



NORWEGIAN PETROLEUM  
DIRECTORATE



# International Metadata standards for Petroleum database management

Workshop on CCOP metadata standard & requirement  
analysis for the CCOP Natural Gas Metadata Database

Shanghai, China 1 – 3 April 2009

Mr. Kjell Reidar Knudsen, Norwegian Petroleum Directorate

## Topics given in program:

- ◆ What are the various international standards
- ◆ Comparison of various standards
  - ◆ advantages & disadvantages
- ◆ History of development - evolution
- ◆ What are the technologies required?
- ◆ Required capacities for data manager

# My agenda

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- ◆ What is metadata?
- ◆ What is a “standard”?
- ◆ What does it mean to “use” a standard
- ◆ Which standards are around which may be relevant for the EPPM-project
  - ◆ Pro’s and cons (Advantages and disadvantages)

# What is metadata.

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- ◆ My approach to metadata
  - ◆ Metadata, generally speaking ....
  - ◆ Metadata, in the EPPM project
    - To make the result useful for  
Natural gas research & administration
    - To make useful output at early stage
    - To focus on what is special for petroleum

**Who are the stakeholders?**

# Metadata (generally speaking...)

---

Metadata: Data about the data/information

Data/Information  
(Data resource)

People can

- read metadata to see if the box is worth opening/using
- search for information inside a lot of boxes by reading the metadata

Computers can

- store the metadata to make it possible to search for specific information
- use the metadata to be able to connect to the server where data is stored
- use the metadata to read the data (and use it)



# Purpose decide what is “the black box”

Metadata may be made on all levels of details:

A map/report/sample:

Description, Keywords, ownership, contact person

The item structure (ex document format) :

Drawing, text, picture, map, size, weight

The medium:

Magnetic medium, optical medium

The digital file:

Protocol, file format, Header type

**Which level of metadata is useful for the EPPM**

# What is a “standard”

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- ◆ International standards ( ex ISO, CEN..)  
International obligations
- ◆ National standards/ (ex NS)  
regulations/guidelines (often according to ISO)
- ◆ Industry standards  
Interest groups (ex Energistics, SPE, SEG, API..)  
Proprietary “open-” or “restricted standards”  
(ex MS-OOXML)
- ◆ Commonly used way of doing things  
“best practices”

# What does it mean to “use” a standard

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- ◆ Comply totally
  - ◆ Completeness, authorized profiles,
- ◆ Pick elements from the standard specifications
  - ◆ Some of it (structure, content, format etc)
  - ◆ Mixed parts from different standards

**(“based on”)**



# Metadata Standards

(What are the various international standards)

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- ◆ “Data discovery” metadata standard
- ◆ Data package metadata standards
- ◆ Metadata standards for Data file formats
- ◆ Data Models
- ◆ Ontology standards
- ◆ Other relevant classification systems

# Metadata Standards

## (What are the various international standards)

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- ◆ “Data discovery” metadata standard
  - ◆ BGS for Geology, NERC-data discovery service
  - ◆ GeoNorge incl NPD WMS-metadata for Petroleum
- ◆ Data package metadata standards
  - ◆ ISO 19 115 (geographic information) Ex Inspire
  - ◆ ISO 15 836 Dublin Core
  - ◆ ISO 19 139 XML-schema for metadata
  - ◆ ISO 19 128 WMS
  - ◆ ISO 19 119 Architecture patterns for Service Interface
- ◆ Metadata standards for Data file formats
  - ◆ Various XML-definitions (WITSML, PRODML etc)
  - ◆ Various petroleum technical format standards (SEG-Y, UKOOA etc)
- ◆ Data Models
  - ◆ Energistics/POSC, PPDM,
- ◆ Ontology standards ( documented or just implemented)
  - ◆ W3C: Semantic web
  - ◆ ISO 15 836 Dublin Core
  - ◆ ISO 15 926 , OLF/RDL
  - ◆ NPD fact pages/regulations, DISKOS, CDA,
- ◆ Other relevant classification systems
  - ◆ WPC/SPE Resource classification system, CCOP resource classification system

# Comparison of various standards- advantages & disadvantages

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## “Data discovery metadata” standard (1):

- ◆ British Geological Survey (BGS)
  - ◆ Used for Geoscience
  - ◆ Based on ISO 19115
  - ◆ Describes all datasets held by BGS
  - ◆ Discovery Metadata Database
  - ◆ Internet portal to Metadata Database



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Geological Survey**  
NATURAL ENVIRONMENT RESEARCH COUNCIL

Geoscience for decision making

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## Our services

- ▶ [NGDC information & data](#)
- ▼ [Online data](#)
  - [Online data index](#)
  - [Borehole materials](#)
  - [Discovery metadata](#)
  - [GeolIndex](#)
  - [Geological photographs](#)
  - [Lexicon of rock units](#)
  - [PalaeoSaurus](#)
  - [Rock classification](#)
  - [Rock collections](#)
  - [Taxonomy Online](#)
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  - [Water watch](#)
  - [Web services](#)

## BGS Discovery Metadata



BGS discovery metadata describes the datasets held. These pages are derived from our discovery metadata database, which complies with ISO standard 19115:2003 for geographic information metadata.

### [List of all datasets](#)

[This page](#) has a list of all available Discovery Metadata datasets, sorted alphabetically by name with links to the full details for each dataset.

### [Browse by keywords](#)

[This page](#) has an A to Z list of all the keywords used to describe the Discovery Metadata datasets. Each keyword links to a list of matching datasets, or directly to the full details of single dataset matches.

### [Keyword hierarchy](#)

[This page](#) shows a hierarchy of keywords used to describe the Discovery Metadata datasets. Each keyword links to a list of matching datasets, or directly to the full details of single dataset matches.


### [Browse by location](#)

## See also

- [Library](#)
- [NGDC](#)
- [Enquiries](#)
- [Geoscience information](#)

# List of metadata sets (230 pcs) (with links to more detailed metadata)



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**BGS Discovery Metadata**

A to Z list of all 230 BGS datasets

- [Arsenic in soil](#)
- [Arup Review Of Mining Instability In Great Britain](#)
- [BGS Chemistry Records Pre 2000](#)
- [BGS Petrological Collection Database.](#)
- [BGS Photograph Collection](#)
- [BGS Reports Collection.](#)
- [Biostratigraphical Interpretative Data Files](#)
- [Biostratigraphical Masterpacks.](#)
- [Biostratigraphy Reports - Onshore And Offshore, 1953-2000.](#)
- [Borehole Geology Database.](#)
- [Borehole Notifications.](#)
- [Borehole Records Collection.](#)
- [Calcareous Microfossil Registers.](#)
- [Chromium Concentrations At Chromite Ore Processing Residue Contaminated Sites: Solid Phase](#)
- [Chromium Concentrations At Chromite Ore Processing Residue Contaminated Sites: Solution Phase](#)
- [Coal Authority Borehole Log Data.](#)
- [Coal Authority Microfiche Statutory Mine Plans](#)

[Home](#) [Dataset A to Z](#) [Keyword A to Z](#) [Keyword heirarchy](#) [Location A to Z](#)



Click..

# More detailed metadata on: borehole records collections



 **British Geological Survey**  
NATURAL ENVIRONMENT RESEARCH COUNCIL

**BGS Discovery Metadata Dataset**

Borehole Records Collection.

**Dataset description**  
Records of all onshore (or near shore) boreholes, trial pits, shafts and wells held in the BGS archives in either paper, microfilm or digital format. The records range from simple single page lithological logs through to hydrocarbon completion reports. Spatial coverage will vary considerably depending on drilling activity, collecting activity and donations. The majority of new data is from site investigation reports with concentrations in urban areas and along transport routes. Current collection over 1million records covering the whole of Great Britain with 50,000 new records added per annum. Some records date back to 1600 but the majority date from 1900 onwards. Copies of records are available in hard copy or digital formats subject to confidentiality.

**Constraints**  
Some borehole records have been deposited with commercial-in-confidence restrictions. In this case the position of most boreholes can be given but no other index information such as depth. BGS standard conditions of use apply and any copyright constraints.

**For more information please contact :**  
Enquiries  
British Geological Survey  
Keyworth  
Nottingham  
NG12 5GG

**Tel :** +44 (0)115 936 3143  
**Fax :** +44 (0)115 936 3276  
**Email :** enquiries@bgs.ac.uk

**Associated dataset(s)**  
Scanned images of the BGS Borehole Records Collection.  
Single Onshore Borehole Index

**Location**  
W -8.65      60.84 N  
  
S 49.77      2 E

**Reviewed** 6th August 2008



# More detailed metadata on: borehole records collections



## Further details [\[close\]](#)

### Dataset details

Language	English
Curator	British Geological Survey
Supply media/format	IMAGE FILE DIGITAL PAPER - Copies will be produced by the most appropriate methods available
Storage format	Hardcopy:Paper copy Digital:Scanned Image
Frequency of update	continual
Start of capture	After 1876
End of capture	Not applicable

### Contact details

Department	Enquiries
Organisation	British Geological Survey
Address	Kingsley Dunham Centre, Nicker Hill, Keyworth
City	Nottingham
County	Nottinghamshire
Country	United Kingdom
Postcode	NG12 5GG
E-mail	enquiries@bgs.ac.uk
Telephone	+44 (0)115 936 3143
Fax	+44 (0)115 936 3276

### Keywords

Keywords and Keyphrases	GEOLOGY
Keyword source	BGS Keyphrases




# More detailed metadata on: borehole records collections



Postcode	NG12 5GG
E-mail	<a href="mailto:enquiries@bgs.ac.uk">enquiries@bgs.ac.uk</a>
Telephone	+44 (0)115 936 3143
Fax	+44 (0)115 936 3276
<b>Keywords</b>	
Keywords and Keyphrases	GEOLOGY
Keyword source	BGS Keyphrases
<b>Spatial details</b>	
Spatial Reference System	Not available
<b>Dataset extent</b>	
Coverage (Lat/Long)	North boundary : 60.84 East boundary : 2 South boundary : 49.77 West boundary : -8.65
<b>Metadata</b>	
Metadata language	English
Metadata last updated	6th August 2008
Metadata standard	ISO standard 19115:2003
<b>Copyright and IPR</b>	
<p>The copyright of materials derived from the British Geological Survey's work is vested in the Natural Environment Research Council [NERC]. No part of this work may be reproduced or transmitted in any form or by any means, or stored in a retrieval system of any nature, without the prior permission of the copyright holder, via the BGS Intellectual Property Rights Manager. Use by customers of information provided by the BGS, is at the customer's own risk. In view of the disparate sources of information at BGS's disposal, including such material donated to BGS, that BGS accepts in good faith as being accurate, the Natural Environment Research Council (NERC) gives no warranty, expressed or implied, as to the quality or accuracy of the information supplied, or to the information's suitability for any use. NERC/BGS accepts no liability whatever in respect of loss, damage, injury or other occurrence however caused.</p>	



# Search on keywords (233 keywords)



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**BGS Discovery Metadata**

Find BGS datasets by browsing an A to Z list of keywords

The number in brackets shows how many datasets match each keyword. If there is only one dataset the link will take you to it, otherwise the link will take you to a list of matches to choose from.

