



Discover the COSMOS Deliverable

D6.4 Presentations and Publications

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Short Description: This document describes an exact plan and the public material that is (and will be) produced so the results of the project to be presented in numerous conferences and workshops in Europe and beyond (e.g. EPS, GIREP, ESERA). Upon the delivery of the first project results, papers will be submitted to scientific journals and magazines focusing on science education.

List of Recipients:

All participants,
EC



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EXECUTIVE SUMMARY

This document labels an exact plan for the consortium's presentation of the "Discover the Cosmos" approach together with the public material that is (and will be) produced for the dissemination of the project's results. The consortium will endeavour to present the project in numerous conferences and workshops in Europe and beyond (e.g. EPS, GIREP, ESERA, EPOG) by means of posters, leaflets, presentations etc. Moreover, upon the delivery of the first project results, papers will be submitted to scientific journals and magazines focusing on *eScience* environments, tools and applications used for teaching/promoting science in secondary level education.

Some of these public materials that have been developed before M6 will be presented within the current document. Consequently, this will be a "rolling" deliverable, constantly updated until its final submission at M24 that will include a detailed list of all "presentation and publication" activities and material.



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1. Introduction and main Objective

The *Discover the COSMOS* initiative aims to face the problem of the falling interest of students towards science and following scientific careers by introducing innovative practices for *eScience* by using existing e-Infrastructures, framed in a pedagogical approach that promotes inquiry based teaching. The demonstration of the effective integration of science education with e-infrastructures will be realised through a monitored-for-impact use of *eScience* activities, the Discover the COSMOS Demonstrators, which will provide feedback for the take-up of such interventions at large scale in Europe, by presenting the main ways that e-Infrastructures can leverage educational activities by a) Creating virtual classrooms by interconnecting the schools and the research centers, b) making scientific and educational resources available worldwide through advanced repositories and effective search mechanisms and c) supporting effective community building between researchers, teachers and students.

Thus, in terms of promoting "Discover the Cosmos" through raising awareness activities, conferences, educational fairs and public science events, the consortium's main objective, as also served by the "Presentations and Publications" task, is the design and implementation of a systematic raising awareness strategy that contributes to the effective communication of the project's results and outcomes. In this framework the aim of the consortium is to formulate a common set of guidelines and recommendations on how scientific work can be used to provide an engaging educational experience through the exploration of "real science". In this way the Discover the COSMOS aims to contribute to a better understanding of science and the role that it plays in society. To this end the project consortium will deliver a set of guidelines for the research and the educational policy communities to further explore and exploit the unique benefits of introducing *eScience* in schools. The Discover the COSMOS approach asks for knowledge areas integration, effective and close cross-institutional collaboration, and organisational change in the field of science education. This effort will be documented analytically and systematically in the "Effective Ways of introducing *eScience* in Schools" document. The main objective of the work is to generate a structured set of recommendations that will form the reference for a pan European roadmap for the introduction of *eScience* activities in schools. This document will be the first step in a journey of educational reform that might take many years. It will be the map. The achievement of the high quality science teaching requires the combined and continued support of all involved actors, researchers, policy makers and curriculum developers, science teacher educators, teachers, students and parents.

It is vital for the promotion of the project not only to plan ahead of time the events where Discover the Cosmos approach will be presented but also to collect the developed educational and dissemination material and share it with the Discover the Cosmos community. Of course, publishing the project results is also crucial in ensuring the sustainability of the proposed approach and encourage cooperation between teachers, students and researchers.



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2. Dissemination materials and sites

At the beginning of the project the consortium created for dissemination purposes two posters that were used in different occasions (Figure 1). The posters present the project's approach, the Discover the COSMOS portfolio of services and invites users to visit the project's web site.



Figure 1: The two posters of the Discover the COSMOS project

The first complete set of educational/informative material of Discover the COSMOS was disseminated during the CERN Exhibition in Athens (10-27, November 2011). There two posters were created for promoting the: a) Learning with ATLAS educational portal (Figure 2.a) and b) moCERN mobile application (Figure 2.b).

By having QR codes printed on each poster visitors were given the opportunity to access and check both applications via their mobile devices (free wireless internet was available to all).

