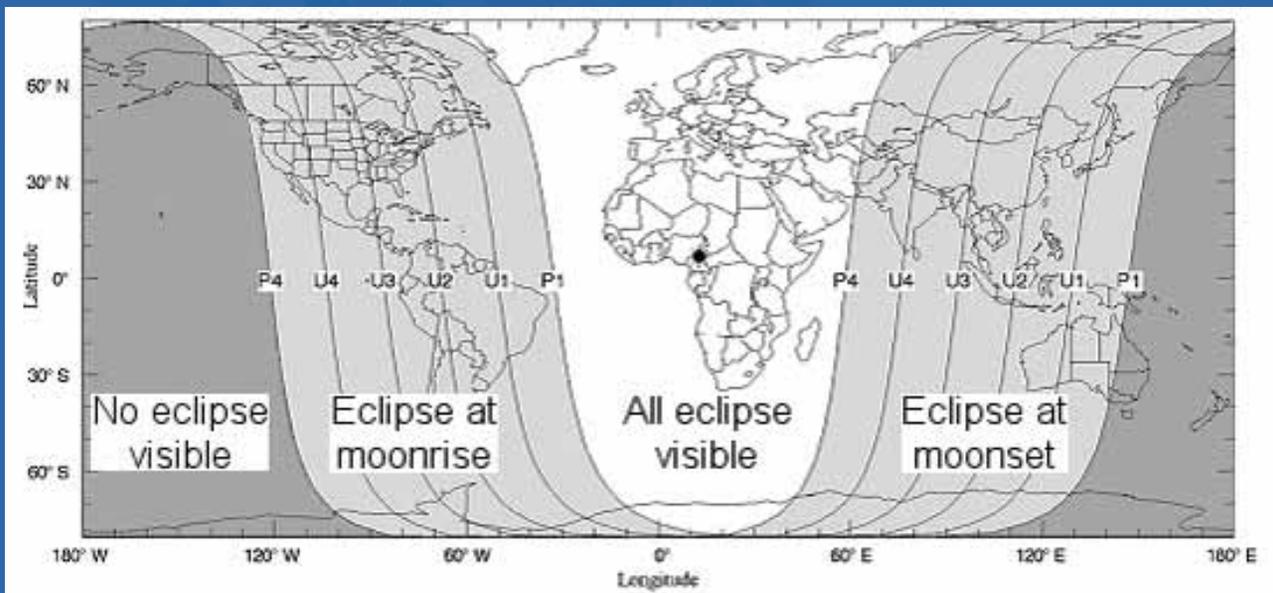
December 13, 14 - Geminids Meteor Shower. Considered by many to be the best meteor shower in the heavens, the Geminids are known for producing up to 60 multicolored meteors per hour at their peak. The peak night this year is December 14, although some meteors should be visible from December 6 - 19. The evening crescent moon will set early this year, allowing for an excellent viewing experience. Even the faintest meteors should be visible from a dark location. The radiant point for this shower will be in the constellation of Gemini. Best viewing is usually to the east after midnight.

December 24 - Mars, the red planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. This is the best time to view and photograph the planet Mars.

6. The Total Lunar Eclipse on March 3rd, 2007

There will be a total eclipse of the Moon on March 3rd, 2007, when the full Moon will pass through the western part of the Earth's shadow. This is the first chance to see a Total Lunar Eclipse since May 2004.

The moon will first be dimmed, in the partial eclipse phase, by the Earth's outer shadow, or Penumbra,



and finally becomes a total eclipse as the Moon enters the Earth's inner shadow, or Umbra. The eclipse will be visible from all parts of the UK, Europe, Africa, Iceland, Greenland, Arctic, the Middle East and the Americas.

Unlike a total solar eclipse, during total lunar eclipses, the Moon is not blotted out, but rather goes a deep copper colour. This is due to sunlight being filtered and refracted (bent) by the Earth's atmosphere before reaching the Moon. This year, the Moon will be well within the Earth's shadow, and so the Moon should be a deeper copper colour than in previous eclipses. This is a spectacle well worth watching, and can be seen without any aids.

The partial eclipse phase will start at 21:30:22 UT, when the Moon will enter the Earth's Penumbra. The totality will last from 22:44:13 UT until 23:57:37 UT, when the Moon will be entirely within the Earth's Umbral shadow. The following partial eclipse phase will last another 74 minutes, ending at 01:11:28 UT. More information can be found here: http://science.nasa.gov/headlines/y2007/12feb_lunareclipse.htm

Event	Time (UT)
Penumbral Eclipse Begins	20:18:11
Partial Eclipse Begins	21:30:22
Total Eclipse Begins	22:44:13
Greatest Eclipse	23:20:56
Total Eclipse Ends	23:57:37
Partial Eclipse Ends	01:11:28
Penumbral Eclipse Ends	02:23:44

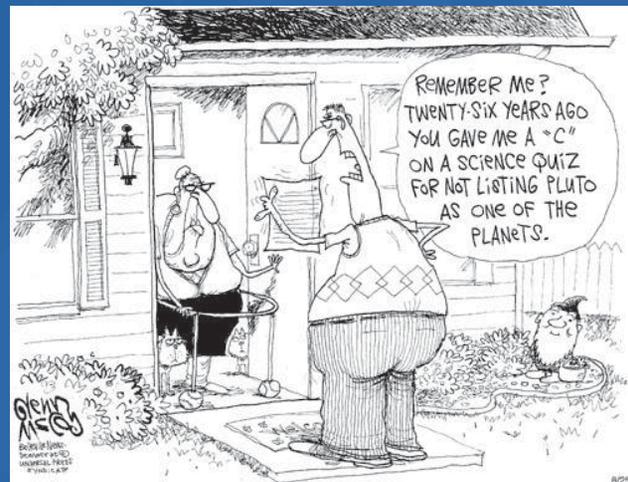
This eclipse is visible from all the telescopes in the D-Space network. You are more than welcomed to perform your observations. We are waiting for your requests.

