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<http://www.ign.es>

THE SPATIAL DATA INFRASTRUCTURE OF SPAIN AS AN EXAMPLE OF SUCCESS IN EUROPE

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12.08.2009 Ninth Conference UN New York 1

Summary 

- Geographic Information data sources
- The need for harmonisation
- IDEE Project (National Spanish Spatial Data Infrastructure).
- IDEE Project funding
- IDEE Geoportal
- IDEE Legal Framework
- New data policy
- Conclusions

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Public Administration in Spain

- 1) National Level
 - Government of Spain (14 Ministries managing GI)
- 2) Regional Level
 - 17 Autonomous Regions
 - 2 Autonomous Cities
- 3) Local Level
 - 8 111 Municipalities
 - 47 Provincial Gov.
 - Consells Insulars
 - Island Council



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❖ The need for harmonisation

❑ Geographic Information from several data providers

↳ Processes to transform and load it into the user GIS system.

❑ An easy and less expensive way is to use web services provided by other organisations: SDI

- Interoperability, based on standards and common specifications
- Harmonisation, to cooperate in order to harmonise geographic information produced by different authorities or to produce jointly a new one shared and co-owned by several authorities.

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The National Plan for Aerial Orthophotography (PNOA) (25/50 cm)



Funding:

**66%
National
Gov**

**34%
Regional
Gov**

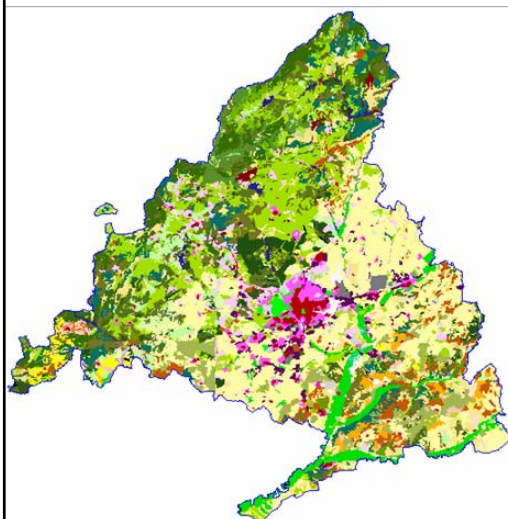
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5

Information System of Land cover & Land use in Spain (SIOSE).



Production of land cover/land use database in a cooperative way between the national and the regional administrations

✓Nominal scale: 1:25.000

✓Updating period 5 years

✓**Funding:**

✓66% National government:

✓34% Regional governments

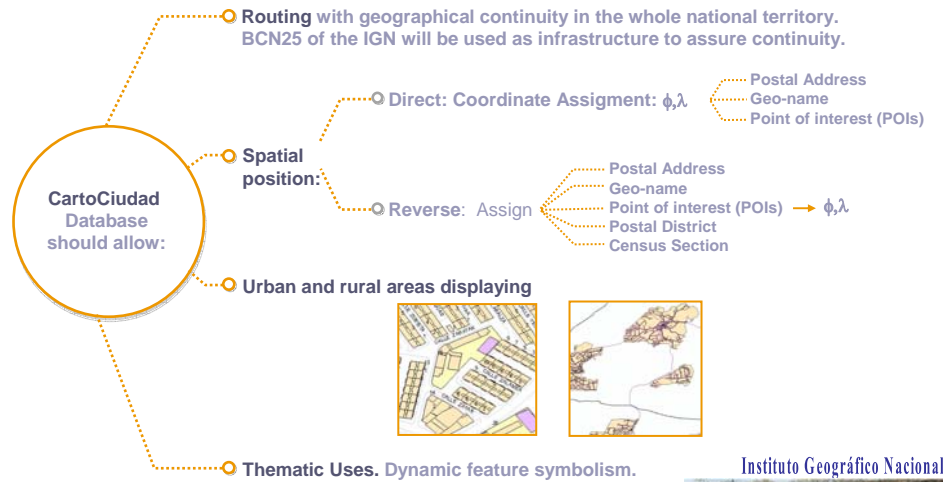
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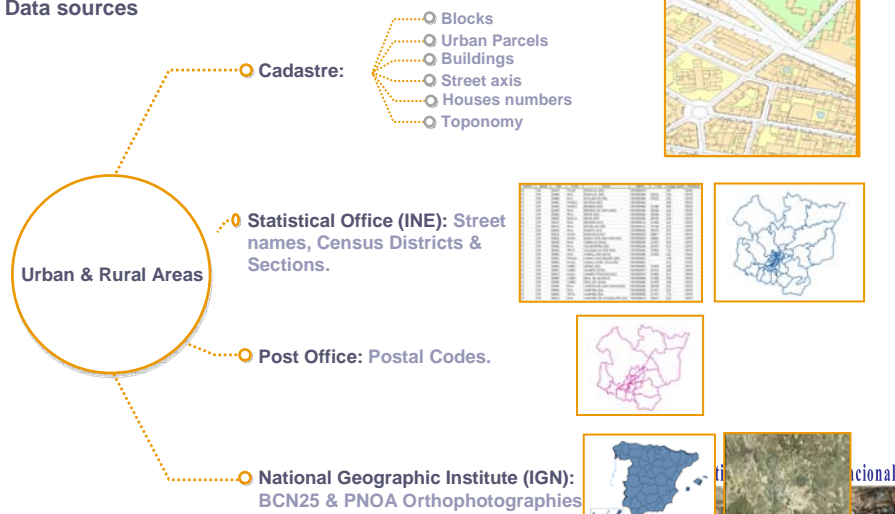
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6