Moreover, a special website was designed (<http://cern.ea.gr/>) (screenshot shown in Figure 3) for supporting the event and providing information to teachers and the general public for scheduled activities such as teacher training workshops, guided tours etc.



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Figure 2.a: LA@CERN portal poster



Figure 2.b: moCERN application poster



Figure 3: Screenshot of the <http://cern.ea.gr> website



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In addition to the above, two 4-page leaflets were produced in Greek for:

- a) all CERN exhibition's visitors (Figure 4.a) –an exhibition guide- and
- b) teachers (Figure 4.b). This leaflet contained information (description and links) for various eScience applications that could be implemented in the science classroom.

This CERN exhibition was a major dissemination event that attracted only in Athens about 10,000 visitors (more than 2,000 students and teachers).



Figure 4.a: CERN Exhibition guide (for all)

Figure 4.b: eScience guide (for teachers)

Finally, for supporting the Discover the Cosmos Summer School (1-6, July 2012) that will take place in Heraklion, Greece another website (<http://dte.ea.gr>) has been designed aiming to provide with details applicants that are interested in joining. The website's front page is shown in Figure 5. This website will be updated and remain active after the event since it will be used as a tool for communicating and informing the participants for next year's planned activities.



Figure 5. Screenshot of the <http://dte.ea.gr> site



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3. International Level Conferences

The international level educational activities that are planned by the Discover the Cosmos consortium to take place over the life of the project can be classified into five major types:

- i. International Conferences (annual and biannual)
- ii. International Summer & Winter COMENIUS-GRUNDTVIG schools
- iii. International CERN Teacher Programmes
- iv. International Hands-on Particle Physics Master Classes
- v. Pan-European Contests for Students and Teachers.

The consortium will organize a series of workshops in the framework of major International Conferences (Figure 6). During these events the project's results will also be communicated to the main stakeholders.

Overall, the Discover the Cosmos activities and presentations will be implemented in major Conferences most which two will be held at the partner's counties & Switzerland and the some at other countries outside the Discover the Cosmos consortium.

