



Discover the COSMOS Deliverable

PROJECT'S PORTAL

Project Reference: INFRA-2011-283487

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Version & Date: 1.0, 31/08/2012

Process Owner: IASA

Short Description:

This deliverable describes the third version of the portal which provides the project's support environment. Its development process, structure and basic technical information. It also informs about how the portal will be maintained during the project's life time.

List of Recipients:

All the partners, EC



PROJECT'S PORTAL

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PROJECT'S PORTAL

1. Executive Summary

The project's portal is the main platform for collecting the learning resources and the e-science applications, the so called demonstrators. Thus teachers will be able to access their colleagues' resources/tools, share their own, exchange best teaching practices, communicate with the stakeholders as well as with general public.

The development of the *Discover the COSMOS* portal in conjunction with the website, allows for constant online presentation and dissemination of the project progress and results. The portal is a rich source of high quality teacher generated course material, lesson plans and applications about High Energy Physics and Astronomy. The second version of the portal has been already released in the production infrastructure and is acting as a unique repository of the material previously included at "COSMOS" as well as "Atlas@CERN" portals/databases.



PROJECT'S PORTAL

2. Scope

The scope of this deliverable is to describe the structure and the content of the portal, the information that it contains and the ways in which it is maintained and updated. Also, we shortly describe the technologies that were used in its development.



PROJECT'S PORTAL

3. Domain name and hosting

The project's portal can be reached at : <http://www.portal.discoverthecosmos.eu/> This is a subdomain of the official domain name that was booked by the dissemination Co-Leader, Science View.

The 'Discover the Cosmos' portal is hosted on a single Virtual Machine (VM), following XEN¹ technology for virtualization and it is physically located at the IT/Grid Data Center at IASA². Furthermore, both the 'Learning with Atlas@CERN'³ and the 'COSMOS'⁴ portals, have also been migrated on the same physical location and following the same virtualization techniques.

The Coordinator's data center offers a highly reliable environment with advanced levels of redundancy, 24x7 support and monitoring facilities, daily back-ups and it is being operated by a team of professionals with more than 10 years of experience on delivering high quality, great value of IT solutions to numerous projects and activities.

Below we present the first page (home page) of the portal.

¹ <http://www.xen.org/>

² <http://it.iasa.gr/>

³ <http://www.learningwithatlas-portal.eu/>

⁴ <http://www.cosmosportal.eu/>



PROJECT'S PORTAL

e-Infrastructures for an Engaging Science Classroom

Home Repository HEP Tool-Box Astronomy Tool-Box Learn More News Help

Discover the COSMOS News

IAU-GA 2012

Welcome to the Discover the COSMOS portal

Discover the COSMOS portal is an experimental laboratory for students and teachers, aiming to improve science instruction by expanding the resources for teaching and learning in schools, providing more challenging and authentic learning experiences. Discover the COSMOS portal brings together resources, virtual experiments and online labs from the fields of Astronomy and High Energy Physics (HEP). It offers access to a network of robotic telescopes and to the major CERN experiments, ATLAS and CMS.

Explore Discover the COSMOS: The Discover the COSMOS Repository includes numerous educational materials (educational scenarios and lesson plans, students projects, animations, online tools and laboratories guidelines for interactive experiences with Astronomy and HEP Resources)

Share your content: The Astronomy Tool-Box and the HEP Tool-Box will provide you with all the necessary tools to prepare your content for the Discover the COSMOS Repository. The Discover the COSMOS tools offering a unique authoring environment to design and share your own educational projects and activities.

Join the Discover the COSMOS educational community and explore new ways of teaching science!

My Discover the COSMOS

- Submit Educational Content
- Submit Learning Activity
- Teachers' Blogs
- My account
- My Inbox
- Submit content
- Administer
- Log out

Who's online

There are currently 1 user and 0 guests online.