Objectives



Data sources



CartoCiudad

Web Map Service: IDEE - CartoCiudad

IDEA Web

1:5.000.000

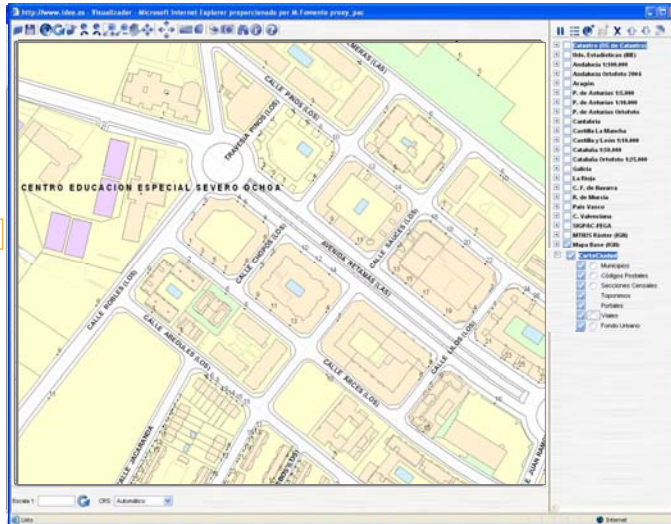
EGM 1M

ERM 1:200.000

BCN25
+
CartoCiudad
(1:25.000)

BCN25
+
CartoCiudad
(1:10.000)

CartoCiudad



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9

The IDEE Project (National Spanish Spatial Data Infrastructure)

- NSDI(IDEA): Collaborative project based on cooperation and agreement among different actors.
- Involving every national stakeholder: national, regional and local governments, academia, companies.
- According to the Spanish Administrative Organization:
 - Who can develop and coordinate an NSDI?
 - Who can act as the NSDI interface in front of European Union, United Nations, etc?

CONSEJO SUPERIOR GEOGRÁFICO
(National Geographic High Council)