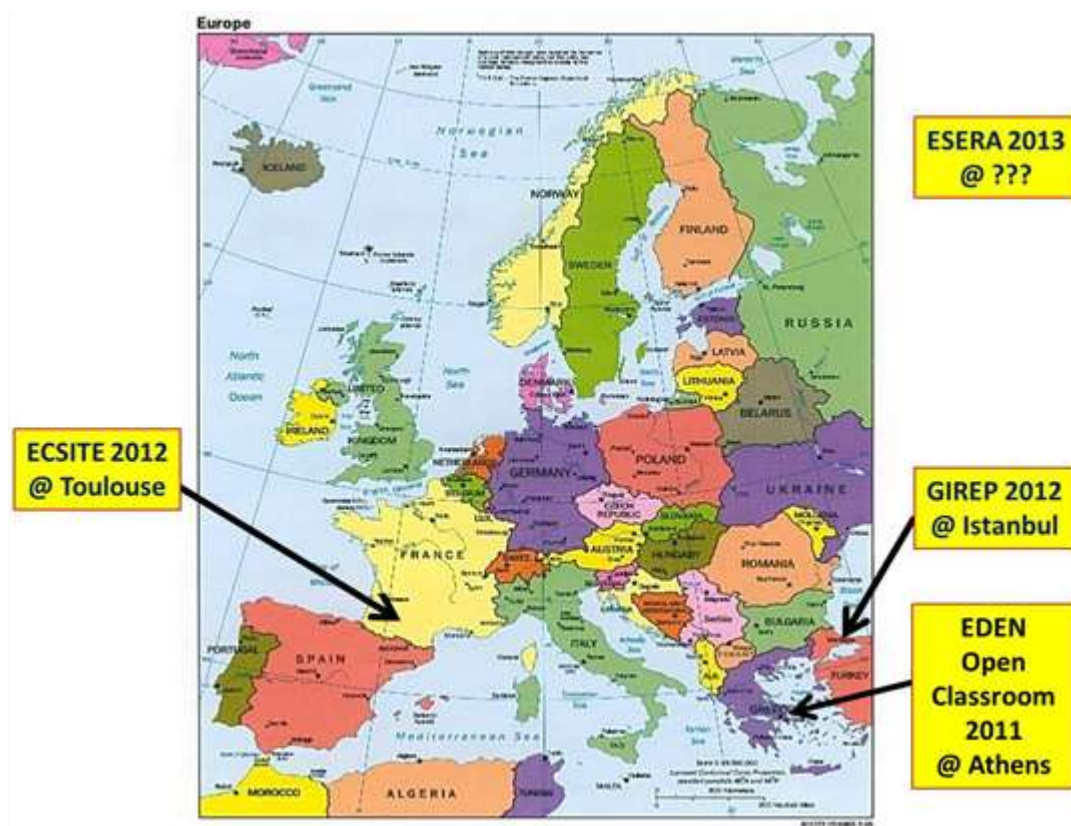


Figure 6. Some Discover the Cosmos candidate conferences for 2012 and 2013



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Within the first 12 months (September 2011- August 2012) of the project, Discover the Cosmos was presented during the following main events:

- i. At the European Distance and E-Learning Network (EDEN) Open Classroom Conference. The Open Classroom strand within EDEN focuses on: distance education and new technologies in school level education and training; mapping and exchange of information about initiatives; the transfer of ideas from the more traditional areas of open distance learning to the school sector. The 2011 Conference took place in Athens, Greece ([27-29 October, 2011](#)) at the premises of Ellinogermaniki Agogi and Discover the Cosmos was present via a workshop titled: Universe in the Classroom. Furthermore, a 4-page leaflet introducing the Discover the Cosmos project and advertizing the aforementioned workshop was created (Figure 7).



Figure 7. Discover the Cosmos leaflet @ EDEN 2011 Open Classroom Conference



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- ii. At the Biennial meeting of the Spanish Physics Royal Society at Santander, Spain **(19-22 September, 2011)**. Discover the Cosmos coordinator Prof. Kourkoumelis (IASA) was invited to present the project.
- iii. At the Europlanet Congress (EPSC-DPS joint meeting 2011). The EPSC-DPS Joint Meeting 2011 represents the first cooperation between the European Planetology Network and the Division for Planetary Sciences of the American Astronomical Society. The meeting took place at the La Cité Internationale des Congrès Nantes, Métropole in Nantes, France **(02-07 October 2011)**. The presentation was titled "GTTP - Changing the World Teacher by Teacher" and was performed by Dr. Rosa Doran (NUCLIO).
- iv. At the 4th conference in the series, 'Communicating Astronomy with the Public' that took place in Beijing, China **(10-14 October, 2011)**. Following the previous conferences, CAP2011 aims to conquer the online and social territory of outreach and train science communicators to engage with the people of today and tomorrow. The conference looked at how outreach activities can be encouraged in the developing world.
- v. At the "Communicating Astronomy" hosted by Newbury Astronomical Society. The meeting was held on Saturday **22nd October 2011** in a lecture theatre at the Rutherford Appleton Laboratory in south Oxfordshire, a prestigious UK Science Facility. The theme for the meeting, 'Communicating Astronomy', was in keeping with the society's aim to bring astronomy to the public. Newbury AS put together an excellent programme of talks by speakers involved in research, outreach and education while the Discover the Cosmos was introduced through a talk on "Robotic telescopes and how amateur astronomers can get involved with schools".
- vi. At the 59th UdPPC (Union of Teachers of Physics and Chemistry; Paris, France) Congress. The meeting was held at **23-26 October, 2011** at Montpellier, France and the Hands on Universe tools were presented along with the Discover the Cosmos educational approach. [The project will be presented in the 60th UdPPC in **2013** as well].
- vii. At the 2nd IPPOG Meeting in CERN, Geneva, Switzerland. On **4 November, 2011** "Discover the Cosmos" was presented to the International Particle Physics Outreach Group.
- viii. At the Association of Science Education Annual Conference Exhibition held at the University of Liverpool, UK from **4-7 January 2012**. Discover the Cosmos was disseminated through an Exhibition Stand where delegates were provided with Astronomy resource info.
- ix. At the Commission Nationale Française pour l'UNESCO in Paris, France **(24 January, 2012)**. During a strategic meeting for astronomy education, Discover the Cosmos was presented to participants by IAP/CNRS.