<a href="#">Acidity (1)</a>	<a href="#">Geochemistry (34)</a>	<a href="#">Ores (5)</a>
<a href="#">Aerial geophysical surveys (1)</a>	<a href="#">Geochronology (1)</a>	<a href="#">Ostracoda (1)</a>
<a href="#">Aerial magnetic surveys (2)</a>	<a href="#">Geological mapping (5)</a>	<a href="#">Palaeoenvironment (1)</a>
<a href="#">Aerial photographs (1)</a>	<a href="#">Geological maps (11)</a>	<a href="#">Palaeontology (21)</a>
<a href="#">Aerial photography (1)</a>	<a href="#">Geological processes (1)</a>	<a href="#">Palaeozoic (4)</a>
<a href="#">Aggregates (4)</a>	<a href="#">Geology (49)</a>	<a href="#">Palynology (2)</a>
<a href="#">Analysis (1)</a>	<a href="#">Geomagnetic stations (1)</a>	<a href="#">Pelite (1)</a>
<a href="#">Analytical chemistry (1)</a>	<a href="#">Geomagnetism (7)</a>	<a href="#">Permeability (4)</a>
<a href="#">Aquifers (2)</a>	<a href="#">Geophysical logs (3)</a>	<a href="#">Petroleum exploration (1)</a>
<a href="#">Archaeology (3)</a>	<a href="#">Geophysical surveys (13)</a>	<a href="#">Petrology (6)</a>
<a href="#">Archives (1)</a>	<a href="#">Geophysics (35)</a>	<a href="#">Photography (3)</a>
<a href="#">Aromatic hydrocarbons (5)</a>	<a href="#">Glacial sediments (2)</a>	<a href="#">Planning (9)</a>
<a href="#">Arsenic (1)</a>	<a href="#">Graphic logs (5)</a>	<a href="#">Polished section (1)</a>
<a href="#">Atlases (1)</a>	<a href="#">Gravel (2)</a>	<a href="#">Pollution (5)</a>
<a href="#">Barite (3)</a>	<a href="#">Gravity surveys (2)</a>	<a href="#">Porosity (2)</a>
<a href="#">Bed rock (1)</a>	<a href="#">Ground water (3)</a>	<a href="#">Production (2)</a>
<a href="#">Biostratigraphy (11)</a>	<a href="#">Ground water movement (4)</a>	<a href="#">Quarrying (13)</a>
<a href="#">Biota (1)</a>	<a href="#">Gypsum (1)</a>	<a href="#">Quaternary (2)</a>
<a href="#">Boreholes (41)</a>	<a href="#">Hematite (1)</a>	<a href="#">Radioactive wastes (1)</a>

Home
Dataset A to Z
Keyword A to Z
Keyword heirarchy
Location A to Z

# Comparison of various standards- advantages & disadvantages

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- ◆ Data discovery” metadata standard: BGS

- + IT-solution already exist.

- No access to the real data

- ! Need good keywords definitions to get useful searches

- Not too many (233), but the right ones

- ! Which data resources to include?

- For which purpose (Everything for everybody?)

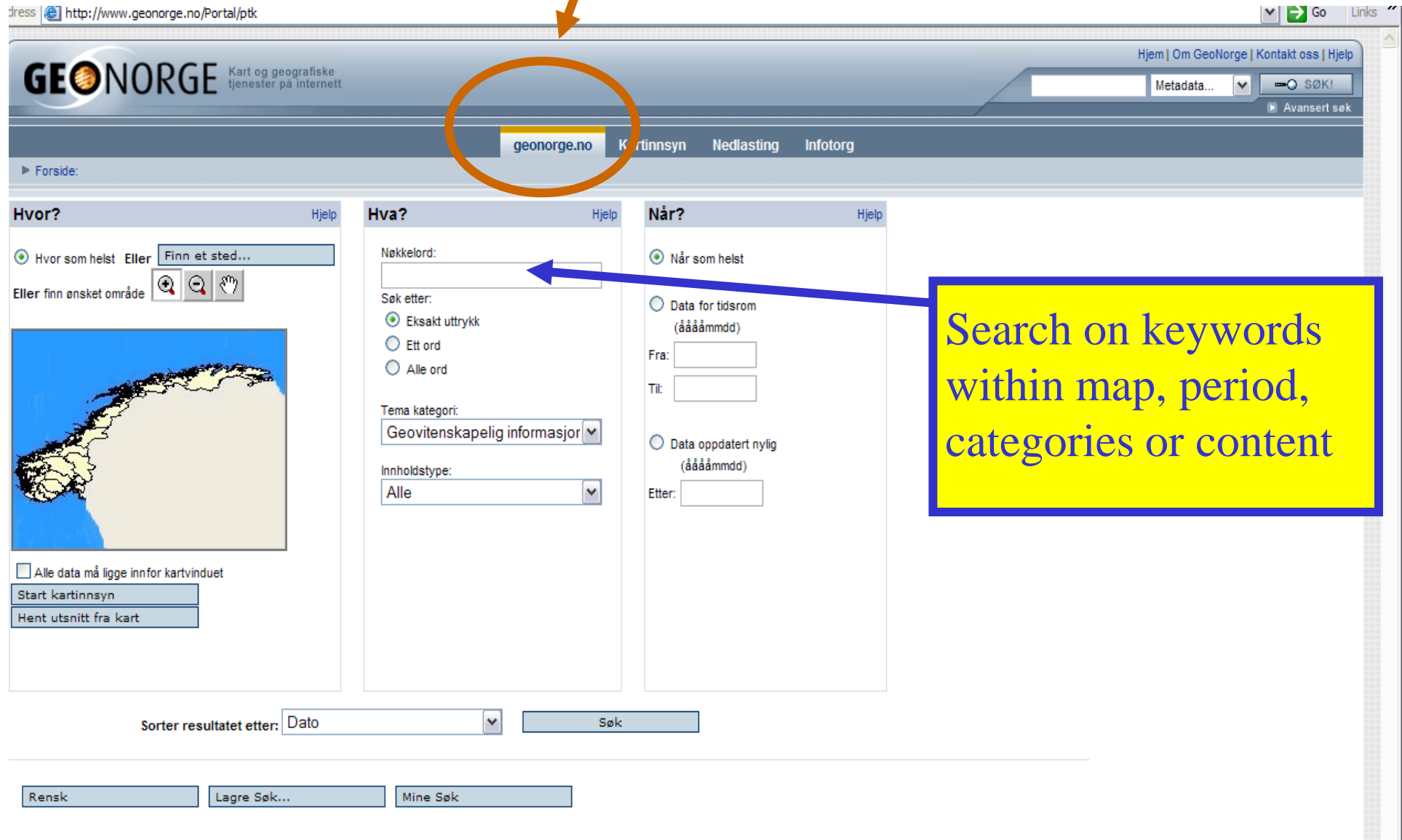
- ! When can usage start?

- + Make a focused start

## “Data discovery metadata” standard (2):

- ◆ GeoNorway:
- ◆ Integrated with NPD WMS-metadata for Petroleum
- ◆ According to the Norwegian Profile of ISO 19 115
- ◆ Metadata file format according to ISO 19 139  
defines Geographic Metadata XML (gmd) encoding, which is a XML Schema implementation derived from ISO 19115.
- ◆ WMS according to ISO 19 128

# Metadata search



Address: <http://www.geonorge.no/Portal/ptk>

**GEO NORGE** Kart og geografiske tjenester på internett

Hjem | Om GeoNorge | Kontakt oss | Hjelp


Metadata... SØK! Avansert søk

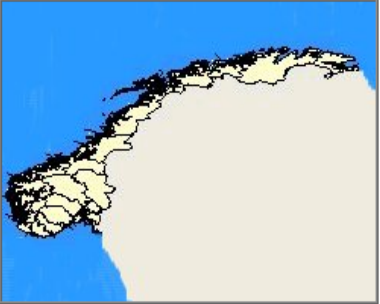
geonorge.no Kartinnsyn Nedlasting Infotorg

Forside:

### Hvor? [Hjelp](#)

Hvor som helst Eller

Eller finn ønsket område 



Alle data må ligge innenfor kartvinduet

Start kartinnsyn

Hent utsnitt fra kart

### Hva? [Hjelp](#)

Nøkkelord:

Søk etter:

Eksakt uttrykk

Ett ord

Alle ord

Tema kategori:

Innholdstype:

### Når? [Hjelp](#)

Når som helst

Data for tidsrom (ååååmmdd)

Fra:

Til:

Data oppdatert nylig (ååååmmdd)

