



Development of a Web site for the real-time monitoring of AEMET radar data for NWP

Project 6

Real-time Assimilation in mesoscale NWP systems of data generated by the AEMET operational network of weather radars of AEMET.

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Advisor: Carlos Geijo

Area of Modelization



Outline of the presentation

- Description of the work carried out during this first phase of the project : plannification, implementation and testing.
- Presentation of web-site built during this time.
- Outlook for future activity

Planning

Requirements

Development

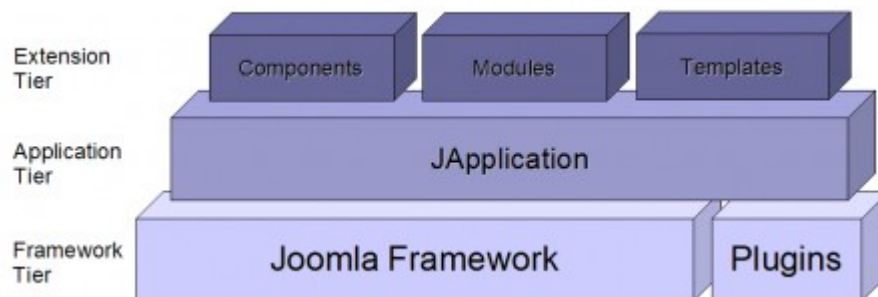
Testing



Objective: Build a web based interface for the easy monitoring of the radar data reception, formatting and transfer processes. (these processes are launched every hour from crontab in “noreste”)

Technologies used: “Joomla”

- a) a web server (Apache)
- b) a database (MySQL)
- c) programming with “cgi” and “php”



Joomla is a content management system (CMS), which enables you to build Web sites and powerful online applications. It offers many features, is ease to use and extendible.

Joomla is an open source solution that is freely available to everyone. It has thousands of extensions, most of them are free under the GPL license.

Joomla is used all over the world to power Web sites of all shapes and sizes.

Joomla needs :

- A web server. We chose “Apache”, a well-known server in Linux environments.
- A database manager: MySQL is fast a well tested
- Dynamic web pages for processing client requests: PHP (Hypertext Pre-processor) and CGI (Common Gateway Interface) as programming languages.
- All these elements can be downloaded and installed from a common package known as LAMPP.

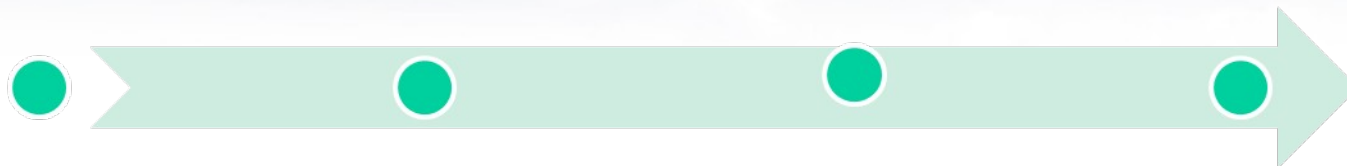


Planning

Requirements

Development

Testing



- The monitoring interface must provide us with a quick and easy way of monitoring the reception, the content, eventual re-formatting and further transmission (e.g. to ECMWF or MF) of the radar data received.
- The data must be received in OPERA-BUFR.
- There are a number of processes "behind-the-scenes" that perform all the tasks necessary for the monitoring. These processes are run every hour by crontab on noreste (user pnz).
- These processes extract statistics, plot fields and amend and complete the BUFR templates in order to make the OPERA BUFR data meaningful to external users (e.g. MF).
- The interface must provide an overview of the status of these processes whenever a user makes a request from the web.