In addition Ellinogermaniki Agogi (EA) will host an observation night at its premises. Visitors will have the opportunity to see the eclipse with the EA telescopes, to meet and discuss with astronomy experts.

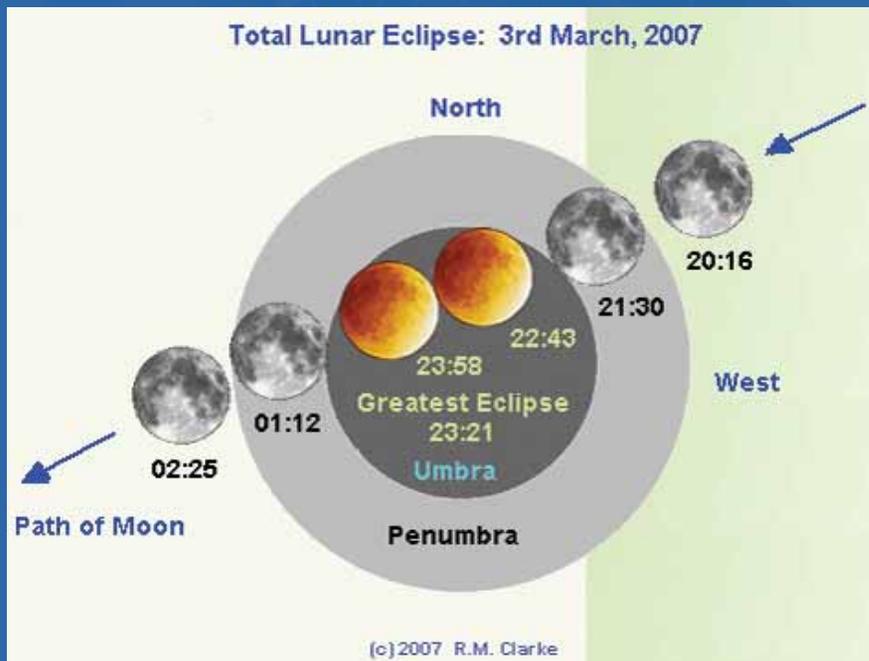
The next total lunar eclipse will be on August the 28th, 2007.

7. What happened to Pluto?

The distant, ice-covered world is no longer a true planet, according to a new definition of the term voted on by scientists today.



In a move that's already generating controversy and will force textbooks to be rewritten, Pluto will now be dubbed a dwarf planet.



But it's no longer part of an exclusive club, since there are more than 40 of these dwarfs, including the large asteroid Ceres and 2003 UB313, nicknamed Xena—a distant object slightly larger than Pluto discovered by Brown last year.

A clear majority of researchers voted for the new definition at a meeting of the International Astronomical Union (IAU) in Prague, in the Czech Republic. The IAU decides the official names of all celestial bodies. The tough decision comes after a multiyear search for a scientific definition of the word "planet." The term never had an official meaning before.

What Is a Planet Today?

According to the new definition, a full-fledged planet is an object that orbits the sun and is large enough to have become round due to the force of its own gravity. In addition, a planet has to dominate the neighborhood around its orbit.

Pluto has been demoted because it does not dominate its neighborhood. Charon, its large “moon,” is only about half the size of Pluto, while all the true planets are far larger than their moons.

In addition, bodies that dominate their neighbourhoods, “sweep up” asteroids, comets, and other debris, clearing a path along their orbits. By contrast, Pluto’s orbit is somewhat untidy.

8. Glossary

In this issue meteor-related terms are explained.

Meteor

In particular, the light phenomenon which results from the entry into the Earth’s atmosphere of a solid particle from space.

Meteor Shower

A number of meteors with approximately parallel trajectories. The meteors belonging to one shower appear to emanate from their radiant.

Meteorite

A natural object of extraterrestrial origin (meteoroid) that survives passage through the atmosphere



and hits the ground.

Meteoroid

A solid object moving in interplanetary space, of a size considerably smaller than an asteroid and considerably larger than an atom or molecule.

Meteoroid Stream

Stream of solid particles released from a parent body such as a comet or asteroid, moving on similar orbits. Various ejection directions and velocities for individual meteoroids cause the width of a stream and the gradual distribution of meteoroids over the entire average orbit.

Micrometeorite

A small extraterrestrial particle that has survived entry into the Earth’s atmosphere. The actual size is not rigorously constrained but is operationally defined by the collection procedure. Micrometeorites found on the Earth’s surface are smaller than 1mm, those collected in the Stratosphere are rarely as large as 50 micro-m.

9. Editorial

Nikos Dalamagkas

dalamag@ea.gr

Research and Development Department, Ellinogermaniki Agogi

Dimitriou Panagea Str., Pallini, Attiki, GR-15351, Greece

www.discoveryspace.net

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