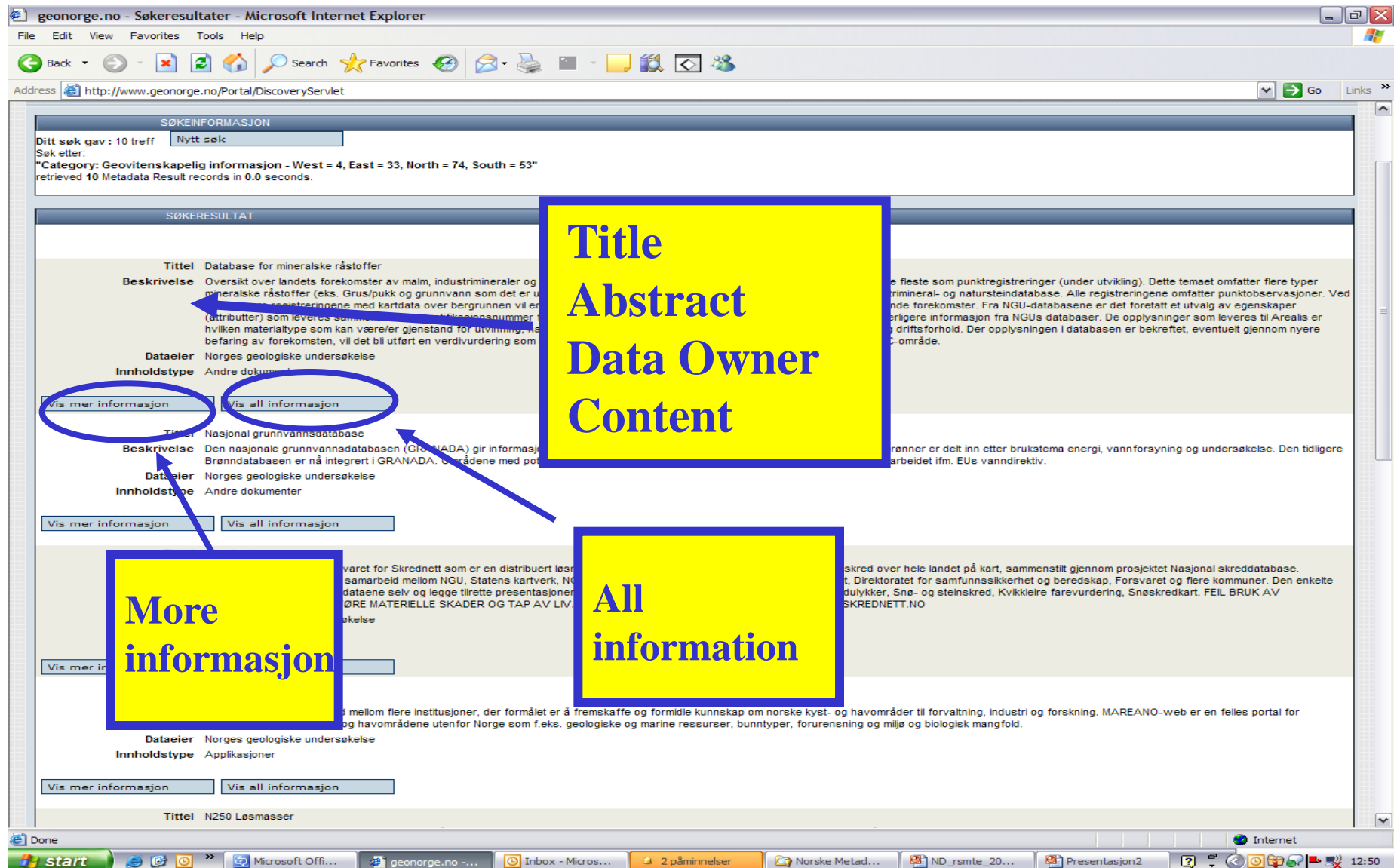
Etter:

Sorter resultatet etter:  Søk

Rensk Lagre Søk... Mine Søk

Search on keywords within map, period, categories or content

# Results from the metadata search



**SØKEINFORMASJON**

Ditt søk gav : 10 treff    [Nytt søk](#)

Søk etter:

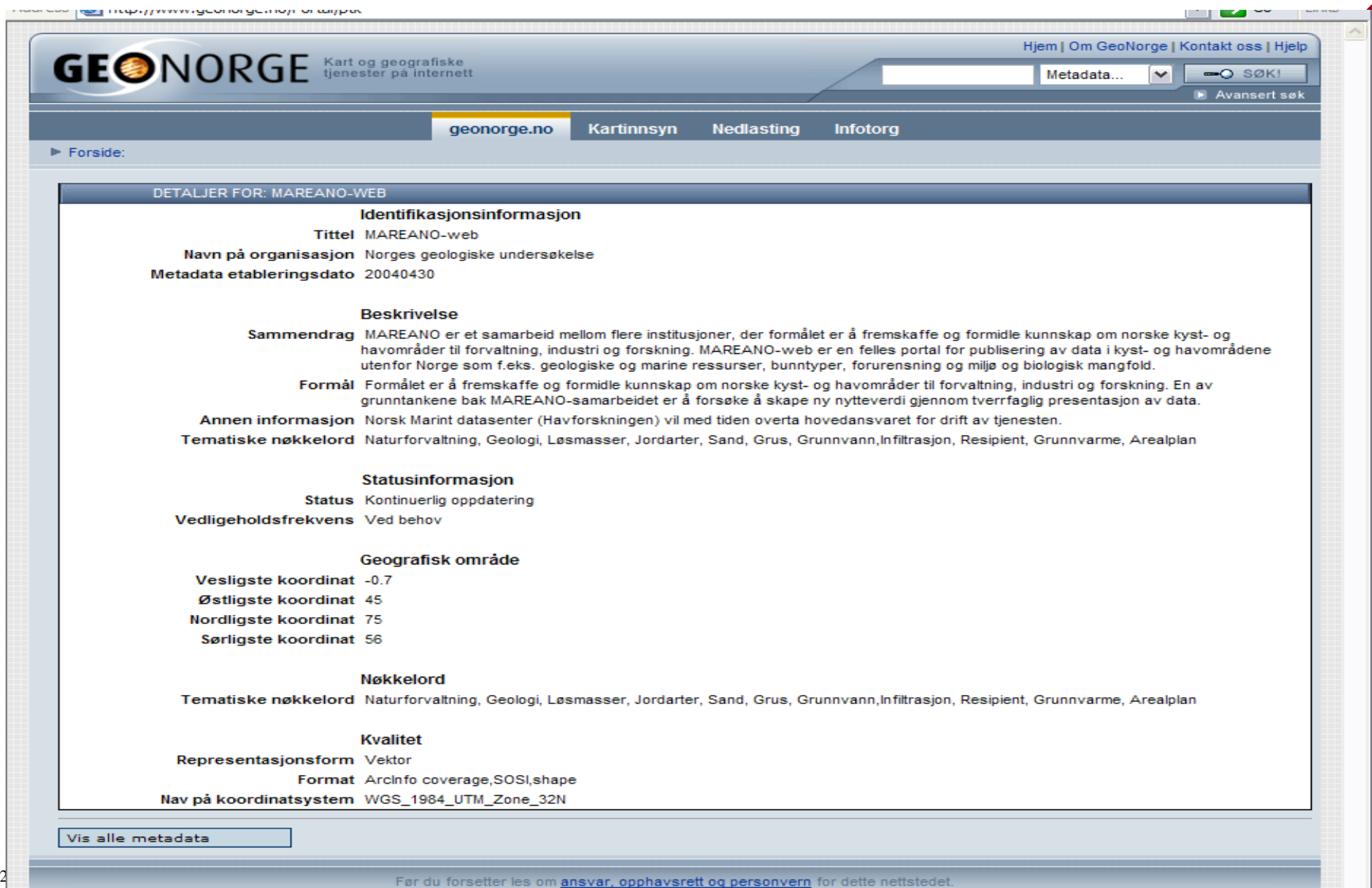
\*Category: Geovitenskapelig informasjon - West = 4, East = 33, North = 74, South = 53"  
retrieved 10 Metadata Result records in 0.0 seconds.

---

**SØKERESULTAT**

<b>Tittel</b>	Database for mineraliske råstoffer
<b>Beskrivelse</b>	Oversikt over landets forekomster av malm, industrimineraler og mineraliske råstoffer (eks. Grus/pukk og grunnvann som det er utvalgte registreringene med kartdata over berggrunnen vil er attributter) som leveres sammen med koordinatsystemer og hvilken materialtype som kan være/er gjenstand for utvinning. Kartbefaring av forekomsten, vil det bli utført en verdvurdering som
<b>Dataeier</b>	Norges geologiske undersøkelse
<b>Innholdstype</b>	Andre dokumenter
	<a href="#">Vis mer informasjon</a> <a href="#">Vis all informasjon</a>
<b>Tittel</b>	Nasjonal grunnvannsdatabase
<b>Beskrivelse</b>	Den nasjonale grunnvannsdatabase (GRUNNVA) gir informasjon om grunnvannet i Norge. Den nasjonale grunnvannsdatabase (GRUNNVA) gir informasjon om grunnvannet i Norge. Den tidligere arbeidet ifm. EUs vanddirektiv.
<b>Dataeier</b>	Norges geologiske undersøkelse
<b>Innholdstype</b>	Andre dokumenter
	<a href="#">Vis mer informasjon</a> <a href="#">Vis all informasjon</a>
<b>Tittel</b>	Skrednett
<b>Beskrivelse</b>	Skrednett som er en distribuert lesesamarbeid mellom NGU, Statens kartverk, Norge og lokale myndigheter. Skrednett som er en distribuert lesesamarbeid mellom NGU, Statens kartverk, Norge og lokale myndigheter. Skrednett som er en distribuert lesesamarbeid mellom NGU, Statens kartverk, Norge og lokale myndigheter.
<b>Dataeier</b>	Norges geologiske undersøkelse
<b>Innholdstype</b>	Applikasjoner
	<a href="#">Vis mer informasjon</a> <a href="#">Vis all informasjon</a>
<b>Tittel</b>	N250 Løsmasser

# ....more information according to portal display



The screenshot shows the GeoNorge portal interface. At the top, there is a navigation bar with the GeoNorge logo and the text "Kart og geografiske tjenester på internett". To the right of the logo is a search bar with a "SØK!" button and a "Metadatas..." dropdown menu. Below the navigation bar, there are tabs for "geonorge.no", "Kartinnsyn", "Nedlasting", and "Infotorg". The main content area is titled "DETALJER FOR: MAREANO-WEB" and contains the following metadata:

**Identifikasjonsinformasjon**

- Tittel** MAREANO-web
- Navn på organisasjon** Norges geologiske undersøkelse
- Metadata etableringsdato** 20040430

**Beskrivelse**

- Sammendrag** MAREANO er et samarbeid mellom flere institusjoner, der formålet er å fremskaffe og formidle kunnskap om norske kyst- og havområder til forvaltning, industri og forskning. MAREANO-web er en felles portal for publisering av data i kyst- og havområdene utenfor Norge som f.eks. geologiske og marine ressurser, bunntyper, forurensning og miljø og biologisk mangfold.
- Formål** Formålet er å fremskaffe og formidle kunnskap om norske kyst- og havområder til forvaltning, industri og forskning. En av grunntankene bak MAREANO-samarbeidet er å forsøke å skape ny nytteverdi gjennom tverrfaglig presentasjon av data.
- Annen informasjon** Norsk Marint datasenter (Havforskningen) vil med tiden overta hovedansvaret for drift av tjenesten.
- Tematiske nøkkelord** Naturforvaltning, Geologi, Løsmasser, Jordarter, Sand, Grus, Grunnvann, Infiltrasjon, Resipient, Grunnvarme, Arealplan

**Statusinformasjon**

- Status** Kontinuerlig oppdatering
- Vedlikeholdsfrekvens** Ved behov

**Geografisk område**

- Vesligste koordinat** -0.7
- Østligste koordinat** 45
- Nordligste koordinat** 75
- Sørligste koordinat** 56

**Nøkkelord**

- Tematiske nøkkelord** Naturforvaltning, Geologi, Løsmasser, Jordarter, Sand, Grus, Grunnvann, Infiltrasjon, Resipient, Grunnvarme, Arealplan

**Kvalitet**

- Representasjonsform** Vektor
- Format** ArcInfo coverage, SOSI, shape
- Nav på koordinatsystem** WGS\_1984\_UTM\_Zone\_32N

At the bottom of the metadata section, there is a button labeled "Vis alle metadata".