Planning

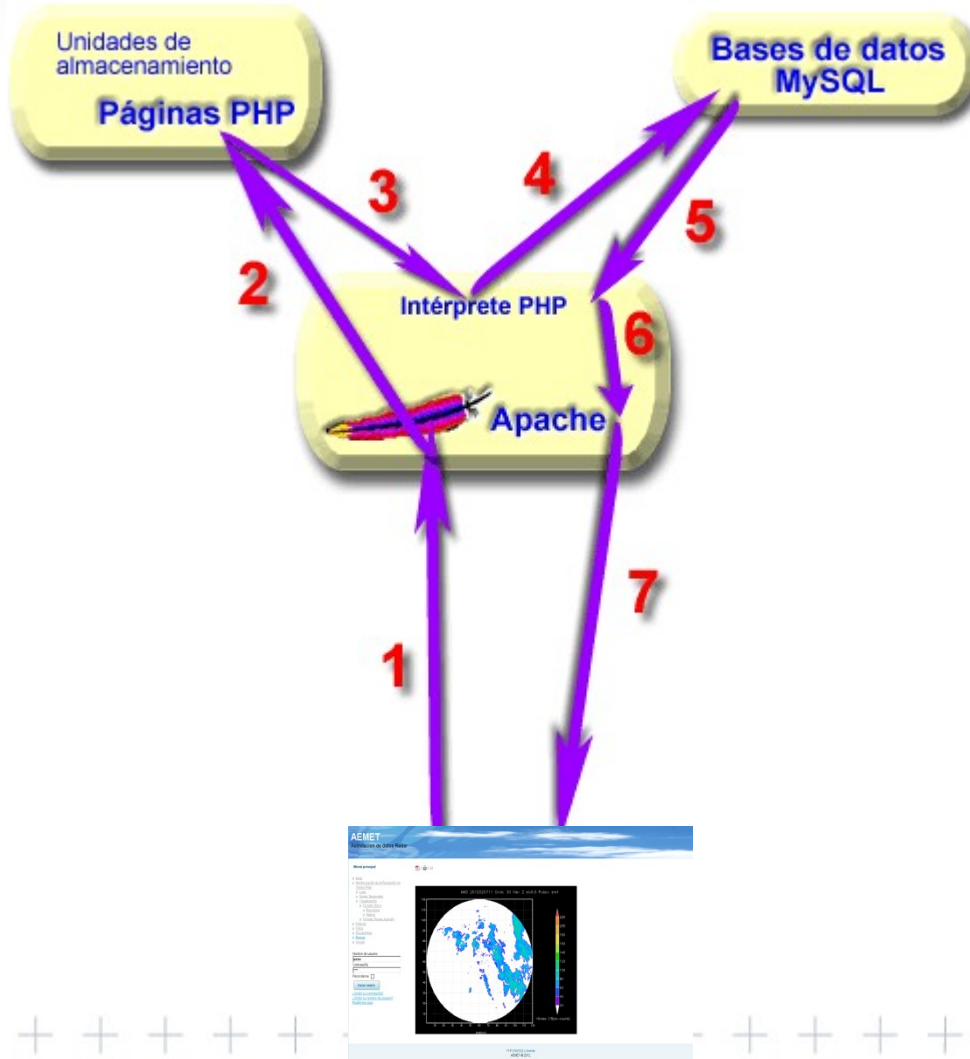
Requirements

Development

Testing

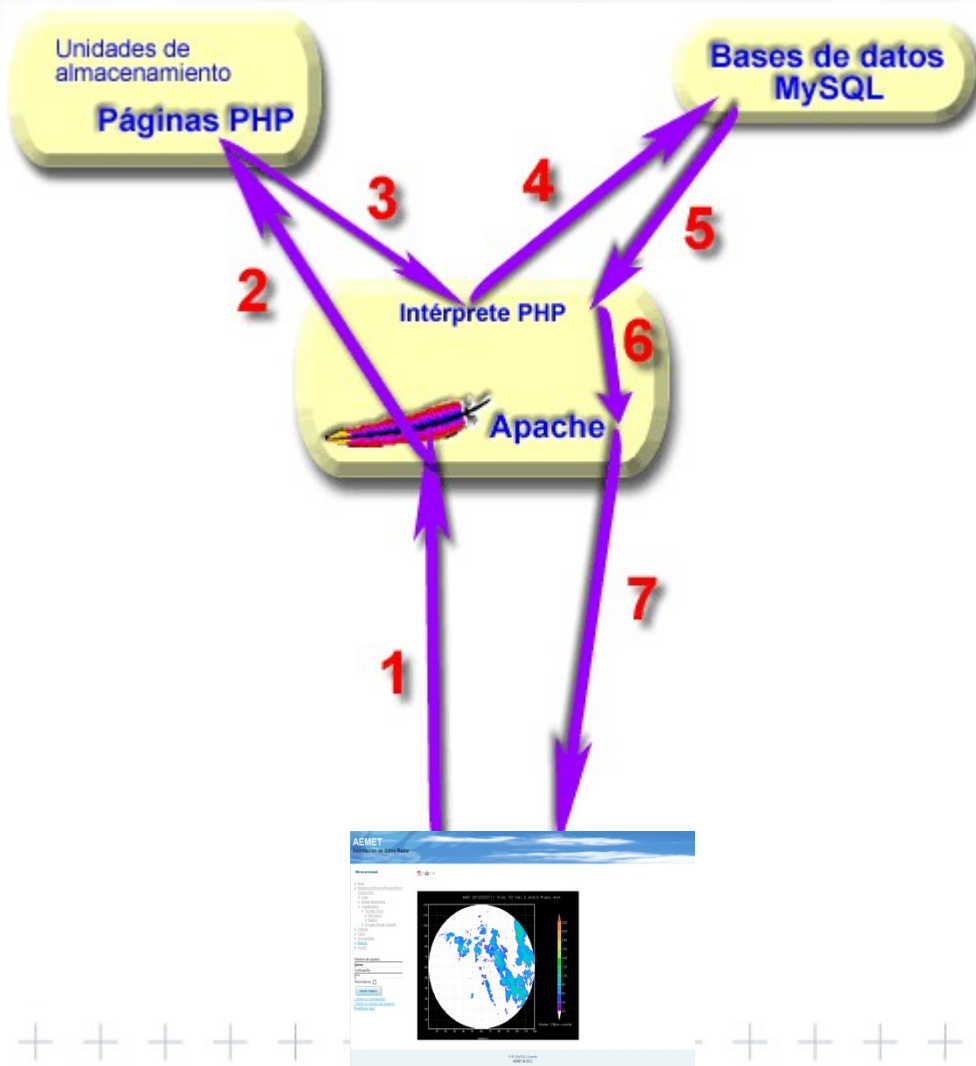


- We decided to install a complete development environment, to avoid dangerous interference with the office working environment in “noreste”.
- A lot of different web server related issues had to be sorted out:
 - a) Apache-cgi communication
 - b) Apache daemon access permissions
 - c) Backup functionalities,...
- Learning HTML (css ; cascade style sheets)
- Learning CGI ,Common Gateway Interface(running perl scripts from CGI .vs. running compiled executables)
- Learning PHP (different functionalities: passthru, .gif animations, ...)
- Other web sites (OPERA, HyMex, AEMET,) embedded in our web site.
- Web pages design (importing maps, photos, templates, menus ...)



Let see with a bit of detail the role that each of the elements (Apache, PHP, MySQL, HTML, Joomla) of our web plays.

1. Our client (browser) requests the Apache server a web page.
2. The Apache Server searches the page that you requested. If it is a normal HTML page, it just returns it directly to the browser.



3. If it is a page containing PHP code, Apache passes it to the PHP interpreter. This interpreter creates an HTML page that the browser can visualize.