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10

■ Ministry of Infrastructure & Transports

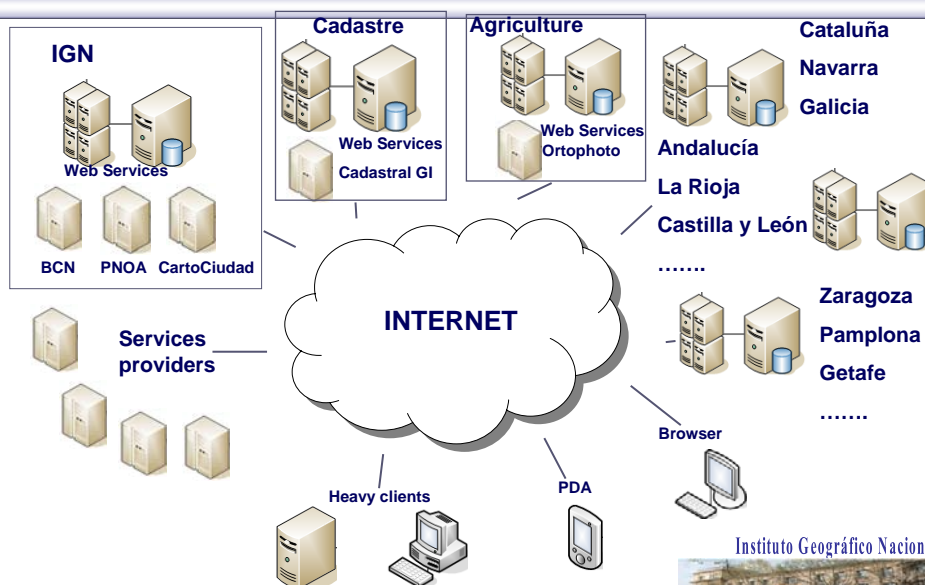
● NATIONAL GEOGRAPHIC HIGH COUNCIL

- Advisory body
 - MISSION: Planning & Coordination of Cartography
- Royal Decree 1545/2007, Chapter VI reorganizes NGHC.
- Representatives
 - 14 Ministries
 - 17 Regional Governments
 - 6 from Federation of Local Authorities
- Technical Secretariat: IGN Spain
- Commission on SDI
 - WG IDEE (NSDI): > 300 members from Governments, Academia, Companies.

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IDEE Architecture



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The IDEE Project funding



- Transformation cost
 - Every agency assumes its data transformation cost
- Harmonisation cost
 - Multilateral or bilateral projects: Cost shared by partner agencies.
- SDI services implementation & maintenance cost: Investment of service provider Agency.
- SDI Geoportals implementation & maintenance cost: Investment from Government (National/ Regional/ Local) budget.
- NSDI Geoportal (IDEE) implementation & maintenance cost: Investment from IGN-E budget as NGHC's Technical Secretariat
 - Implementation & maintenance cost: 1.5 M€/year (2006-2008)

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13

The IDEE Geoportal: www.ideo.es



Portal IDEE - Windows Internet Explorer

http://www.ideo.es/Portal_IDEE.do?to=portal_ideo.DI

Portal IDEE

GOBIERNO DE ESPAÑA MINISTERIO DE FOMENTO Consejo Superior Geografico Infraestructura de Datos Espaciales de España

Spanish IDE

- IDEE Project
- IDEE workinggroup
- SDIs and GIS in Spain

How to contribute?

IDE Contributions

Services

- Catalogue
- Map Viewer
- Data download
- Search for geographical names
- CORINE
- Measurement of altitude
- Coordinate Transformation Service

Resources

- Free Software Tools
- Metadata Design

Select your regional Spatial Data Infrastructure:

The term "Spatial Data Infrastructure" (SDI) is often used to denote the relevant basic collection of technologies, policies and institutional arrangements that facilitates the availability of and access to spatial data. The SDI provides a basis for spatial data discovery, evaluation, and application for users and providers within all levels of government, the commercial sector, the non-profit sector, academia and by citizens in general (www.ideo.es).

The word infrastructure is used to promote the concept of a reliable, supporting environment, analogous to a road or telecommunications network, that, in this case, facilitates the access to geographically-related information using a minimum set of standard practices, protocols, and specifications. The applications that run "on" such an infrastructure are not specified in detail in this document, but, like roads and wires, an SDI facilitates the conveyance of virtually unlimited packages of geographic information.

Services

- Map Viewer
- Data Catalogue
- Search for geographical names
- Download Data
- Terrestrial Analysis
- Symbology Maker
- Land Cover (CORINE)

Documents

- 2009-02-28 Real Decree 1545/2007 del Real Decreto 1545/2007 Cartographic System (2007-02-28)
- 2009-12-10 Spanish Cartographic Portal

Latest News

- 2008-09-02 WGS: First edition WTK00
- 2008-09-01 C009 11
- 2008-08-08 Services and IDEE Portal maintenance

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❖ Spanish SDI Geoportal



- Geoportal opened 2004-06
 - 7 languages:
 - 9 OGC Services:
 - WMS, WFS, WFS-Gaz, WCS, CSW, WMC, WCTS, SLD, WPS
- National Level
 - 6 Ministries involved
- Regional Level
 - 16/17 Regions
- Local Level:
 - > 300 Nodes
- Lot of thematic and specific SDI projects
 - > 30