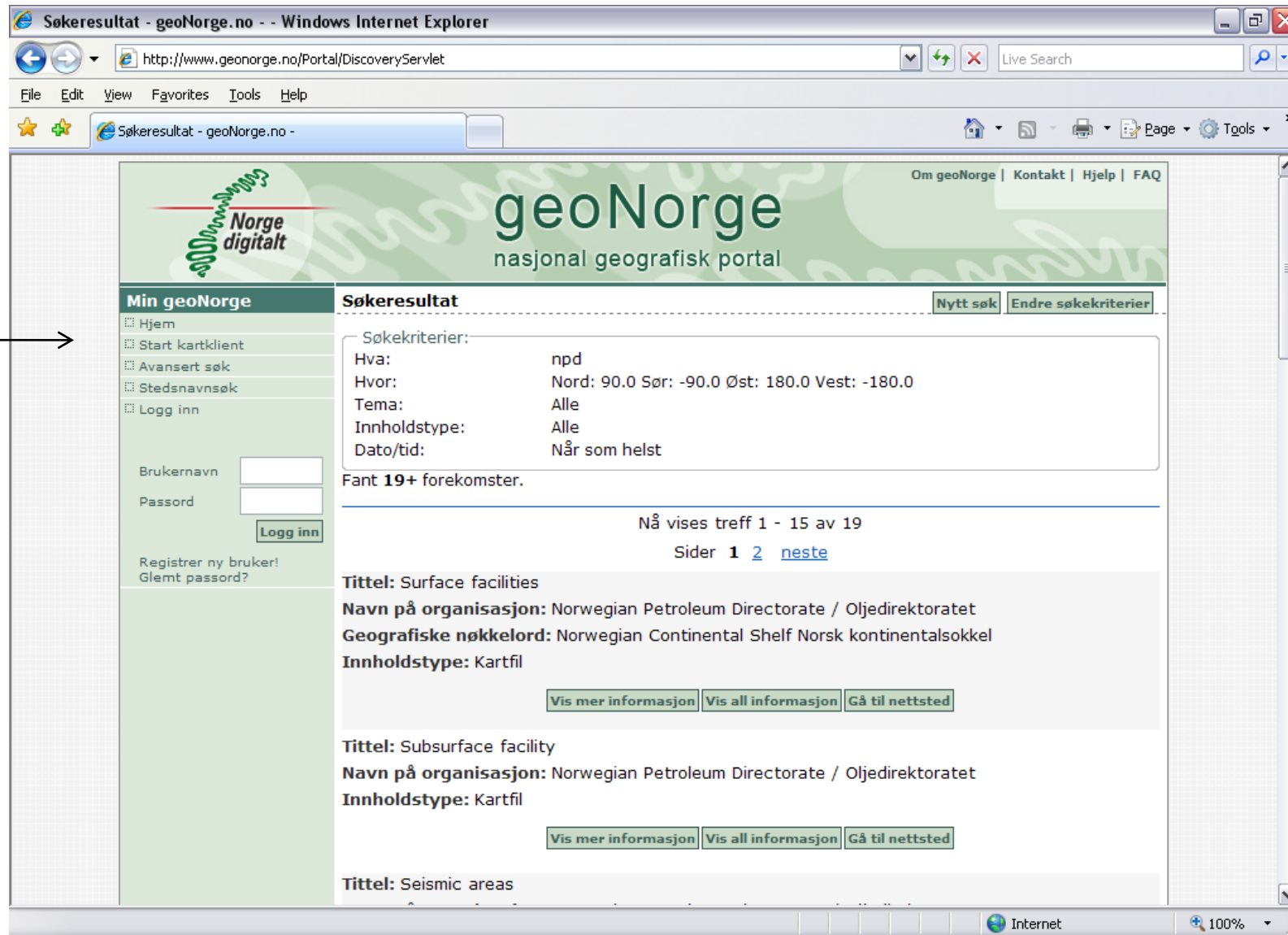
# NPD Metadata file according to ISO 19 139



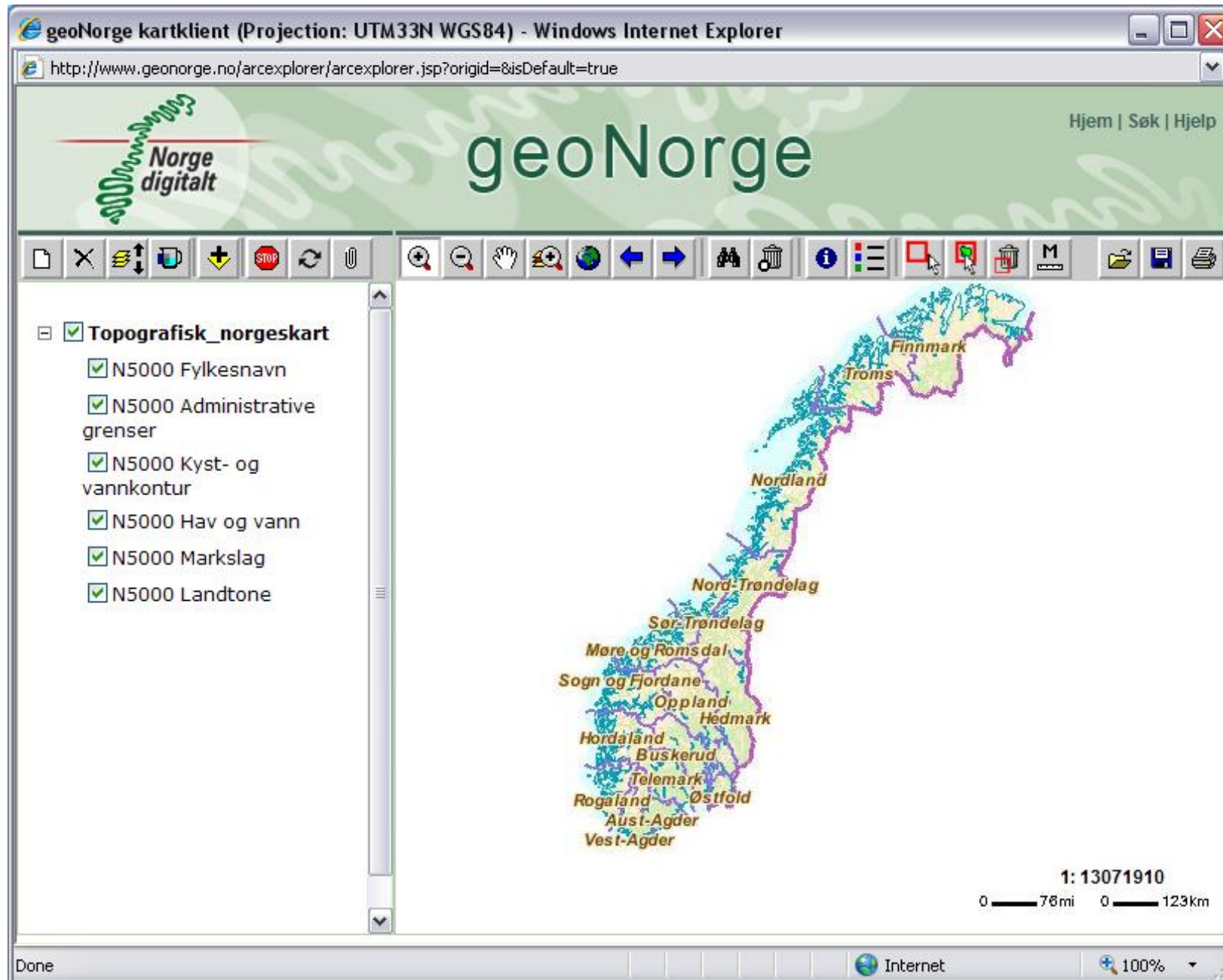
```
M:\Lag\Int\Dataforvaltning_Dok_og_db\CCOP\2009\NPD Metadata iht ISO 19115\Discoveries.xml - Windows Internet Explorer
M:\Lag\Int\Dataforvaltning_Dok_og_db\CCOP\2009\NPD Metadata iht ISO 19115\Discoveries.xml
Live Search
File Edit View Favorites Tools Help
ISO/TS 19139:2007 - Geogra... M:\Lag\Int\Dataforvaltni... X
<postCode>4003</postCode>
<eMailAdd>fact-pages@npd.no</eMailAdd>
<country>no</country>
</cntAddress>
- <cntPhone>
  <voiceNum>+4751876000</voiceNum>
  <faxNum>+4751551571</faxNum>
</cntPhone>
</rpCntInfo>
</citRespParty>
</idCitation>
- <spatRpType>
  <SpatRepTypCd Sync="TRUE" value="001" />
</spatRpType>
- <dataExt>
- <geoEle>
  - <GeoBndBox esriExtentType="native">
    <westBL Sync="TRUE">1.488028</westBL>
    <eastBL Sync="TRUE">28.26345</eastBL>
    <northBL Sync="TRUE">73.530319</northBL>
    <southBL Sync="TRUE">56.230622</southBL>
    <exTypeCode Sync="TRUE">1</exTypeCode>
  </GeoBndBox>
</geoEle>
</dataExt>
<idAbs>English: A petroleum deposit, or several petroleum deposits combined, discovered in the same well, and which
testing, sampling or logging have shown probably contain mobile petroleum. The definition covers both commercial and
technical discoveries. Norsk: En petroleumsforekomst, eller flere petroleumsforekomster samlet som er oppdaget i
samme brønn, og som gjennom testing, prøvetaking eller logging er sannsynliggjort å ha bevegelig petroleum.
Definisjonen omfatter både kommersielt og teknisk funn.</idAbs>
- <tpCat>
  <TopicCatCd value="003" />
</tpCat>
- <tpCat>
  <TopicCatCd value="005" />
Internet 100%
```