4. In many cases, the PHP interpreter has to interrogate a database. The database manager (MySQL) handles this request.

5. Then the DB Manager returns data to the interpreter of PHP which embeds them in the appropriate place of the page.

6. Once this is made, the page is sent back to Apache.

7. Finally, Apache sends the page to the client.

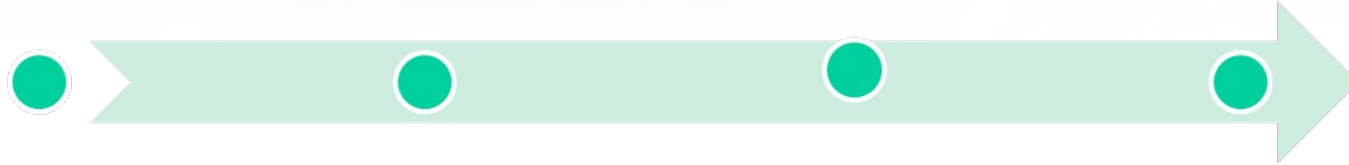


Planning

Requirements

Development

Testing



- We have made adjustments to improve the correct display and operation of:
 - Visualization of logs
 - Time series
 - Presentation of radar images
- We have solved some problems that have been related to the visualization of the website in browsers



Functionality of the web site

- Monitoring of the reception of data in Real time
 - Logs
 - Time series
 - Visualization of radar images
- Monitoring of transmission of data to the European Centre
- Related links
- Storage of documents
- Search engine
- Help (Solution of problems related to the use of the web)



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Frontend of our web page :
<http://noreste.inm.es:81/joom1/>

The screenshot shows a Mozilla Firefox browser window displaying the AEMET website. The page title is "AEMET Asimilación de datos Radar". The main content area features a "Menú principal" with a list of links: Inicio, Monitorización de la Recepción en Tiempo Real, Monitorización de la transmisión de datos al Centro Europeo, Enlaces, Documentos, Buscar, and Ayuda. Below the menu is a login form with fields for "Nombre de usuario" (containing "admin") and "Contraseña" (containing "****"), a "Recordarme" checkbox, and an "Iniciar sesión" button. There are also links for "¿Olvidó su contraseña?", "¿Olvidó su nombre de usuario?", and "Regístrese aquí". At the bottom of the page, it says "PHP | MySQL | Joomla AEMET © 2012." The browser's address bar shows the URL "http://noreste.inm.es:81/joom1/".



This is the backend from where we manage Joomla

We can add and configure new components and PHP modules to increase the functionality of the web in addition to many other features such as creating users and setting up his access rights, blogs, chats, etc...

Monitoring of the reception of data in Real time : Logs

<http://noreste.inm.es:81/joom1/>

AEMET

Asimilación de datos Radar

<p>Menú principal</p> <ul style="list-style-type: none"> » Inicio » Monitorización de la Recepción en Tiempo Real <ul style="list-style-type: none"> » Logs <ul style="list-style-type: none"> » Barcelona » Madrid » Series Temporales » Visualización » Enlaces » Fotos » Documentos » Buscar » Ayuda 	<pre> Monitor Radar Barcelona Fecha dtg 2012012312 dtg0 2012012310 dtg1 2012012311 Fecha de actualizacion del log: 2012012312 Monitorizando intervalo: 2012012310 - 2012012311 ----- Ficheros correspondientes a la hora 2012012310 y ciclo : 0 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012310 y ciclo : 1 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012310 y ciclo : 2 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012310 y ciclo : 3 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012310 y ciclo : 4 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012310 y ciclo : 5 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012311 y ciclo : 0 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012311 y ciclo : 1 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012311 y ciclo : 2 !!!!!! Ciclo NO COMPLETO nc=5 ----- Ficheros correspondientes a la hora 2012012311 y ciclo : 3 !!!!!! Ciclo NO COMPLETO nc=5 </pre>
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Nombre de usuario

Contraseña

Recordarme

[¿Olvidó su contraseña?](#)
[¿Olvidó su nombre de usuario?](#)
[Regístrese aquí](#)

Time series

<http://noreste.inm.es:81/joom1/>



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Series Temporales - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Mail :: Inbox: Re: Presentacion... Dropbox - You're invited to join ... Series Temporales radar - Administración Translate from Spanish to Engli...

noreste.inm.es:81/joom1/index.php/monitorizacion-recepcion-en-rt/series-temporales.html

Mail :: Welcome to AE... Most Visited Getting Started Latest Headlines PHP: Manual de PHP ... radar EC0001: Software Libr... Master en Geofisica y ...

AEMET

Asimilación de datos Radar

Menú principal

- » Inicio
- » Monitorización de la Recepción en Tiempo Real
 - » Logs
 - » Series Temporales
 - » Visualización
- » Monitorización de la transmisión de datos al Centro Europeo
- » Enlaces
- » Documentos
- » [Buscar](#)
- » [Ayuda](#)

Nombre de usuario

Contraseña

Recordarme

[¿Olvidó su contraseña?](#)
[¿Olvidó su nombre de usuario?](#)
[Regístrese aquí](#)

Radar PALMA. % de pixels con ecos. Periodo : 201202100100-201202100850 Hora Reporte: 201202100909

10/04 Dia/Hora (UTC)

Radar MADRID. % de pixels con ecos. Periodo : 201202100100-201202100850 Hora Reporte: 201202100909

10/04 Dia/Hora (UTC)

Radar BARCEL. % de pixels con ecos. Periodo : 201202100100-201202100850 Hora Reporte: 201202100909

10/04 Dia/Hora (UTC)

PHP | MySQL | Joomla
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Visualization in format disk (Madrid radar)

<http://noreste.inm.es:81/joom1/>

AEMET

Asimilación de datos Radar

Menú principal   

- » Inicio
- » Monitorización de la Recepción en Tiempo Real
- » Logs
- » Series Temporales
- » Visualización
 - » Formato Disco
 - » Barcelona
 - » Madrid
 - » Formato Range Azimuth
- » Enlaces
- » Fotos
- » Documentos
- » Buscar
- » Ayuda