- stelos

Questionnaire

Participatory Engagement Activities (For teachers only)

Who's new

- apeloargo
- nigelsmuinj
- andersonguedes

Languages

- English
- Finnish
- French
- Deutsch
- Ελληνικό
- Português
- Español
- Svenska

facebook

The Discover the COSMOS Project is financed by the European Commission's Framework Programme 7 (FP7)



PROJECT'S PORTAL

4. Structure of the Portal

The Discover the COSMOS portal is acting as a common repository for teacher generated course material, lesson plans and applications about High Energy Physics and Astronomy. It is the outcome of a migration process that took place during the previous reported project period and contains all the material included at "COSMOS" as well as "Atlas@CERN" portals/databases.

The migration phase consisted of three main steps:

1. Merging all the people profiles from the two source repositories "COSMOS" and "Atlas@CERN", hence, creating a unique/common pool of users.
2. Migrating all the content related items such as educational content and learning activities.
3. Make all the necessary adjustments to the ATLAS LOM wizard tool (<http://portal.discoverthecosmos.eu/online-atlas-lom/>) in order to address all the project specific needs.

This phase consumed a big amount of effort, required deep knowledge of Drupal's database structure and internals as well as special migration software to be designed and developed.

One more task that took place during the reporting period, was the development of a custom software capable of aggregating news posts from external sources, such as the Discover the COSMOS web site and populate them into the portal's 'News' page.

Finally, many improvements have been made in the portal's interface regarding the layout of the offered material, translations (still on-going process) and the layout of the portal user's interface as a whole.

The web portal's structure/map consists of seven main areas, accessible from the main tabular navigation pane:



PROJECT'S PORTAL

4.1 Home

Provides a high-level description of the project's main aims

discover the COSMOS

Home Repository HEP Tool-Box Astronomy

Discover the COSMOS News

[IAU-GA 2012](#)

Welcome to the Discover the COSMOS portal

Discover the COSMOS portal is an experimental laboratory for students and teachers, aiming to improve science instruction by expanding the resources for teaching and learning in schools, providing more challenging and authentic learning experiences. Discover the COSMOS portal brings together resources, virtual experiments and online labs from the fields of Astronomy and High Energy Physics (HEP). It offers access to a network of robotic telescopes and to the major CERN experiments, ATLAS and CMS.

Explore Discover the COSMOS: The Discover the COSMOS Repository includes numerous educational materials (educational scenarios and lesson plans, students projects, animations, online tools and laboratories guidelines for interactive experiences with Astronomy and HEP Resources)

Share your content: The Astronomy Tool-Box and the HEP Tool-Box will provide you with all the necessary tools to prepare your content for the Discover the COSMOS Repository. The Discover the COSMOS tools offering a unique authoring environment to design and share your own educational projects and activities.

Join the Discover the COSMOS educational community and explore new ways of teaching science!



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4.2 Repository

Here the user can upload Educational Content or Learning Activities. He can also search for Educational Content or Learning Activities based on criteria reflecting his needs (material language, knowledge level, duration, popularity etc.).

Discover the COSMOS Repository

The Discover the COSMOS Repository contains educational material in the form of **educational content** (photos, videos, animations, exercises, graphs, links) and of **learning activities** (structured lesson plans organized according to specific pedagogical models such as inquiry based Learning and Guided Research). Users can search for the educational materials in the "Explore Discover the COSMOS" section or to upload their own materials to the Discover the COSMOS Repository, using the "Share your Content" section.

moCERN
moCo

The Discover the COSMOS Repository goes mobile! Now, Discover the COSMOS Educational Content is available for mobile and handheld devices. Visit MoCERN and explore the HEP resources and MoCo and explore the Astronomy repository through your mobile phone.

Visit the DISCOVER the COSMOS Camp in Second Life! Explore the Universe, the ATLAS Detector and numerous other contents of the Repository through a unique immersive experience in a realistic context. From here you can download and install Second Life Viewer which is used for entering the Discover the COSMOS Camp in Second Life. Teleport to Discover the COSMOS Camp.

Explore Discover the COSMOS

Search for Educational Content (80828)

Search for Learning Activities (405)

Share your Content

Upload Educational Content

Upload Learning Activities



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4.3 HEP Repository

The HEP Repository offers access to three High Energy Physics tools (AMELIA, HYPATIA and MINERVA) which have been developed for educational and scientific use and can be freely downloaded and used.