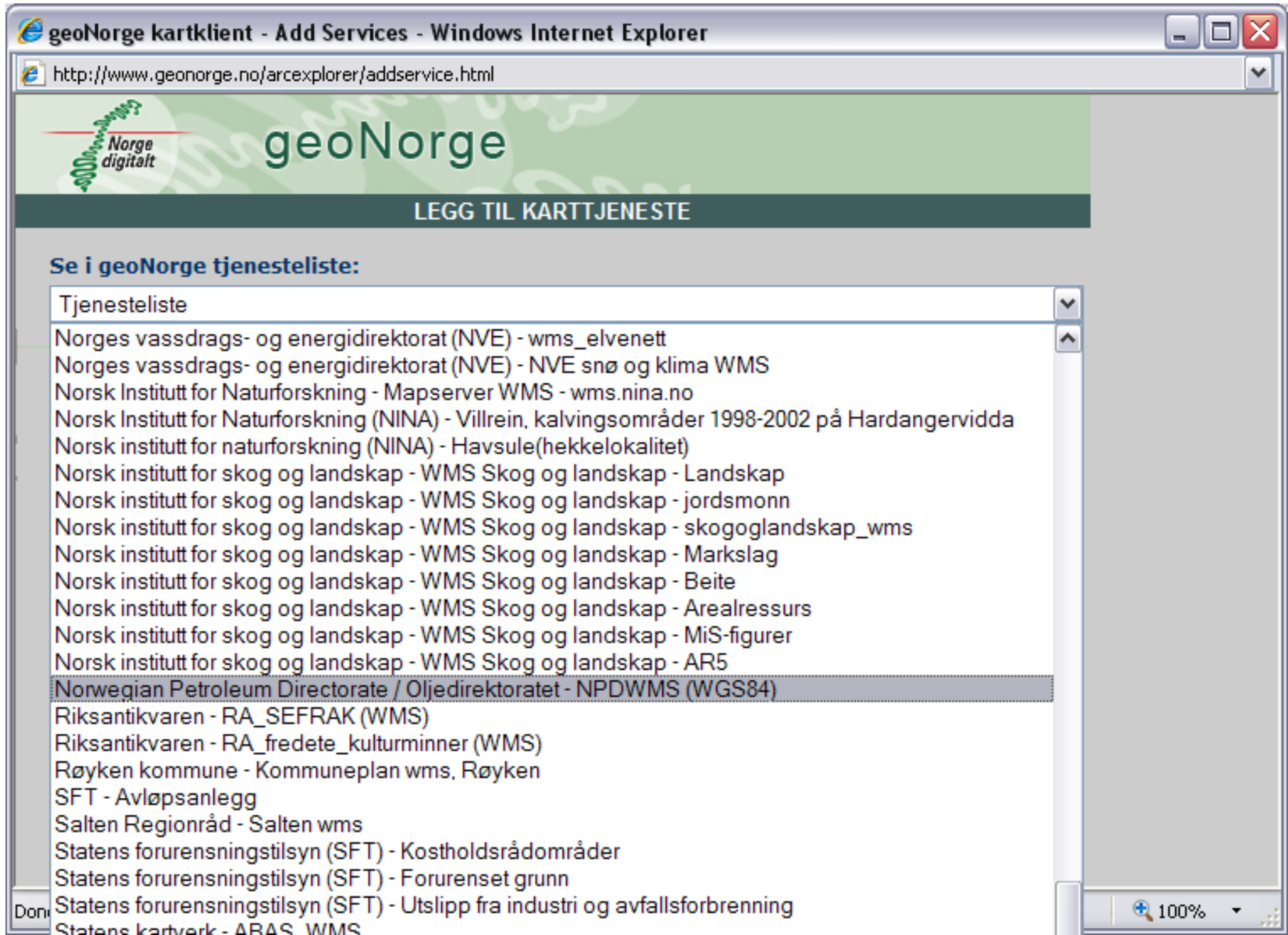
# Open the map interface (map client)



# Opens the Map Client



# Choose which data provider

A screenshot of a web browser window titled 'geoNorge kartklient - Add Services - Windows Internet Explorer'. The address bar shows 'http://www.geonorge.no/arcexplorer/addservice.html'. The page header includes the 'geoNorge' logo and the text 'Norge digitalt'. Below the header is a dark green bar with the text 'LEGG TIL KARTTJENESTE'. The main content area is titled 'Se i geoNorge tjenesteliste:' and contains a scrollable list of service providers. The list includes various Norwegian institutions and municipalities, with 'Norwegian Petroleum Directorate / Oljedirektoratet - NPDWMS (WGS84)' highlighted in grey. The browser's status bar at the bottom shows 'Done' and '100%' zoom level.

geoNorge kartklient - Add Services - Windows Internet Explorer

http://www.geonorge.no/arcexplorer/addservice.html

Norge digitalt

geoNorge

LEGG TIL KARTTJENESTE

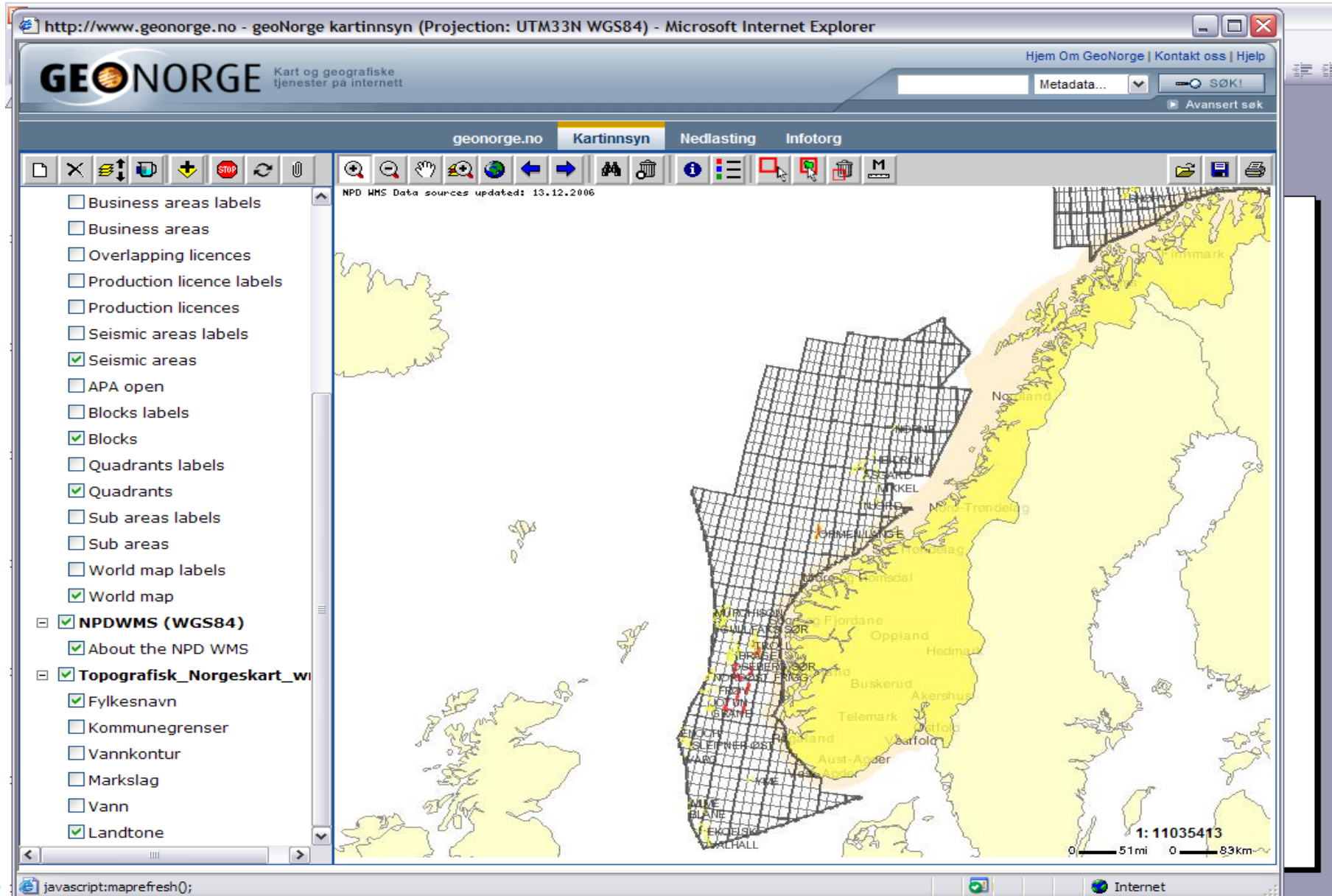
Se i geoNorge tjenesteliste:

Tjenesteliste

- Norges vassdrags- og energidirektorat (NVE) - wms\_elvenett
- Norges vassdrags- og energidirektorat (NVE) - NVE snø og klima WMS
- Norsk Institutt for Naturforskning - Mapserver WMS - wms.nina.no
- Norsk Institutt for Naturforskning (NINA) - Villrein, kalvingsområder 1998-2002 på Hardangervidda
- Norsk institutt for naturforskning (NINA) - Havsule(hekkelokalitet)
- Norsk institutt for skog og landskap - WMS Skog og landskap - Landskap
- Norsk institutt for skog og landskap - WMS Skog og landskap - jordsmonn
- Norsk institutt for skog og landskap - WMS Skog og landskap - skogoglandskap\_wms
- Norsk institutt for skog og landskap - WMS Skog og landskap - Markslag
- Norsk institutt for skog og landskap - WMS Skog og landskap - Beite
- Norsk institutt for skog og landskap - WMS Skog og landskap - Arealressurs
- Norsk institutt for skog og landskap - WMS Skog og landskap - MiS-figurer
- Norsk institutt for skog og landskap - WMS Skog og landskap - AR5
- Norwegian Petroleum Directorate / Oljedirektoratet - NPDWMS (WGS84)**
- Riksantikvaren - RA\_SEFRAK (WMS)
- Riksantikvaren - RA\_fredete\_kulturminner (WMS)
- Røyken kommune - Kommuneplan wms, Røyken
- SFT - Avløpsanlegg
- Salten Regionråd - Salten wms
- Statens forurensningstilsyn (SFT) - Kostholdsrådområder
- Statens forurensningstilsyn (SFT) - Forurensset grunn
- Statens forurensningstilsyn (SFT) - Utslipp fra industri og avfallsforbrenning
- Statens kartverk - ABAS WMS

Done 100%

# NPD-map imported into GeoNorge WMS



http://www.geonorge.no - geoNorge kartinnsyn (Projection: UTM33N WGS84) - Microsoft Internet Explorer