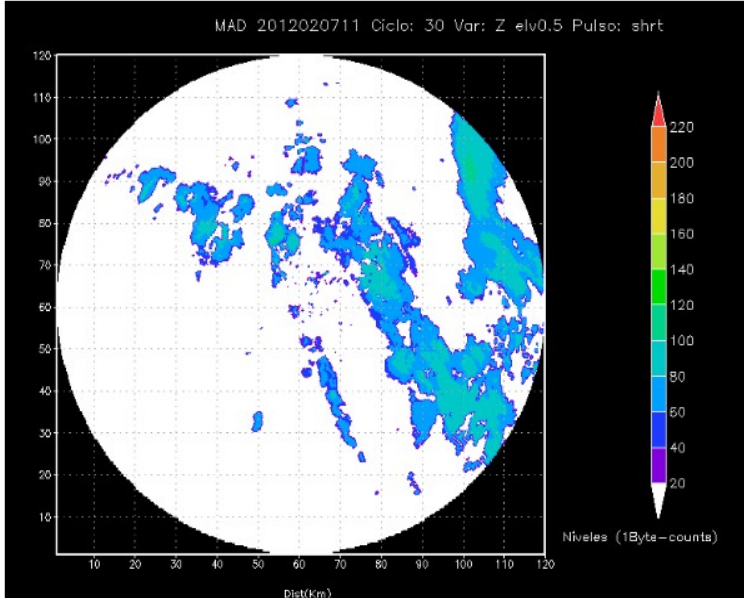
Nombre de usuario

Contraseña

Recordarme

[¿Olvidó su contraseña?](#)
[¿Olvidó su nombre de usuario?](#)
[Regístrate aquí](#)

MAD 2012020711 Ciclo: 30 Var: Z elv0.5 Pulso: shrt

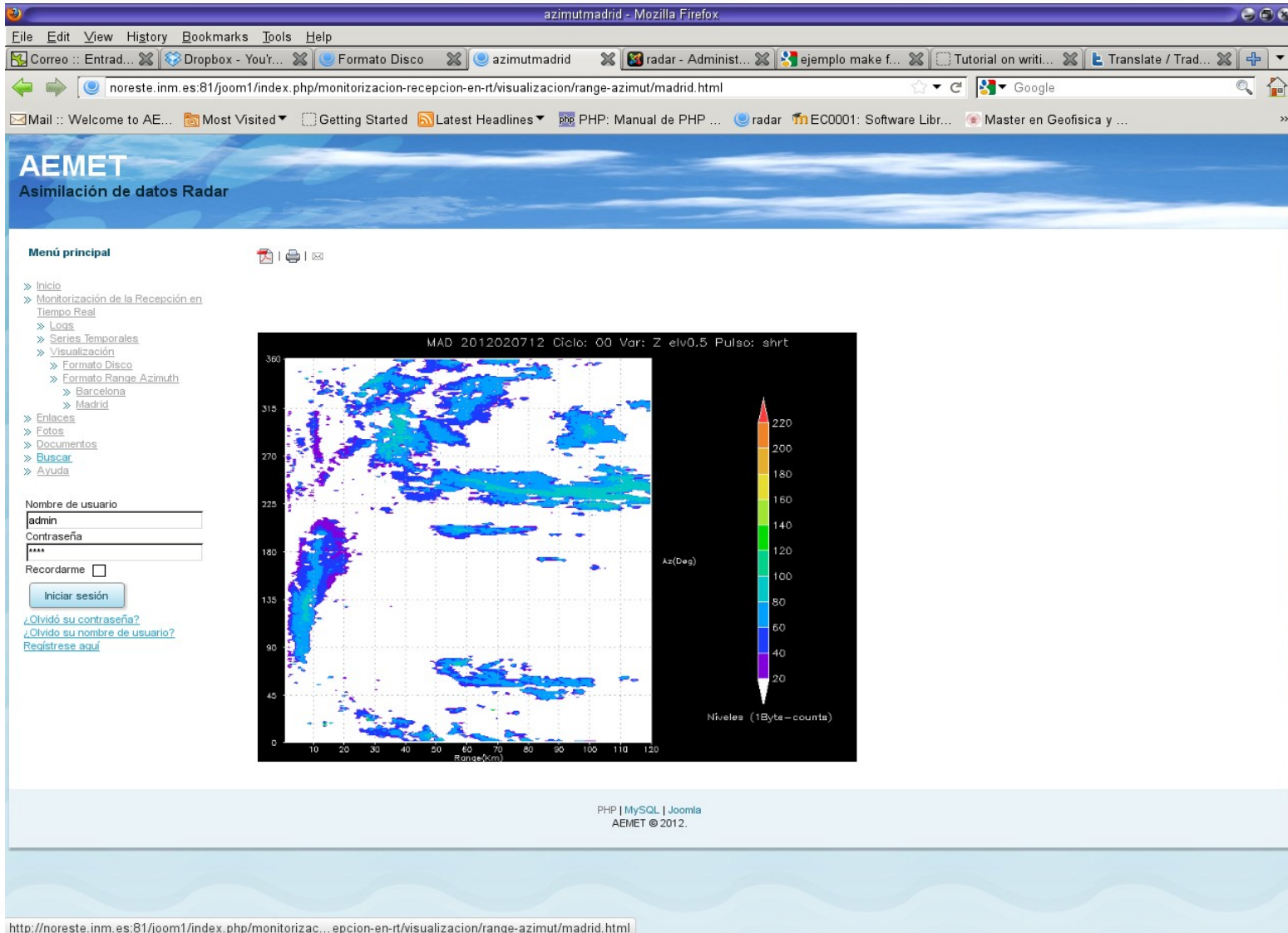


Niveles (1Byte-counts)

PHP | MySQL | Joomla
AEMET © 2012.

Visualization of Range Azimut (Madrid)

<http://noreste.inm.es:81/joom1/>



azimutmadrid - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Correo :: Entrad... Dropbox - You'r... Formato Disco azimutmadrid radar - Administr... ejemplo make f... Tutorial on writi... Translate / Trad... +

noreste.inm.es:81/joom1/index.php/monitorizacion-recepcion-en-rt/visualizacion/range-azimut/madrid.html

Google

Mail :: Welcome to AE... Most Visited Getting Started Latest Headlines PHP: Manual de PHP ... radar EC0001: Software Libr... Master en Geofisica y ...