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- x. At the STFC funded Astronomy Road Show (Dr. Andy Newsam) that runs for 19 months (**January 2012 to August 2013**) in the region of 40 locations around the UK. Information about the Discover the Cosmos Project has been disseminated.
- xi. At the Big Bang Fair that took place this year in Birmingham, UK (**15-17 March, 2012**). The Big Bang is the largest celebration of science, technology, engineering and maths for young people in the UK. The Fair aims at showing young people just how many exciting and rewarding opportunities there are out there for them with the right experience and qualifications.
- xii. At the PCST 2012 Conference. International Network on Public Communication of Science and Technology (PCST) is a network of individuals from around the world who are active in producing and studying PCST. The event took place in Florence, Italy (**18-20 April, 2012**) and there was a Poster presentation of Discover the Cosmos.
- xiii. At the 3rd IPPOG Meeting in Innsbruck, Austria (**21-22 April, 2012**). "Discover the Cosmos" coordinator Prof. Kourkouvelis (IASA) gave a talk related to the ATLAS Experiment.
- xiv. At Bildung Online 2012 Fair. The event took place in Hall/Tyrol, Austria on **14-16 May, 2012**. A special stand was placed in the conference hall and participants were informed about Discover the Cosmos through leaflets and posters. The consortium was also present in Bildung Online **2013** at the same place (end of May).
- xv. At the ECSITE 2012 Annual Conferences. This conference is considered the second largest science communication event in the world and it is usually held around the end of May in various European cities. For 2012 the main Conference was held at a state-of-the-art venue in central Toulouse at the end of May (**May 31- June 2, 2012**).
- xvi. At the Société Française des Spécialistes d'Astronomie (French Astronomical Society) SF2H meeting in Nice, France between **4-7 June, 2012**. A talk on available tools for education was given emphasizing on astronomy.
- xvii. At EDEN 2012 Conference. The Annual Conference approached the key questions of learning methodology and technology focusing on the "Open learning generations", the contexts of socially significant target groups: junior and senior e-learners. Discover the Cosmos was promoted through the workshop: "Universe in the Classroom". The event took place in Porto, Portugal on the **6th of June, 2012**.
- xviii. At the 2012 World Conference on Physics Education (WCPE2012). Groupe International de Recherche sur l'Enseignement de la Physique (GIREP) Conferences. The Conference was structured to help foster collaborations on physics education research and development which can transcend national boundaries. The goal will be reached through working sessions which will develop action plans that strengthen the teaching and



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learning of physics at all levels and in many countries. The conference was initiated by Groupe International de Recherche sur l'Enseignement de la Physique (GIREP) and the International Commission on Physics Education (ICPE) – Commission 14 of the International Union for Pure and Applied Physics (IUPAP). GIREP is an organisation with yearly international meetings that have something valuable to offer to both Physics Education researchers and Physics teachers. The previous conference was held in Reims, France in 2010 and the 2012 conference was in Istanbul, Turkey in **1-6 July, 2012**. Two talks were given by members of the Discover the Cosmos partnership: a) "Science at Schools at a Distance of a Click" and b) "Discover the COSMOS:e-Infrastructures for an engaging science classroom".

- xix. At the Discover the Cosmos Summer School in Heraklion, Greece in **1-6 July, 2012**. The theme of the summer school was: *From Telescopes to Accelerators - Enhancing Science Education by Exploring Science's Past, Present and Future*. Participants familiarized themselves with a large amount of digital science education content. <http://dte.ea.gr>
- xx. At the European Week of Astronomy and Space Science 2012 (EWASS 2012) that was organized by the Italian Astronomical Society (SAIt) on behalf of the European Astronomical Society (EAS) and took place in Rome, Italy, at the Pontificia Università Lateranense, during the week of **July 1-6, 2012**. The conference addressed a wide range of topics in Astronomy and Space Sciences and related technologies, of interest to the European astronomical community. A special presentation was given during the education session. Discover the Cosmos was present in EWASS **2013** as well.
- xxi. At the Global Hands-on Universe 2012 Conference. Global Hands-on Universe (GHO�) is a global project which links together teachers, scientists and educators from high schools, universities, research centers, and science centers all over the world. It incorporates inquiry-based methods such as problem-oriented and cross-curricular education as well as substantial contacts to scientists allowing students to participate in genuine astronomy projects. This year it was held in Infrane, Morocco (**8-13 July, 2012**). A presentation of Discover the Cosmos to the audience took place on the **7th of July, 2012**.
- xxii. At COSPAR 2012. COSPAR Scientific Assembly is a premier forum for presenting the most important results in space research in all disciplines and it is considered as a focal point for truly international space science. This assembly is conducted in different member countries around the globe. COSPAR also encourages students' participation and provides opportunities for them to meet and interact with the members of academia, space industries and government bodies from all over the world. COSPAR Scientific Assembly is planned to be held in India after three decades and the assembly is probably the biggest gathering of Space scientists in the world. The Indian Space Research Organisation (ISRO) organized the 39th COSPAR Scientific Assembly (COSPAR-2012) in Mysore, India