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15

❖ IDEE Geoportal: Some figures



- Gazetteer > 500,000 geonames (WFS/MNE)
- Map Viewer:
 - ✓ > 500 services
 - ✓ >6,500 layers available
 - ✓ Monthly
 - > 85,000 visits from January to April 2009.
 - > 28,000,000 individual requests to the services in April 2009.
 - > 6,300,000 individual request to WMS IDEBase service.
 - > 20,200,000 individual request to WMS PNOA service.
 - > 1,500,000 individual request to other WMS service.
 - From 105 different countries
- Metadata Catalogue > 40,000 datasets IGN&ICC + Free software application (CatMDEdit)
- Services Catalogue (OGC services capabilities information)
- Data download (GML)
- WFS analysis (Corine Land Cover)
- WCS -Relieve Analysis
- WCST- Coordinate Transformation
- Create symbolization (SLD)
- Set of software tools as freeware: viewer, PDA client, ..

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16

Gazetteer

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http://www.idee.es - Nomenclátor - Búsqueda de Entidades - Microsoft Internet Explorer proporcion

AREA

Sin restricción espacial
 Selección por unidades administrativas

ANDALUCÍA
MÁLAGA

Selección por zona

Mapa de la zona de Málaga (provincia) con una ventana emergente de detalles de la entidad "Málaga (Ciudad, 4101)".

Nombre entidad: Málaga (Ciudad, 4101)
Preferente: Nomenclátor Geográfico Versión 16.06, Instituto Geográfico Nacional (España)
Tipo de entidad: Municipio
Provincia: Entidades del Nomenclátor Geográfico Versión 16.06, Instituto Geográfico Nacional (España)
Catálogo: Posición española
Sistema de Referencia: EPSG 4326
Tipo: Puntal
Coordenadas: 4.42,36 72
Producto: Málaga
Serie: MTNCS
Mapa: 1005.3

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Cadastral WMS Mapping Service

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Visualizador - Windows Internet Explorer



Mapa de un área urbana con parcelas coloreadas en rojo, verde y amarillo.

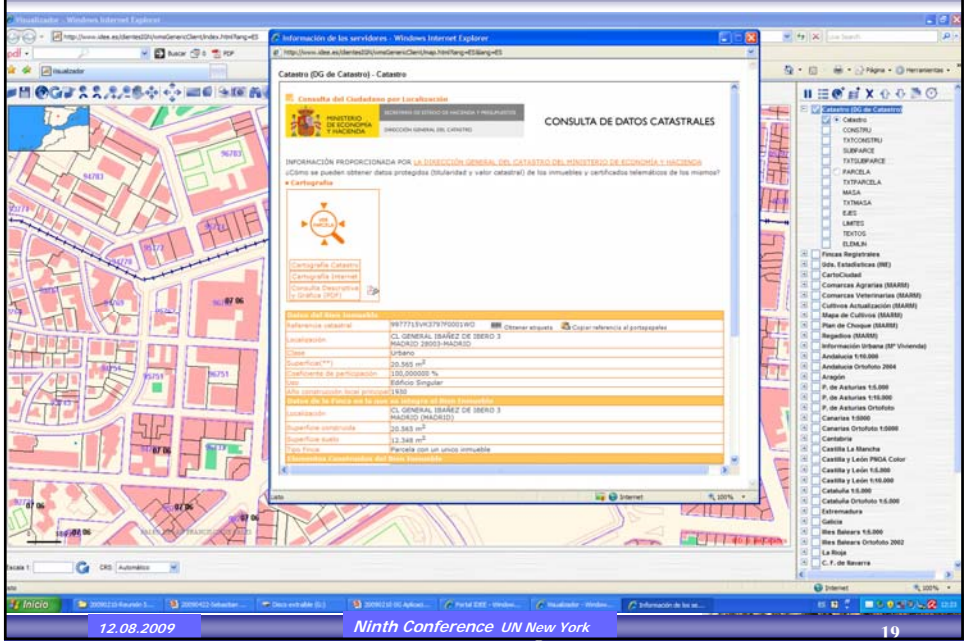
Lista de capas de servicios WMS:

- 01 C. Catastro
- 02 CONSTRU
- 03 EXCONSTRU
- 04 SUBURBANE
- 05 FLOTANTE
- 06 PARCELA
- 07 TITULARIA
- 08 MALA
- 09 TITULARIA
- 10 EAS
- 11 LMITES
- 12 TEXTOS
- 13 ELDMR
- 14 Firmas Registrares
- 15 Info. Estadísticas (INE)
- 16 CartaCiudad
- 17 Comarcas Agrarias (SIAAR)
- 18 Comarcas Veterinarias (SIAAR)
- 19 Cultivos Actualización (SIAAR)
- 20 Mapa de Cultivos (SIAAR)
- 21 Plan de Choques (SIAAR)
- 22 Regativa (SIAAR)
- 23 Información Ortofoto (IP) Universidad
- 24 Andalucía 1:63.000
- 25 Andalucía Ortofoto 2004
- 26 Aragón
- 27 P. de Asturias 1:63.000
- 28 P. de Asturias 1:63.000
- 29 P. de Asturias Ortofoto
- 30 Canarias 1:63.000
- 31 Canarias Ortofoto 1:63.000
- 32 Cantabria
- 33 Castilla La Mancha
- 34 Castilla y León (PDR) Color
- 35 Castilla y León 1:63.000
- 36 Castilla y León 1:63.000
- 37 Cataluña 1:63.000
- 38 Cataluña Ortofoto 1:63.000
- 39 Extremadura
- 40 Galicia
- 41 Mes Bajas 1:63.000
- 42 Mes Bajas Ortofoto 2002
- 43 La Rioja
- 44 C. F. de Navarra

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Cadastral WMS Mapping Service + GetFeatureInfo Cadastral Data