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Asimilación de datos Radar

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 - » Formato Disco
 - » Formato Range Azimut
 - » Barcelona
 - » Madrid
- » Enlaces
- » Fotos
- » Documentos
- » Buscar
- » Ayuda

Nombre de usuario
admin

Contraseña

Recordarme

Iniciar sesión

[¿Olvidó su contraseña?](#)

[¿Olvidó su nombre de usuario?](#)

[Regístrese aquí](#)

MAD 2012020712 Ciclo: 00 Var: Z elv.0.5 Pulso: shrt

360
315
270
225
180
135
90
45
0

10 20 30 40 50 60 70 80 90 100 110 120

Range(Km)

Az(Deg)

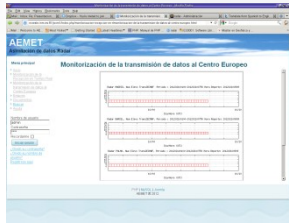
Niveles (1Byte-counts)

220
200
180
160
140
120
100
80
60
40
20

PHP | MySQL | Joomla
AEMET © 2012.

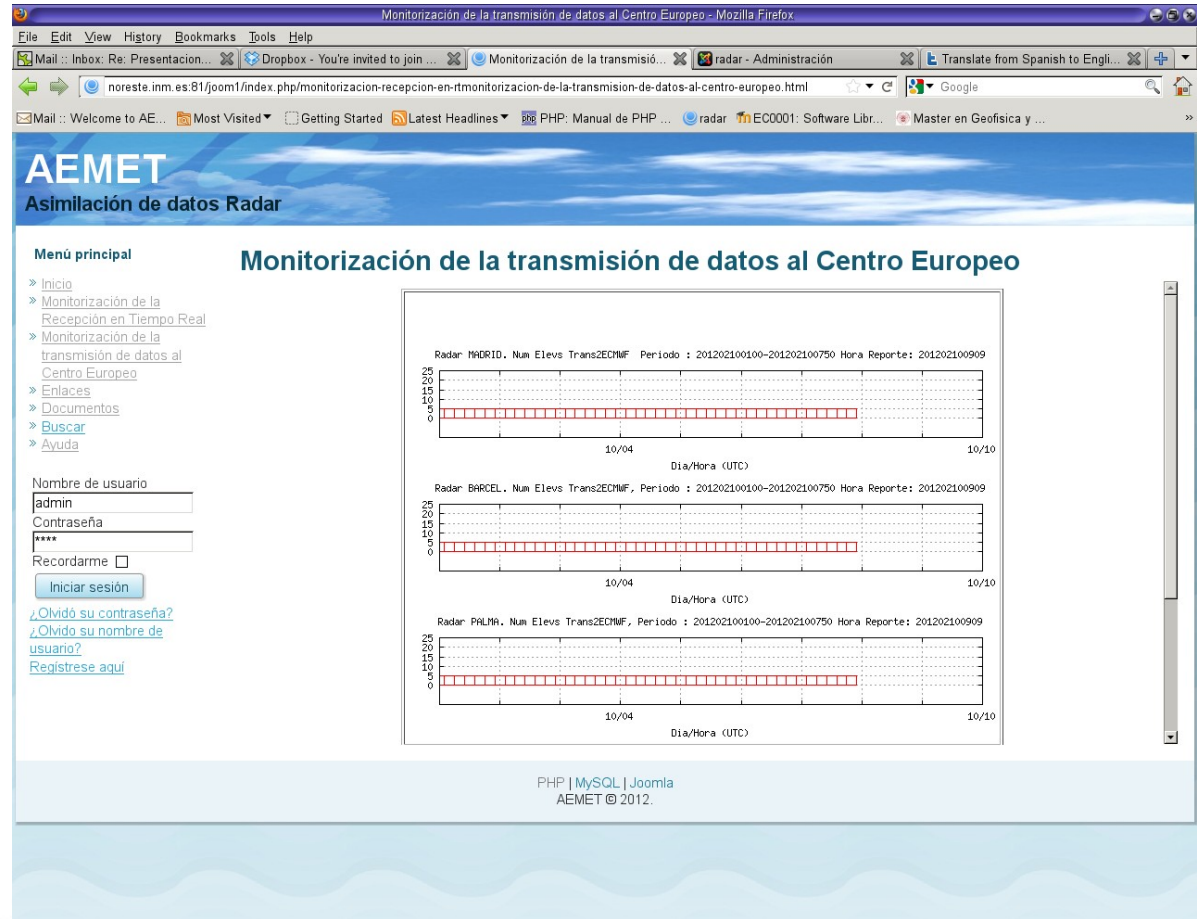
http://noreste.inm.es:81/joom1/index.php/monitorizac...epcion-en-rt/visualizacion/range-azimut/madrid.html

Monitoring of transmission of data to the European Centre



It monitors the correct sending data to the ECMWF.

Currently only available for the radars of Madrid, Barcelona and Palma.



Monitorización de la transmisión de datos al Centro Europeo - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Mail :: Inbox: Re: Presentacion... Dropbox - You're invited to join ... Monitorización de la transmisió... radar - Administración Translate from Spanish to Engl...

noreste.inm.es:81/joom1/index.php/monitorizacion-recepcion-en-tmonitorizacion-de-la-transmision-de-datos-al-centro-europeo.html

Google

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- » Documentos
- » [Buscar](#)
- » [Ayuda](#)