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- during **14-22 July 2012**. Dr. Rosa Doran (NUCLIO) delivered a talk as an invited speaker and also implemented a teacher training session following the Discover the Cosmos approach.
- xxiii. At the 12th Astronomy Festival (Société Astronomique de France) in Valdrôme, France (**11-26 August, 2012**). The participants were amateur astronomers and members of the Society. Discover the Cosmos was also presented the 13th Astronomy Festival (**2013**).
- xxiv. At the scientific meeting of the SEA (Spanish Astronomical Soc.) that takes place once every two years (**9-13 July 2012** Valencia, Spain). Conferences and workshops are held for one week on six subjects: Solar Physics, Planetary Sciences, Milky Way, Galaxies and Cosmology, Instrumentation and Computation and Teaching and Outreach. Members of astronomical society are not only researchers but also amateurs and teachers. During the meeting the DISCOSMOS project was presented as well as the tools and repositories developed by the consortium to assist teachers in the implementation of IBSE in schools.
- xxv. At the General Assembly of the International Astronomical Union hosted in Beijing, China (**20-31 August, 2012**). The key activity of the IAU is the organisation of scientific meetings. Every year the IAU sponsors nine international IAU Symposia. The IAU Symposium Proceedings series is the flagship of the IAU publications. Every three years the IAU holds a General Assembly, which offers six IAU Symposia, some 25 Joint Discussions and Special Sessions, and individual business and scientific meetings of Divisions, Commissions, and Working Groups. The proceedings of Joint Discussions and Special Sessions are published in the Highlights of Astronomy series. The reports of the GA business meetings are published in the Transactions of the IAU - B series. An oral presentation of Discover the Cosmos was performed during the IAU general assembly.

In general, the participation of the Discover the Cosmos consortium to certain international conferences will be a regular topic for discussion during the project meetings and decisions on who will participate and how (workshop facilitator, submission of a paper or poster, presentation of Discover the Cosmos results etc.) will be taken. The participation to the proposed conference will be discussed among partners at least a month prior to the submission deadlines posed by the conference organizers so each partner has the time to reflect and contribute.

In terms of **future activities** and planning members of the Discover the Cosmos consortium have scheduled to present the project and its initial results at the following International Conferences and major National Events:



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- i. At the International Conference on Science Communication, "Journées Hubert Curien" that will take place in **Nancy (France) 2-7 September 2012**. The theme of the 2012 conference is: "Science Communication: International Perspectives, Issues and Strategies". The consortium has submitted a paper in July 2012 (accepted by the Conference organizers) and that paper will be presented during the conference.
- ii. At the European Science Education Research Association (ESERA) Conferences. This conference, held biannually, enhances the range and quality of research and research training in science education in Europe while providing a forum for collaboration in science education research between European countries. The most recent ESERA conference was held in Lyon in September 2011 while the announcement of the place hosting ESERA 2013 was made recently: the event will take place from **2-7 September 2013 in Nicosia, Cyprus**.
- iii. At the European Planetary Science Congress 2012 that will take place at the IFEMA-Feria de Madrid, **Spain 23 – 28 September 2012**. The meeting will cover the whole scope of planetary science and Discover the Cosmos is expected to be introduced to the participants via an oral presentation given by Dr. Rosa Doran (NUCLIO).

This document is constantly updated until its final submission at M24 that will include a detailed list of all "presentation and publication" activities and material.