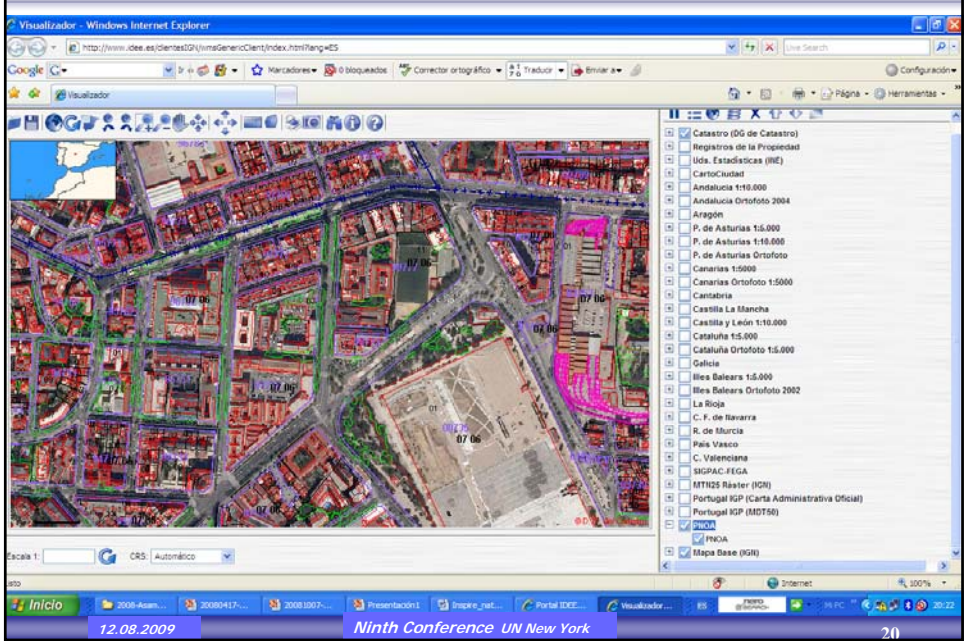





19



Cadastral Parcels + IGN 1:25.000 Mapping + PNOA

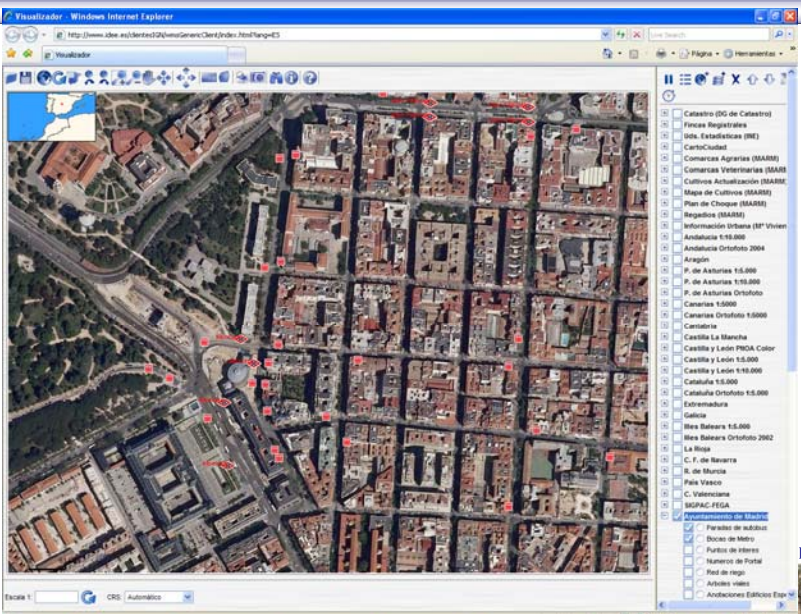


20



PNOA Orthophotography + Bus Stops & Metro Stations from Local Authority of Madrid

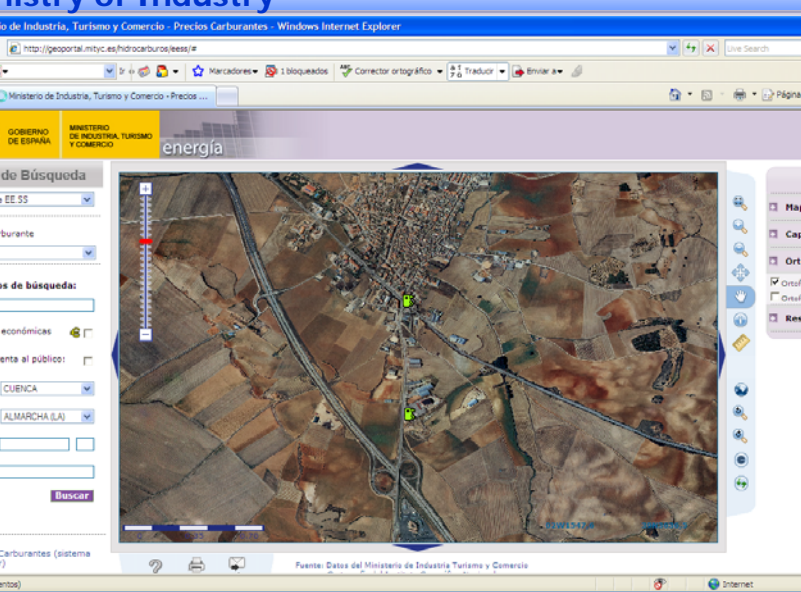





The screenshot shows a web browser window displaying an orthophotography map of a city grid in Madrid. Red markers indicate bus stops, and blue markers indicate metro stations. A sidebar on the right lists various data layers such as 'Catastro (DG de Catastro)', 'Fincas Registradas', 'Urb. Estadísticas (INE)', 'CartoCiudad', and 'Puntos de Metro'. The browser's address bar shows the URL: <http://www.iber.es/iber/20/MenuGenericoClient/index.html?lang=ES>. The bottom of the browser window shows the Windows taskbar with the date '12.08.2009' and the text 'Ninth Conference UN New York'.

Gas station display and pricing Geoportal. Ministry of Industry



The screenshot shows a web browser window displaying a gas station display and pricing application. The interface includes a search menu on the left with fields for 'Búsqueda de EE SS', 'Tipo de carburante', 'Parámetros de búsqueda', 'Provincia', 'Localidad', 'Calle y nº', and 'C.P.'. The central map shows an aerial view of a city with several gas stations marked. A sidebar on the right contains a 'Mapa Guía' and a 'Resultados' panel. The browser's address bar shows the URL: <http://geportal.mityc.es/hidrocarburos/ee/ss/#>. The bottom of the browser window shows the Windows taskbar with the date '12.08.2009' and the text 'Ninth Conference UN New York'.

WFS Analysis: Land Cover & Use

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http://www.idee.es - Mostrar información del punto marcado ...