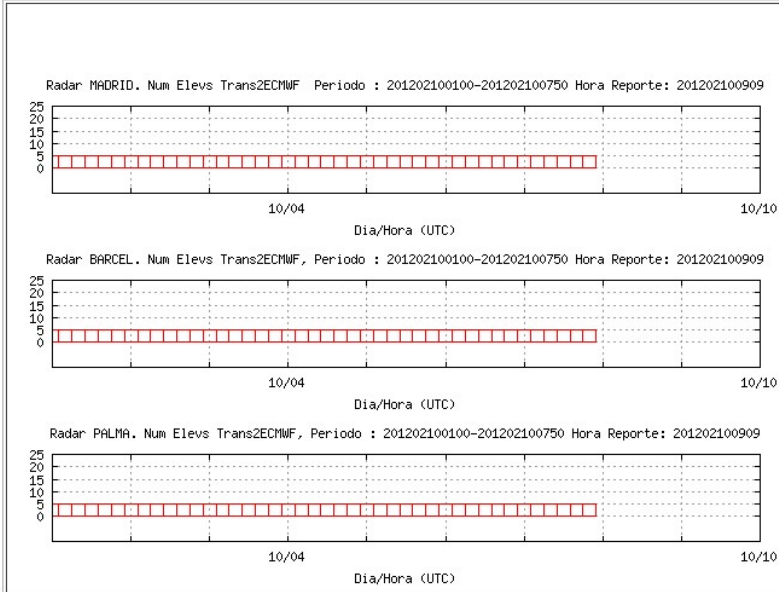
Nombre de usuario

Contraseña

Recordarme

[¿Olvidó su contraseña?](#)
[¿Olvidó su nombre de usuario?](#)
[Regístrate aquí](#)

Monitorización de la transmisión de datos al Centro Europeo



Radar MADRID. Num Elevs Trans2ECMWF Periodo : 201202100100-201202100750 Hora Reporte: 201202100909

Radar BARCEL. Num Elevs Trans2ECMWF, Periodo : 201202100100-201202100750 Hora Reporte: 201202100909

Radar PALMA. Num Elevs Trans2ECMWF, Periodo : 201202100100-201202100750 Hora Reporte: 201202100909

PHP | MySQL | Joomla
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<http://noreste.inm.es:81/joom1/>



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Documents manager.Storage of technical guides and documents relating to radar : <http://noreste.inm.es:81/joom1/>

The screenshot shows a web browser window with the URL noreste.inm.es:81/joom1/index.php/documentos.html. The page title is "AEMET Asimilación de datos Radar".

Menú principal

- » Inicio
- » Monitorización de la Recepción en Tiempo Real
- » Monitorización de la transmisión de datos al Centro Europeo
- » Enlaces
- » Documentos
- » Buscar
- » Ayuda

Nombre de usuario:
Contraseña:
Recordarme

[¿Olvidó su contraseña?](#)
[¿Olvidó su nombre de usuario?](#)
[Regístrate aquí](#)

Descargas de radar **RSS**

Carpetas	Subcarpetas/Archivos
documentos	(0/0)
logs	(0/0)
Muestra	(0/0)