GEONORGE Kart og geografiske tjenester på internett

Hjem Om GeoNorge | Kontakt oss | Hjelp

Metadata... SØK! Avansert søk

geonorge.no **Kartinnsyn** Nedlasting Infotorg

NPD WMS Data sources updated: 13.12.2006

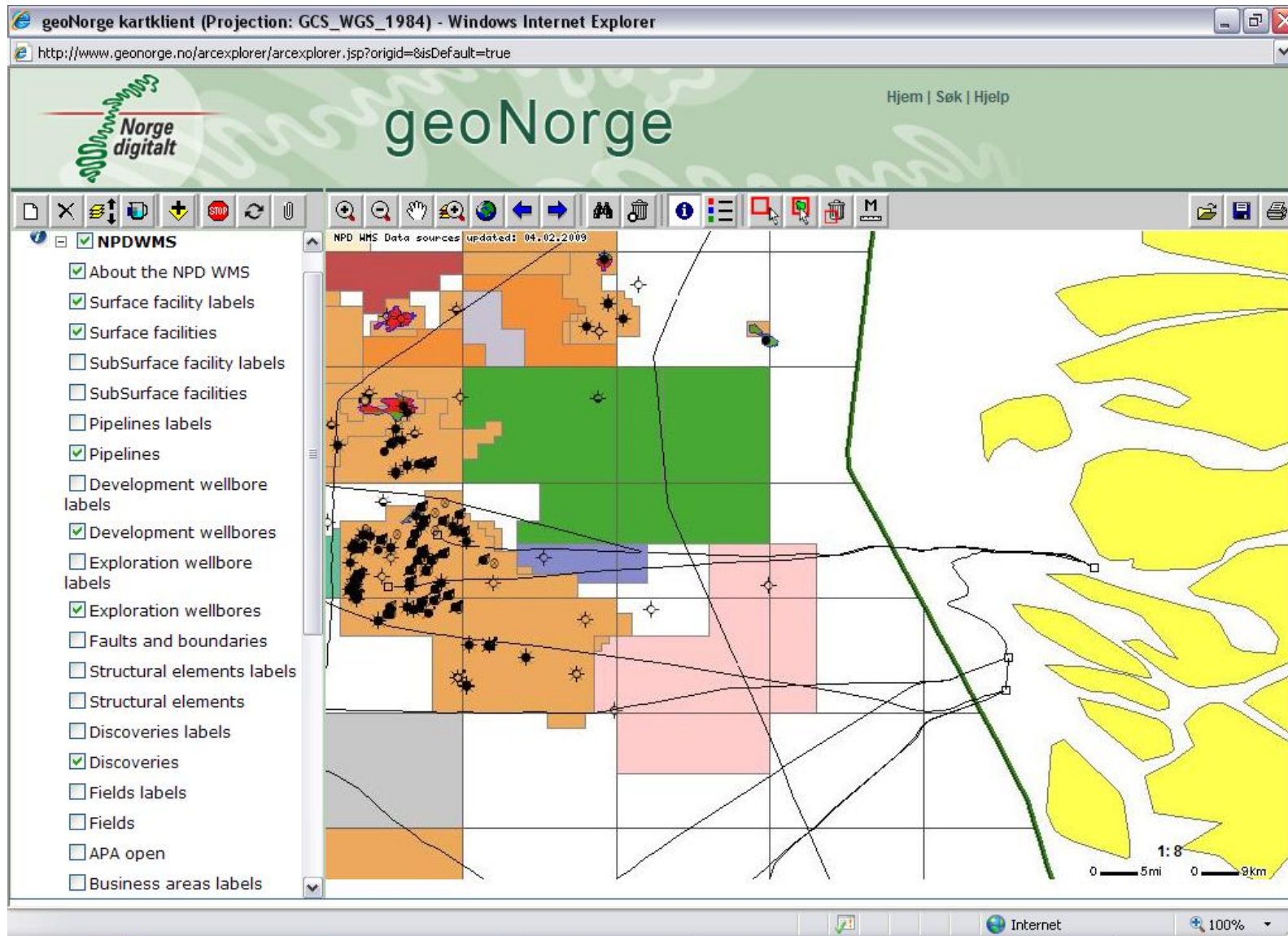
- Business areas labels
- Business areas
- Overlapping licences
- Production licence labels
- Production licences
- Seismic areas labels
- Seismic areas
- APA open
- Blocks labels
- Blocks
- Quadrants labels
- Quadrants
- Sub areas labels
- Sub areas
- World map labels
- World map
- NPDWMS (WGS84)**
  - About the NPD WMS
- Topografisk\_Norgeskart\_w**
  - Fylkesnavn
  - Kommunegrenser
  - Vannkontur
  - Markslag
  - Vann
  - Landtone

1: 11035413

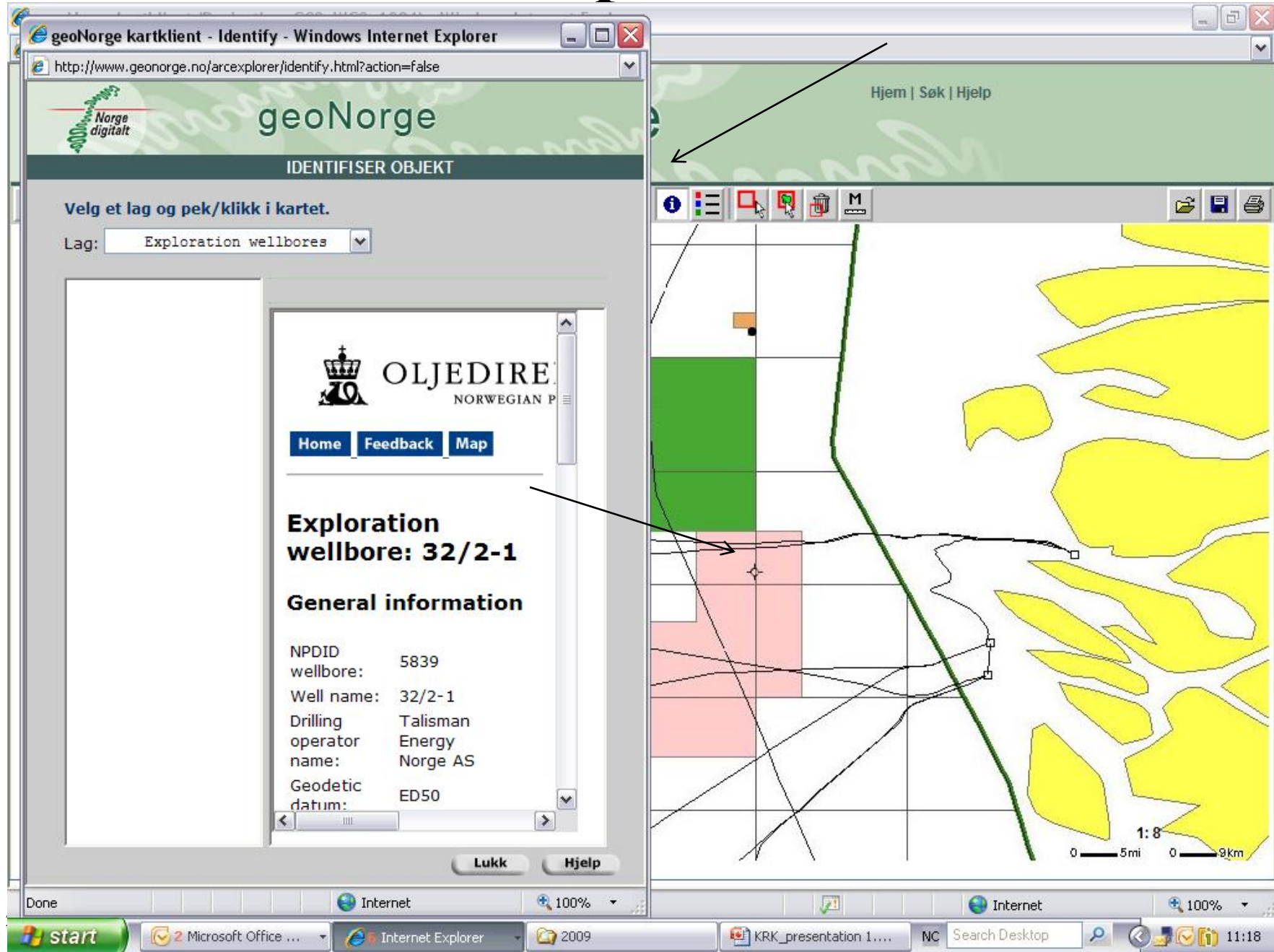
0 51mi 0 83km

3/24/2009 javascript:maprefresh(); Internet

# NPD-map imported into GeoNorge WMS



# Hot-link from Map to Well information



The screenshot shows a web browser window titled "geoNorge kartklient - Identify - Windows Internet Explorer". The address bar shows the URL: <http://www.geonorge.no/arcexplorer/identify.html?action=false>. The page header includes "Hjem | Søk | Hjelp" and the "geoNorge" logo with the tagline "Norge digitalt". Below the header is a section titled "IDENTIFISER OBJEKT" with the instruction "Velg et lag og pek/klikk i kartet." and a dropdown menu for "Lag:" set to "Exploration wellbores".

A map is displayed on the right side of the browser window, showing a grid and various colored areas (green, yellow, red). A small black square on the map is highlighted with a white border, and a red arrow points from this square to the pop-up window. The map includes a scale bar at the bottom right showing "1:8", "0 5mi", and "0 9km".

The pop-up window, titled "OLJEDIRE NORWEGIAN P", contains the following information:

- Home Feedback Map
- Exploration wellbore: 32/2-1**
- General information**
- NPDID wellbore: 5839
- Well name: 32/2-1
- Drilling operator name: Talisman Energy Norge AS
- Geodetic datum: ED50

Buttons "Lukk" and "Hjelp" are located at the bottom of the pop-up window. The browser's taskbar at the bottom shows the Start button, several open applications (Microsoft Office, Internet Explorer, 2009), and the system clock showing 11:18.

# Integration Metadata – WMS - Ref db

---

- ◆ Each map layer = one dataset = has a metadata title
- ◆ Each dataset = on information carrier in reference database
- ◆ Unique ID for each instance of all information carrier

# Comparison of various standards- advantages & disadvantages

---

- ◆ GeoNorge Data discovery” metadata standard integrated with NPD WMS-metadata for Petroleum
  - ◆ Integrated with other organizations datasets and maps
  - ◆ Classification of Data Resources compatible with Reference database
  - ◆ Hotlinks from metadata to real data
  - ◆ Hotlinks between metadata and maps
  - ◆ Hotlinks between maps and real data





# Inspire

---



## INSPIRE DIRECTIVE

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. The INSPIRE Directive entered into force on the 15th May 2007

- [INSPIRE Directive 2007/03/14](#)
- [INSPIRE Metadata Regulation 2008/12/04](#)



# Inspire, Standards used

---



- ◆ The INSPIRE Implementing Rules shall take account of relevant, existing international standards and user requirements.
- ◆ In the context of metadata for spatial data and spatial data services, the standards
  - ◆ ISO 19115,
  - ◆ ISO 19119, and
  - ◆ ISO 15836 (Dublin Core)have been identified as important standards.