The screenshot shows the 'e-Infrastructures for an Engaging Science Classroom' website. The navigation bar includes 'Home', 'Repository', 'HEP Tool-Box', 'Astronomy Tool-Box', 'Learn More', 'News', and 'Help'. The main content area is titled 'HEP Tool-Box' and contains three tool descriptions:

- HEP Tool-Box:** The HEP Tool-Box contains links to three interactive analysis tools (AMELIA, HYPATIA & MINERVA) that allow users to explore that ATLAS experiment at CERN in an intuitive way, which is much friendlier to the public through 3D and 2D animations of physical processes in a game like approach. The web pages of the three analysis tools include detailed information on the use of the tools and support materials for teachers and students.
- AMELIA 3D Analysis Tool:** AMELIA is an application with focus on particle physics processes in ATLAS. This will allow students and other users to decode the collision events that unfold after the head-on collisions of protons at the Large Hadron Collider. It uses the best aspects of technical animation and allows users to control 3D representations of collision events and to manipulate 3D models of the detector and see how particles are detected as they pass through. It allows the user to rotate, zoom and select virtual pieces of the ATLAS detector and events. The characteristics of the events (momentum etc.) can also be read, and one can select tracks for analysis, activate context-oriented media, etc. 
- HYPATIA 2D Analysis Tool:** HYPATIA is an event analysis tool for data collected by the ATLAS experiment of the LHC at CERN. Its goal is to allow highschool and university students to study the fundamental building blocks of nature and their interactions through the graphical representation of ATLAS event data. It can also be used by physicists for the analysis of ATLAS events. HYPATIA allows the use of events that have been collected by the ATLAS experiment or simulated using the Monte Carlo method. HYPATIA is based on the ATLANTIS event display. 
- MINERVA 2D Analysis Tool:** MINERVA is a tool for students to learn more about the ATLAS experiment at CERN. It is based on a simplified setup of the ATLAS event display, Atlantis, which allows users to visualise what is happening in the detector. The aim is to look at ATLAS events and try to recognise what particles are seen in the detector. There are tutorial events, then a selection of events to categorise and final a search for the Higgs! A series of examples of collisions were presented followed by a tutorial on identifying after collisions the particles and their tracks. In some of these events the teachers were presented a learning mission that was based on data collected from the analysis tool under study. 

At the bottom of the page, there is a Facebook logo on the left and a logo for 'The Discover! The COSMOS Project' on the right, which is noted as being financed by the European Commission's Framework Programme 7 (FP7).



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4.4 Astronomy Repository

Offers access to the COSMOS Authoring Tools, a collection of utilities that provides the user with all the necessary tools to prepare his content for the Discover the COSMOS repository.

Also to the Online Labs and Educational Software which provides a series of tools that will help the user realize the Discover the COSMOS Learning Activities by offering access to remote and virtual labs, to view the FITS images that are provided from the network of telescopes, to analyze the data, to create your own video sequences of astronomical events, to calculate the light intensity of the stars, to create his own plots and diagrams.

The screenshot displays the 'Project's Portal' website. At the top right, there are links for 'credits | contact'. Below this is the header 'e-Infrastructures for an Engaging Science Classroom'. A navigation bar contains links for 'Home', 'Repository', 'HEP Tool-Box', 'Astronomy Tool-Box', 'Learn More', 'News', and 'Help'. The main content area features a large section titled 'Astronomy Tool-Box' with a detailed description of the tools provided. Below this are two smaller sections: 'COSMOS Authoring Tools' and 'Online Labs and Educational Software', each with a small image and a 'Continue >>' link. At the bottom left, there is a 'facebook' logo, and at the bottom right, there is a logo for 'The Science and Technology Facilities Council' and a note that the project is funded by the European Commission's Framework Programme 7 (FP7).



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4.5 Learn more

Redirects to the Discover the Cosmos web site.





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4.6 News

A dashboard with the latest news and project activities and events.