Reemplazar o modificar este contenedor de muestra según sea necesario

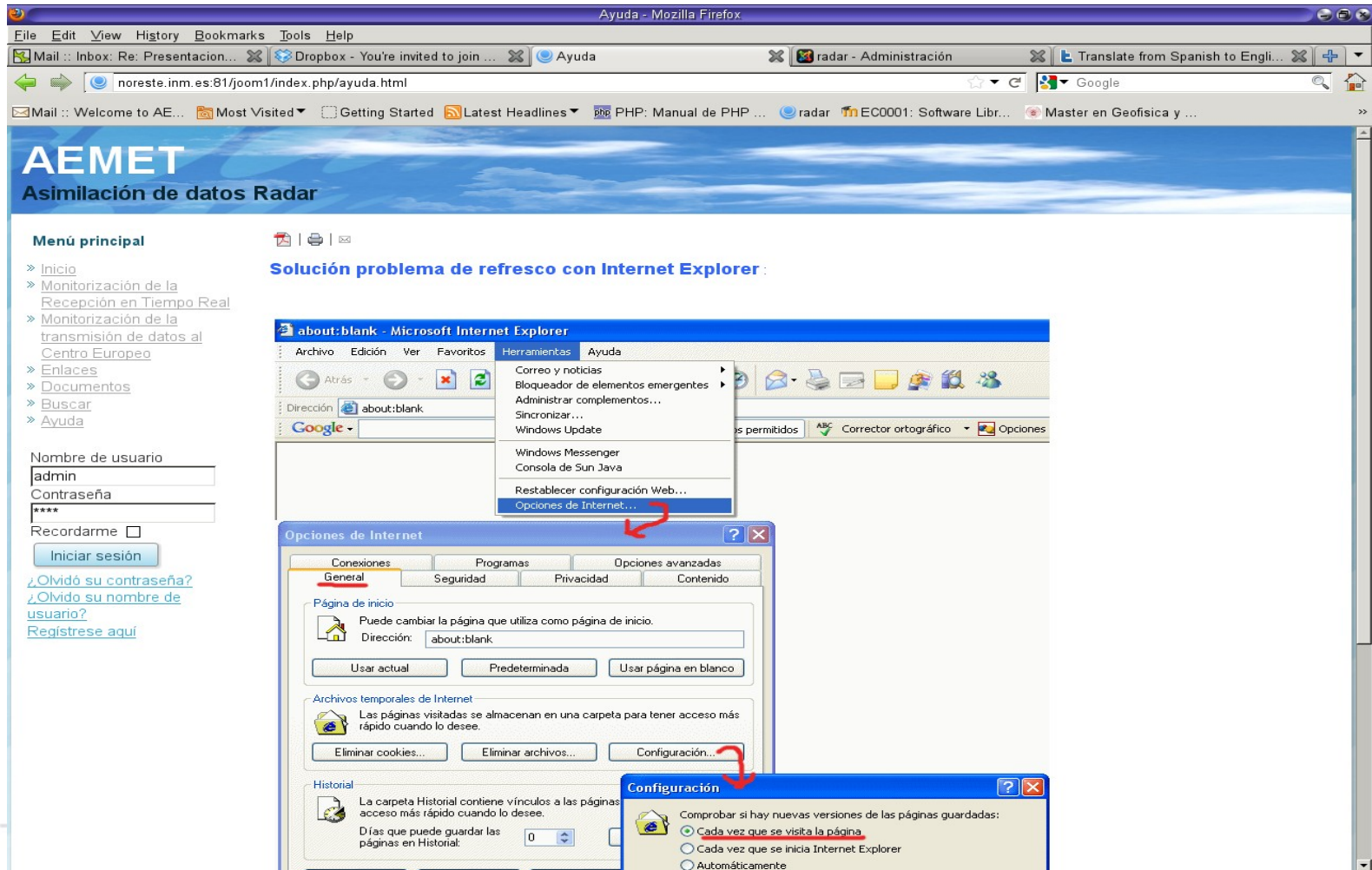
Buscar descarga Enviar Archivo

Remosity 3.52.8 is technology by Guru PHP

PHP | MySQL | Joomla
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Technical help on problems related to the visualization of the web

<http://noreste.inm.es:81/joom1/>



The screenshot shows a Mozilla Firefox browser window with the URL `noreste.inm.es:81/joom1/index.php/ayuda.html`. The page title is "Ayuda - Mozilla Firefox". The browser's address bar shows the URL. The page content includes the AEMET logo and the heading "Asimilación de datos Radar". A "Menú principal" is visible on the left, with links to "Inicio", "Monitorización de la Recepción en Tiempo Real", "Monitorización de la transmisión de datos al Centro Europeo", "Enlaces", "Documentos", "Buscar", and "Ayuda". Below the menu is a login form with fields for "Nombre de usuario" (containing "admin") and "Contraseña" (containing "****"), a "Recordarme" checkbox, and an "Iniciar sesión" button. There are also links for "¿Olvidó su contraseña?", "¿Olvidó su nombre de usuario?", and "Regístrate aquí".

Overlaid on the browser window is a screenshot of a Microsoft Internet Explorer window. The title bar reads "about:blank - Microsoft Internet Explorer". The menu bar includes "Archivo", "Edición", "Ver", "Favoritos", "Herramientas", and "Ayuda". The "Herramientas" menu is open, showing options like "Correo y noticias", "Bloqueador de elementos emergentes", "Administrar complementos...", "Sincronizar...", "Windows Update", "Windows Messenger", "Consola de Sun Java", "Restablecer configuración Web...", and "Opciones de Internet...". A red arrow points from the "Opciones de Internet..." menu item to the "Opciones de Internet" dialog box.

The "Opciones de Internet" dialog box is open, showing the "General" tab. The "Página de inicio" section has "Dirección:" set to "about:blank". The "Archivos temporales de Internet" section has "Configuración..." selected. A red arrow points from the "Configuración..." button to the "Configuración" dialog box.

The "Configuración" dialog box is open, showing the "Comprobar si hay nuevas versiones de las páginas guardadas:" section. The "Cada vez que se visita la página" option is selected. Other options include "Cada vez que se inicia Internet Explorer" and "Automáticamente".



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Links to sites related to radar

<http://noreste.inm.es:81/joom1/>

enlaces - Mozilla Firefox

File Edit View History Bookmarks Tools Help

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noreste.inm.es:81/joom1/index.php/enlaces.html Google

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Asimilación de datos Radar

Menú principal   

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- » [Monitorización de la transmisión de datos al Centro Europeo](#)
- » Enlaces
 - » [Opera](#)
 - » [Intranet de la AEMET](#)
 - » [WebGraf](#)
 - » [Radar Aemet](#)
 - » [Hydrological Mediterranean Experiment Hymex](#)
- » Documentos
- » [Buscar](#)
- » [Ayuda](#)

Nombre de usuario

Contraseña

Recordarme

[¿Olvidó su contraseña?](#)
[¿Olvidó su nombre de usuario?](#)
[Regístrese aquí](#)