# ISO 15 836

## The Dublin Core Metadata Element Set

---

- ◆ The Dublin Core Metadata Element Set is a vocabulary of fifteen properties for use in resource description.
- ◆ The fifteen element "Dublin Core" described in this standard is part of a larger set of metadata vocabularies and technical specifications maintained by the Dublin Core Metadata Initiative (DCMI).

# Dublin core metada

---

	A	B	C
1		<b>The Elements</b>	
6	Contributor	Definition:	An entity responsible for making contributions to the resource.
11	Coverage	Definition:	The spatial or temporal topic of the resource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant.
17	Creator	Definition:	An entity primarily responsible for making the resource.
22		Definition:	A point or period of time associated with an event in the lifecycle of the resource.
28	Description	Definition:	An account of the resource.
33	Format	Definition:	The file format, physical medium, or dimensions of the resource.
39	Identifier	Definition:	An unambiguous reference to the resource within a given context.
44	Language	Definition:	A language of the resource.
50	Publisher	Definition:	An entity responsible for making the resource available.
55	Relation	Definition:	A related resource.
60	Rights	Definition:	Information about rights held in and over the resource.
65	Source	Definition:	A related resource from which the described resource is derived.
70	Subject	Definition:	The topic of the resource.
75	Title	Definition:	A name given to the resource.
80	Type	Definition:	The nature or genre of the resource.
83			

# Subject Based classification

---

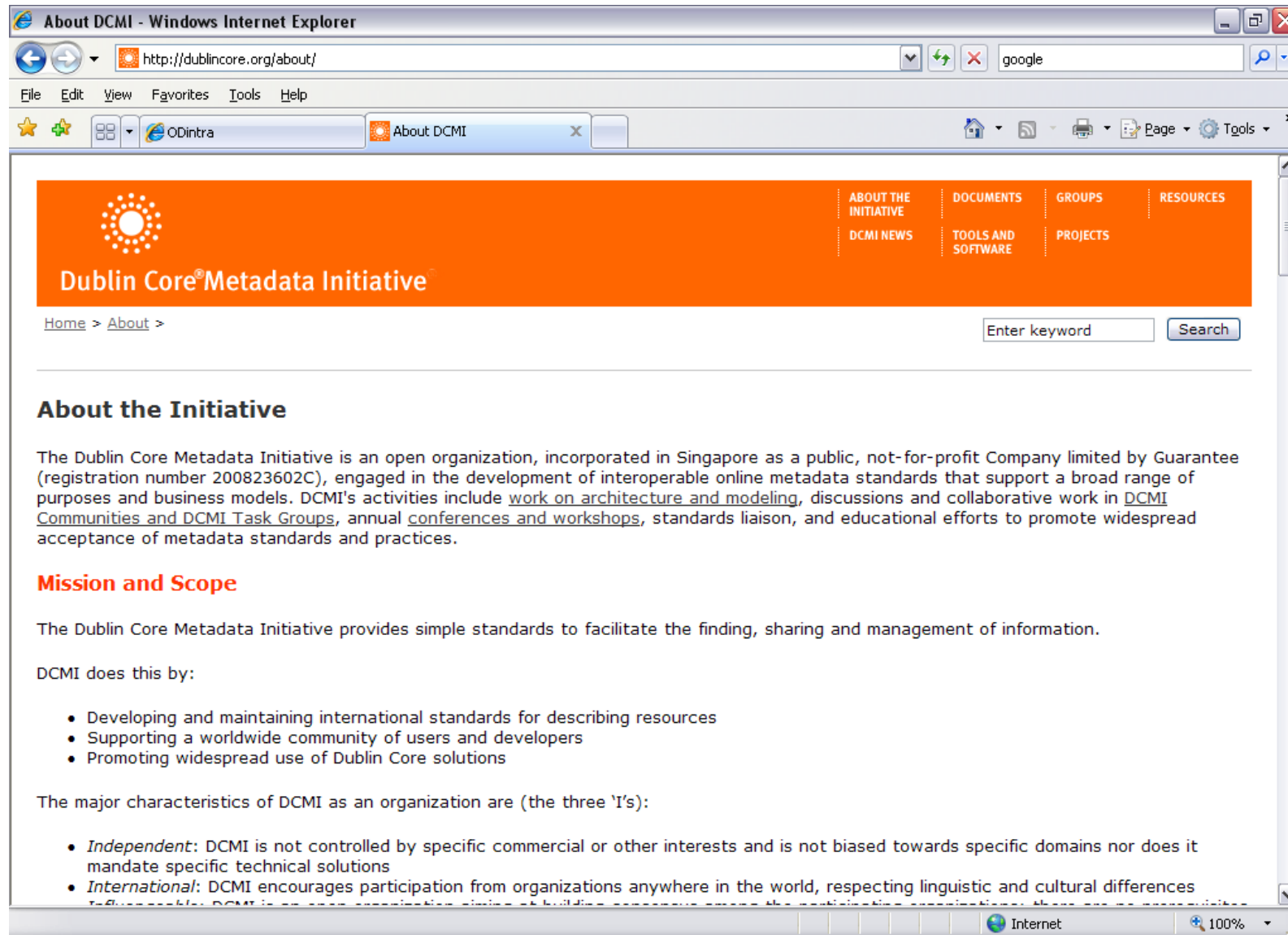
- ◆ Controlled vocabulary
- ◆ Taxonomies
- ◆ Thesaurus
  - ◆ ISO 2788 Monolingual  
BT, SN, USE, TT, RT
  - ◆ ISO 5964 Multilingual
- ◆ Faceted classification
  - ◆ Personality - ( ex engineering)
  - ◆ Matter ( ex steel)
  - ◆ Energy ( ex procedure)
  - ◆ Space ( ex. Thailand)
  - ◆ Time ( ex 2004)

# Subject Based classification

---

- ◆ **Ontology**
  - ◆ Types
  - ◆ Properties
  - ◆ Relation ship types
- ◆ **Topic Map**
  - ◆ A more flexible approach

# Dublin Core --- more



The screenshot shows a Windows Internet Explorer browser window displaying the Dublin Core Metadata Initiative website. The address bar shows the URL <http://dublincore.org/about/>. The page features an orange header with the Dublin Core logo and navigation links: ABOUT THE INITIATIVE, DCMI NEWS, DOCUMENTS, TOOLS AND SOFTWARE, GROUPS, and PROJECTS. Below the header is a search bar with the text "Enter keyword" and a "Search" button. The main content area is titled "About the Initiative" and contains the following text:

The Dublin Core Metadata Initiative is an open organization, incorporated in Singapore as a public, not-for-profit Company limited by Guarantee (registration number 200823602C), engaged in the development of interoperable online metadata standards that support a broad range of purposes and business models. DCMI's activities include [work on architecture and modeling](#), discussions and collaborative work in [DCMI Communities](#) and [DCMI Task Groups](#), annual [conferences and workshops](#), standards liaison, and educational efforts to promote widespread acceptance of metadata standards and practices.

**Mission and Scope**

The Dublin Core Metadata Initiative provides simple standards to facilitate the finding, sharing and management of information.

DCMI does this by:

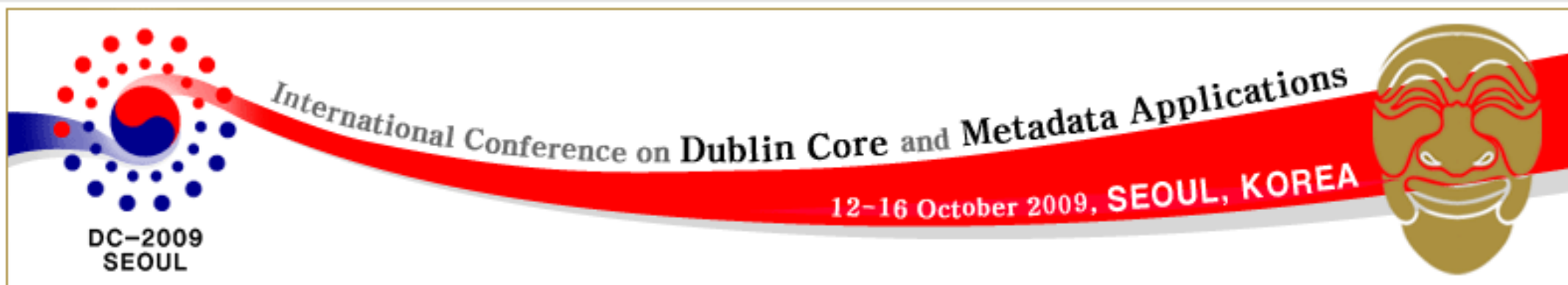
- Developing and maintaining international standards for describing resources
- Supporting a worldwide community of users and developers
- Promoting widespread use of Dublin Core solutions

The major characteristics of DCMI as an organization are (the three 'I's):

- *Independent*: DCMI is not controlled by specific commercial or other interests and is not biased towards specific domains nor does it mandate specific technical solutions
- *International*: DCMI encourages participation from organizations anywhere in the world, respecting linguistic and cultural differences

# More .....

---

[Home](#)[Call for Papers](#)[Programme](#)[Session](#)[Author Info](#)[Organisation](#)[Registration](#)[Call for Sponsors](#)[Call for Exhibitors](#)[Conference Venue](#)[Accommodation](#)[About SEOUL](#)

## DC-2009 "Semantic Interoperability of Linked Data"

(메타데이터와 온톨로지의 의미적 상호운용)

DC-2009 will focus on linked data and the enabling of the Semantic Web. Conference participants will explore the conceptual and practical issues in breaking the constraints of data silos and connecting pieces of data, information, and knowledge. Metadata is a key to these processes supporting publishing and interlinking structured data on the Semantic Web. There is a growing interest in the metadata community in connecting existing and future data contained in silos within and across organizations in a meaningful way that supports extraction and correlation of the data. The linking of data from disparate data silos presents technical and social challenges that will be explored at DC-2009 through full papers, project reports, posters, special sessions and workshops.