The screenshot displays the project portal's news section. At the top, there is a navigation bar with links for Home, Repository, HEP Tool-Box, Astronomy Tool-Box, Learn More, News, and Help. The main content area lists several news items, each with a 'Read more' link, the number of reads, and the creation date. The news items include:

- International Cosmic Day 2012**: In 1912, physicist Victor Franz Hess made seven balloon rides to measure the ionisation of the atmosphere. At his last ride he reached an altitude of 5100 meters.
Read more: 46 reads | created: Wed, 26 Sep 2012
- Discover the COSMOS in International Conference on Science Communication**: The 2012 edition of the International Conference on Science Communication, "Journées Hubert Curien" will take place in Nancy (France) on 27-28 September 2012.
Read more: 67 reads | created: Sun, 02 Sep 2012
- Northern Lights event**: The Shellos 2012 expedition is promoted by the scientific-cultural association Shellos and is coordinated by its president Dr. Miquel Serra-Ruana.
Read more: 26 reads | created: Fri, 24 Aug 2012
- IAU-GA 2012**: Oral presentation during IAU-GA 2012 in Beijing. GTTP/DC teacher training session for Chinese teachers.
Date: 20th to 31st August 2012 | created: Mon, 20 Aug 2012
- COSPAR 2012**: GTTP/DC teacher training session during the 39th COSPAR scientific assembly.
Date: 14th to 22nd July 2012 | Place: Mysore - India | created: Mon, 09 Jul 2012
- GTTP/GHOU 2012**: Annual GTTP/GHOU global training and presentation session.
Date: 7th to 13th July 2012 | Place: Ifrane - Morocco | Target group: Teachers | created: Sat, 07 Jul 2012

At the bottom of the news list, there is a pagination control showing '1 2 3 4 5 next > last >' and a 'Read more' link with '75 reads'.

On the right side of the dashboard, there is a 'Navigation' menu with links for 'My Discover the COSMOS', 'Submit Educational Content', 'Submit Learning Activity', 'Teachers' Blogs', 'My account', 'My inbox', 'Submit content', 'Administer', and 'Log out'. Below the navigation menu is a 'Languages' section with links for English, Finnish, French, Deutsch, Ελληνικά, Português, Español, and Svenska.

At the bottom of the page, there is a Facebook logo on the left and a logo for the Discover the COSMOS Project on the right, which is funded by the European Commission's Horizon Programme (FP7).



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4.7 Help

Detailed assistance on the portal's functionality.

The screenshot shows the 'Help' page of the Discover the COSMOS portal. The page has a header with the project logo and navigation links: Home, Repository, HEP Tool-Box, Astronomy Tool-Box, Learn More, News, and Help. The main content area is titled 'Help' and contains an introductory paragraph, a paragraph about navigating the help section, and a paragraph encouraging contact for further questions. Below this is a list of help topics: Short Introduction to the Discover the COSMOS Project, Creating a New User Account, Searching and Downloading, and Tagging Educational Objects. A 'Navigation' sidebar on the right lists user actions like 'Submit Educational Content', 'Submit Learning Activity', 'Teachers' Blogs', 'My account', 'My Inbox', 'Submit content', 'Administer', and 'Log out'. A 'Languages' section at the bottom right lists options for English, Finnish, French, Deutsch, EMġrvikó, Português, Español, and Svenska. At the bottom of the page, there is a Facebook link and a logo for the project, which is noted as being funded by the European Commission's Framework Programme 7 (FP7).



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5. Portal Maintenance and technical information

The implementation of the 'Discover the Cosmos' portal⁵ is based on Drupal⁶ technology combined with MySQL RDMS back-end. In general, Drupal is a framework for building dynamic web sites offering a broad range of features and services including user administration, publishing workflow, discussion capabilities, news aggregation, metadata functionalities using controlled vocabularies and XML publishing for content sharing purposes. Moreover, the Drupal technology is comprised of a mix of core and contributed modules.

⁵ <http://portal.discoverthecosmos.eu>

⁶ <http://drupal.org/>