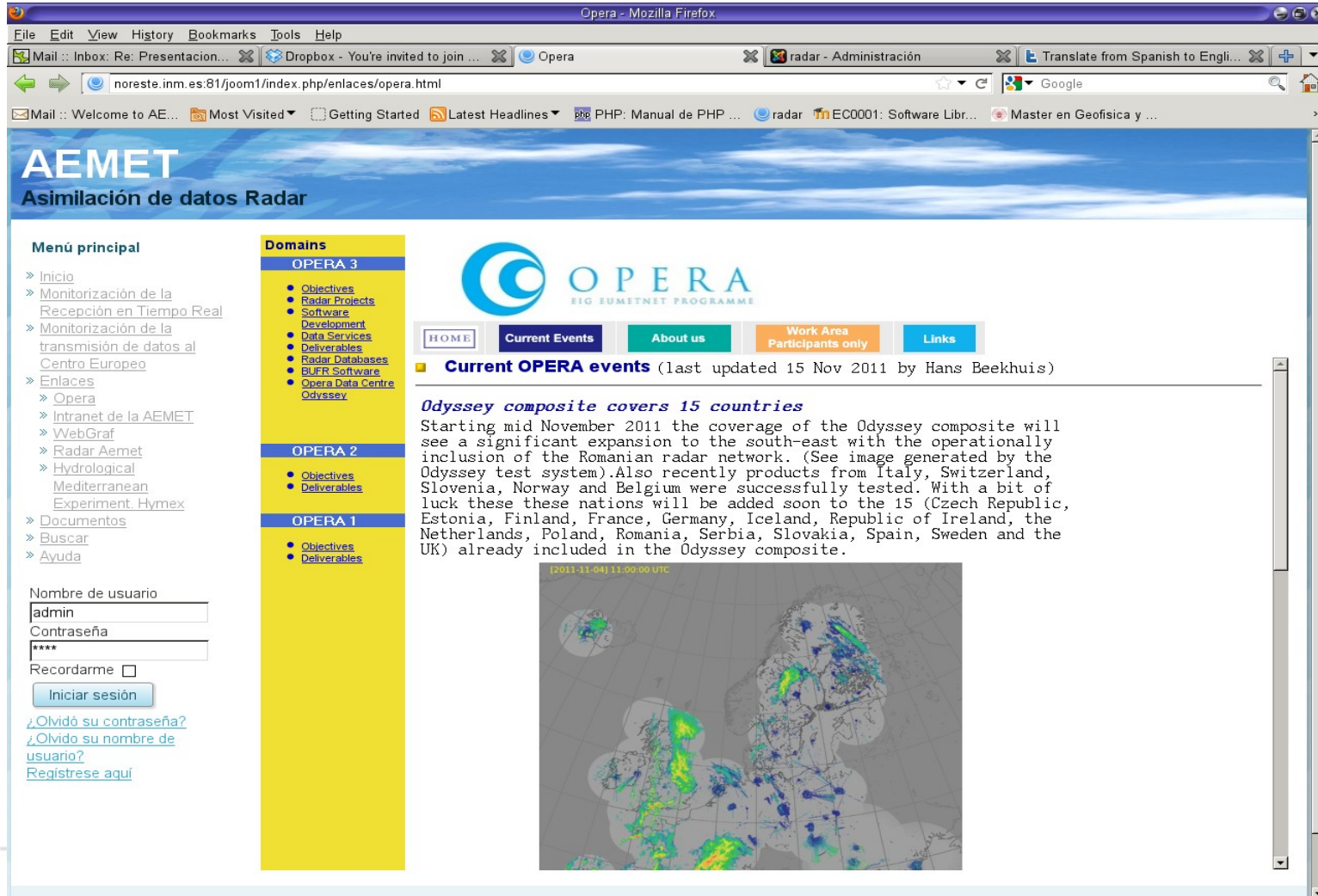
OPERA
EIG EUMETNET PROGRAMME

ACCESO A INTRANET



PHP | MySQL | Joomla
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We have included in our web some websites related to our project
<http://noreste.inm.es:81/joom1/>



Opera - Mozilla Firefox

File Edit View History Bookmarks Tools Help

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noreste.inm.es:81/joom1/index.php/enlaces/opera.html

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 - » Radar Aemet
 - » Hydrological Mediterranean Experiment. Hymex
- » Documentos
- » Buscar
- » Ayuda

Nombre de usuario
admin

Contraseña

Recordarme

Iniciar sesión

[¿Ovidó su contraseña?](#)
[¿Ovidó su nombre de usuario?](#)
[Regístrese aquí](#)

Domains

OPERA 3

- Objectives
- Radar Projects
- Software
- Development
- Data Services
- Deliverables
- Radar Databases
- BUFR Software
- Opera Data Centre
- Odyssey

OPERA 2

- Objectives
- Deliverables

OPERA 1

- Objectives
- Deliverables

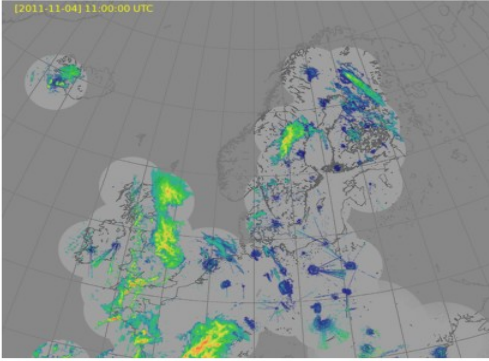
OPERA
FIG SUMETNET PROGRAMME

HOME Current Events About us Work Area Participants only Links

Current OPERA events (last updated 15 Nov 2011 by Hans Beekhuis)

Odyssey composite covers 15 countries

Starting mid November 2011 the coverage of the Odyssey composite will see a significant expansion to the south-east with the operational inclusion of the Romanian radar network. (See image generated by the Odyssey test system). Also recently products from Italy, Switzerland, Slovenia, Norway and Belgium were successfully tested. With a bit of luck these nations will be added soon to the 15 (Czech Republic, Estonia, Finland, France, Germany, Iceland, Republic of Ireland, the Netherlands, Poland, Romania, Serbia, Slovakia, Spain, Sweden and the UK) already included in the Odyssey composite.



[2011-11-04] 11:00:00 UTC

Hydrological Mediterranean Experiment. Hymex - Mozilla Firefox

File Edit View History Bookmarks Tools Help

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noreste.inm.es:81/joom1/index.php/enlaces/hymex.html

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 - » Hydrological Mediterranean Experiment. Hymex
- » Documentos
- » Buscar
- » Ayuda

Nombre de usuario

Contraseña

Recordarme

Iniciar sesión

[¿Olvidó su contraseña?](#)

[¿Olvidó su nombre de usuario?](#)

[Regístrate aquí](#)

Hydrological Mediterranean Experiment. Hymex



HYdrological cycle in Mediterranean EXperiment

Not logged in [Click here](#)

[Home](#) [About HyMeX](#) [Organisation](#) [Resources](#) [Workshops](#) [Links](#) [Contacts](#)

[Task teams](#) [Working grou](#)

News

Events recorded in the HyMeX database

Posted 26.01.2011

- The HyMeX database <http://www.hymex.org/database> offers a direct access to a list of HPEs of interest for HyMeX, including the series of events that occurred from September to November 2011. Cross work on these case studies is encouraged in preparation of the upcoming 6th HyMeX workshop of May 2012 and of the first SOP in the NWMed at Fall 2012.



Post-flood survey in the Magra River, Italy, 13-17 February 2012

Posted 27.01.2012

- A post-flood survey is to be held in the watershed of the Magra River (North-West Italy) which was hit by a flash-flood on 25 October 2011. The objectives are the following: i) mapping of estimated peak discharges, ii) gathering of witness accounts, iii) documenting geomorphic processes.

If you wish to participate, please contact: Lorenzo Marchi (CNR IRPI & TTO2d leader)





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What is next? :

Development of a radar simulator

Development of radar data QC modules

Assimilation experiments with mesoscale NWP system

Further development of the website if needed



Thanks for your attention