Información del punto 406655.86378, 4606926.98491 (UTM30N, ED69):

- Identificador: 179207
- Código: 32122
- CCAA: Comunidad de Madrid
- Descripción: Otros pastizales mediterráneos

Terminado

Terminado

Terminado

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23

http://www.idee.es - Visualizador - Microsoft Internet Explorer proporcionado por M. Fomento proxy_pac

Relieve Analysis

MDT Pendientes

- > 75%
- 35-75%
- 20-35%
- < 20%

INFORMACIÓN DE LAS ELEVACIONES DEL ÁREA SEÑALIZADA

Área geográfica: Península

Resolución: 200 metros

Tipo de información: Elevaciones

http://www.idee.es/wfs/IDE/IDEWFS-UTM30NWest/area.html

Cargar datos

Altura mínima:

Altura máxima:

Altura media:

0 2 Km

Mapa: -17,01, 28,06 (Sur-lat, datum ED69) - -17,0112, 28,0596 (Sur-lat, datum ETR509) - Escala 1:132099

Inicio

14:08

IDEE Legal Framework



- From experience running in a collaborative way IDEE since 2003 first NSDI legal regulation was developed on 2006-2007
 - Royal Decree 1545/2007, Nov 23rd 2007, defining the National Cartographic System (SCN)
 - Proposed by National Geographic Institute (IGN) of Spain and agreed with every official Spanish GI producer (National, Regional, Local)
 - Royal Decree 1545/2007 defines:
 - The National Reference Geographic Data (NRGE)
 - Official Cartographic Production Planning
 - Central Cartographic Register
 - Geographic Information National Infrastructure NSDI according INSPIRE Directive
 - Some Autonomous Communities (Regions) have Regional Laws where a Regional SDI is set up:
 - Catalonia
 - Andalusia

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25

IDEE Legal Framework



- After Directive 2007/2/CE approval (14th March 2007)
 - Ministry of Foreign Affairs and Co-operation set up a Committee for Directive transposition:
 - Ministry of Infrastructures and Transports (Chair)
 - Ministry Environment
 - Ministry Economy and Finances
 - Ministry Agriculture
 - Ministry Industry, Tourism and Commerce
 - Ministry Public Health
 - Committee for Transposition = New Law Drafting Team
 - End May 2008: First draft ready
 - July 2008 : Draft sent to the Regions representatives at NGHC in order to get their amendment proposals.
 - November 2008: Draft submitted to the IDEE WG in order to get their amendment .
 - March 12th 2009 final draft approved by NGHC.
 - March 18th 2009 final draft sent to the National Government
- After agreement from all Ministries and National Government approval it will be send to the Parliament



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26

- Taken into account new aspects due to SDI and harmonisation on access and use of GI in Spain:
 - INSPIRE Directive legally bounding to the Member States to set up geo-portals giving access to geographic data and services.
 - In Spain every day more GI is co-owned by several authorities, in many cases from different Governments => Need for harmonisation on data policy.
 - Regional Governments and Ministries at the National Government have set up data policy on the idea that opening the access to GI information, it helps to increase very significantly GI business and this is clearly good for the Governments incomes due to taxation on the companies.

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- ✓ **IGN Spain has changed its regulation for data policy. New data policy to be establish as:**
- Open access to GI data and services
 - N.R.G.E. + Metadata = Public Sector Information = Free access, free use, free of charge
 - No licence for N.R.G.E. and Metadata download
 - Non commercial use = Free access, free of charge, but mention of origin and ownership.
 - Services for viewing, analysis and geoprocessing on line
 - Free of charge by Internet
- Downloading
 - By Internet (IGN/CNIG+Cadastr+Regions+....)= Free of charge for non commercial uses
 - Click licence, creative commons or equivalent
 - Commercial use (CNIG/IGN)= Agreement/contract with CNIG
- Direct internal use at companies
 - To be integrated in company Management systems = Non commercial use
 - Can be published on Internet giving added value to the original GI when the uses are not commercial.

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Conclusions



- The SDI need for harmonisation and interoperability has promoted several collaborative GI production projects in Spain (PNOA, SIOSE, CartoCiudad)
- National SDI of Spain = IDEE
 - Collaborative project based on co-operation & agreement
 - According to INSPIRE principles
- National Geographic High Council
 - Promoting, driving, developing NSDI
 - Interface in front of European Union, United Nations, (GT IDEE)
 - IGN-E: Coordination, technical support
- IDEE funding: Sharing costs among public sector.
- IDEE Geoportal and Spanish Geoportals: Interoperability & Technology
- NSDI (IDEE) set up by Royal Decree 1545/2007
 - INSPIRE transposition Law: To be sent to the Parliament
- Data policy: Open access to GI data and services
 - Free of charge by Internet
 - Commercial use (CNIG/IGN)= Agreement/contract with CNIG

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29



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Thanks

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30