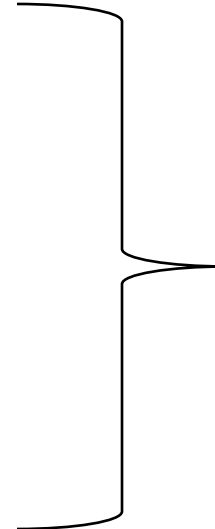
---



# Metadata Standards

## (What are the various international standards)

- ◆ “Data discovery” metadata standard
  - ◆ BGS for Geology, NERC-data discovery service
  - ◆ GeoNorge incl NPD WMS-metadata for Petroleum
- ◆ Data package metadata standards
  - ◆ ISO 19 115 (geographic information) Ex Inspire
  - ◆ ISO 15 836 Dublin Core
  - ◆ ISO 19 128 WMS
  - ◆ ISO 19 139 XML-schema for metadata
  - ◆ ISO 19 119 Architecture patterns for Service Interface
- ◆ Metadata standards for data files
  - ◆ Various XML-definitions (WITSML, PRODML etc)
  - ◆ Various petroleum technical format standards (SEG-Y, UKOOA etc)
- ◆ Data Models
  - ◆ Energistics/POSC, PPDM,
- ◆ Ontology standards ( documented or just implemented)
  - ◆ W3C: Semantic web
  - ◆ ISO 15 926 , OLF/RDL
  - ◆ NPD fact pages/regulations, DISKOS, CDA,
- ◆ Other relevant classification systems
  - ◆ WPC/SPE Resource classification system, CCOP resource classification system



Metadata for datasets at high level

# Metadata standards for data files

(used in petroleum E&P data management)

---



- ◆ The files are used for moving digital data between computers or between application software
- ◆ The files contain the “real data”. The metadata to the files inform about the structure and definitions of the various data including how each data element shall be identified.
- ◆ These metadata are often not according to “formal standards” ( ex. ISO) but they are made/maintained and documented by
  - ◆ companies
  - ◆ organizations like SEG, Energistics or PPDM,
  - ◆ by government bodies

# Metadata standards for data files

(used in petroleum E&P data management)

---



## ◆ Various petroleum technical format standards

### Binary

- ◆ LIS ( Log Information Standard, Schlumberger)
- ◆ DLIS ( Digital Log Interchange Standard, From API RP66)
- ◆ SEG-Y, ( for seismic data, Society of Exploration Geophysicists)
- ◆ SEG-D
- ◆ UKOOA-P1 ( Seismic Navigation Format, org. United Kingdom)

### Ascii

- ◆ LAS (Log ASCII Standard) org. Canada
- ◆ SPWLA ( Society of Petroleum Well Analysts) org Aberdeen
- ◆ XML ( Extendable Mark-up Language)

# Metadata standards for data files

(used in petroleum E&P data management)

---



- ◆ Various XML-definitions used in petroleum
  - ◆ WITSML (Wellsite Information Transfer Mark-up Language)
  - ◆ PRODML ( PRODUCTION xML,)



<http://www.energistics.org/posc/default.asp?SnID=239249707>

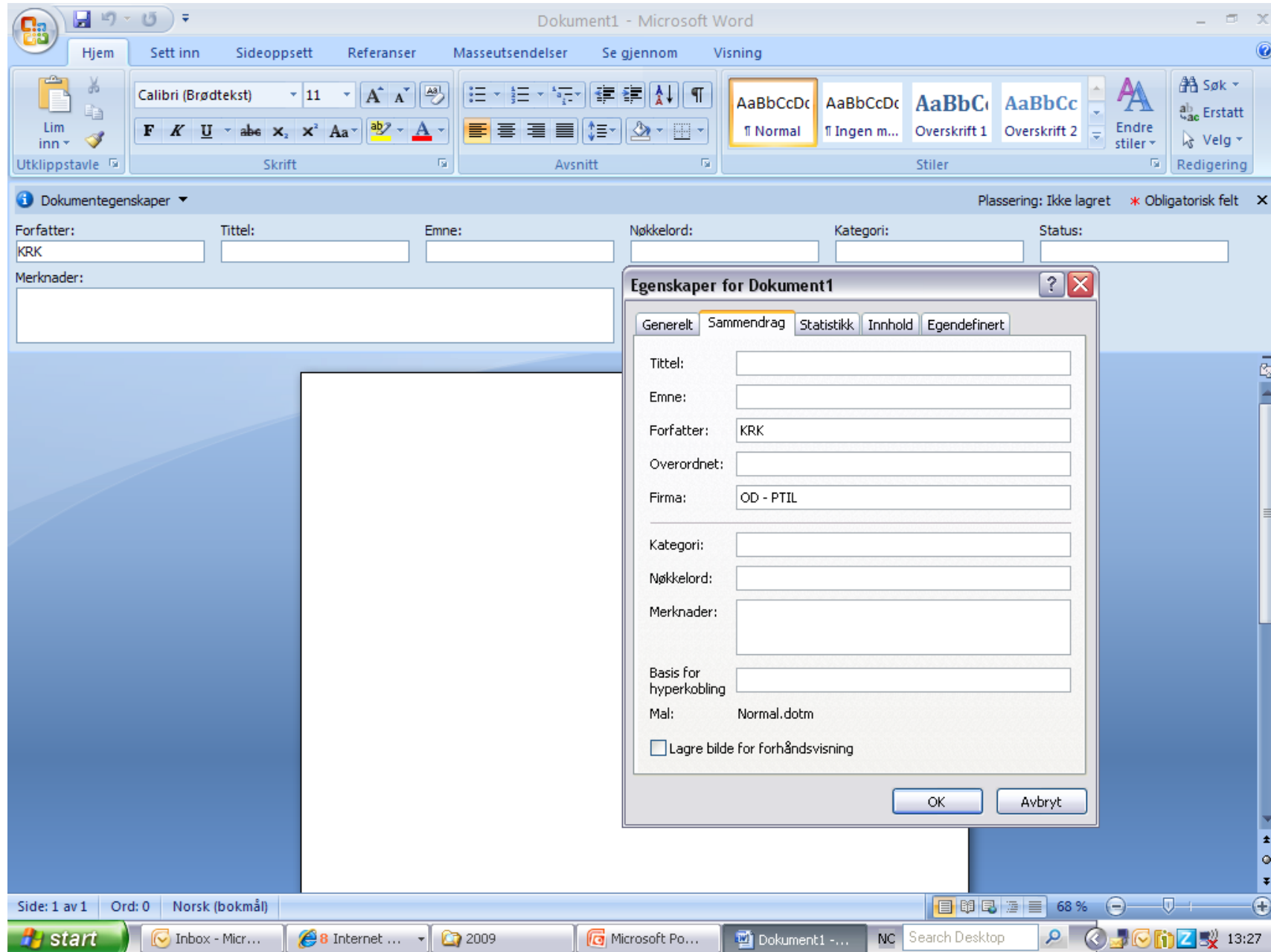
# Metadata standards for Data file formats

(used in petroleum E&P data management)

---

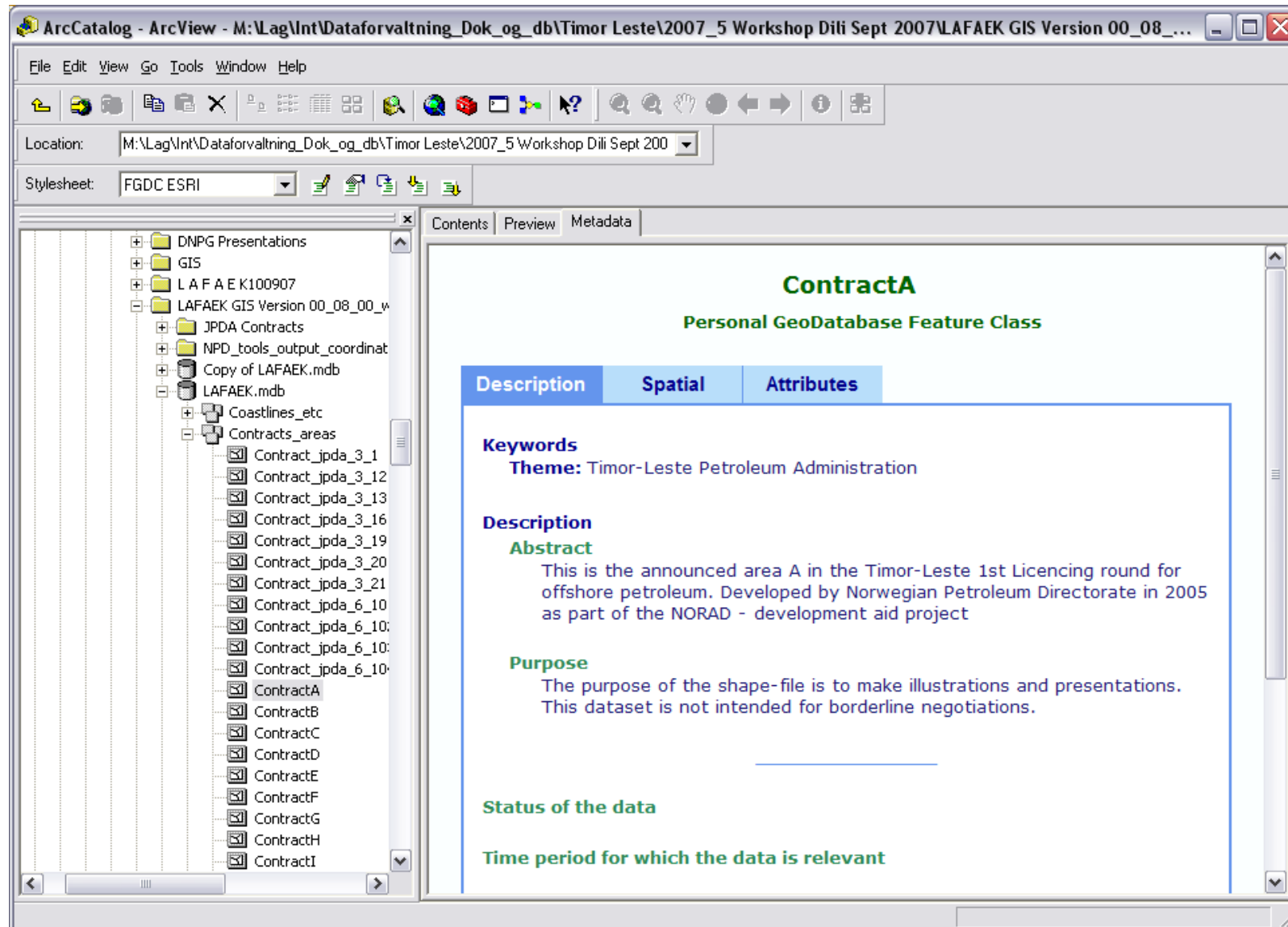
- ◆ Image formats
  - ◆ TIFF ( Tagged Image File Format)
  - ◆ JPEG ( Joint Photographic Expert Group)
  - ◆ GIF ( Graphic Interchange Format)
  - ◆ PNG ( Portable Network Graphic)
  - ◆ BMP ( Microsoft Windows Bitmap)
- ◆ Document formats
  - ◆ OOXML (Office Open XML, Microsoft)
  - ◆ PDF or PDF/A (Portable Document Format)
  - ◆ ODF for documents to be edited.

# MS-Word (2007) Metadata

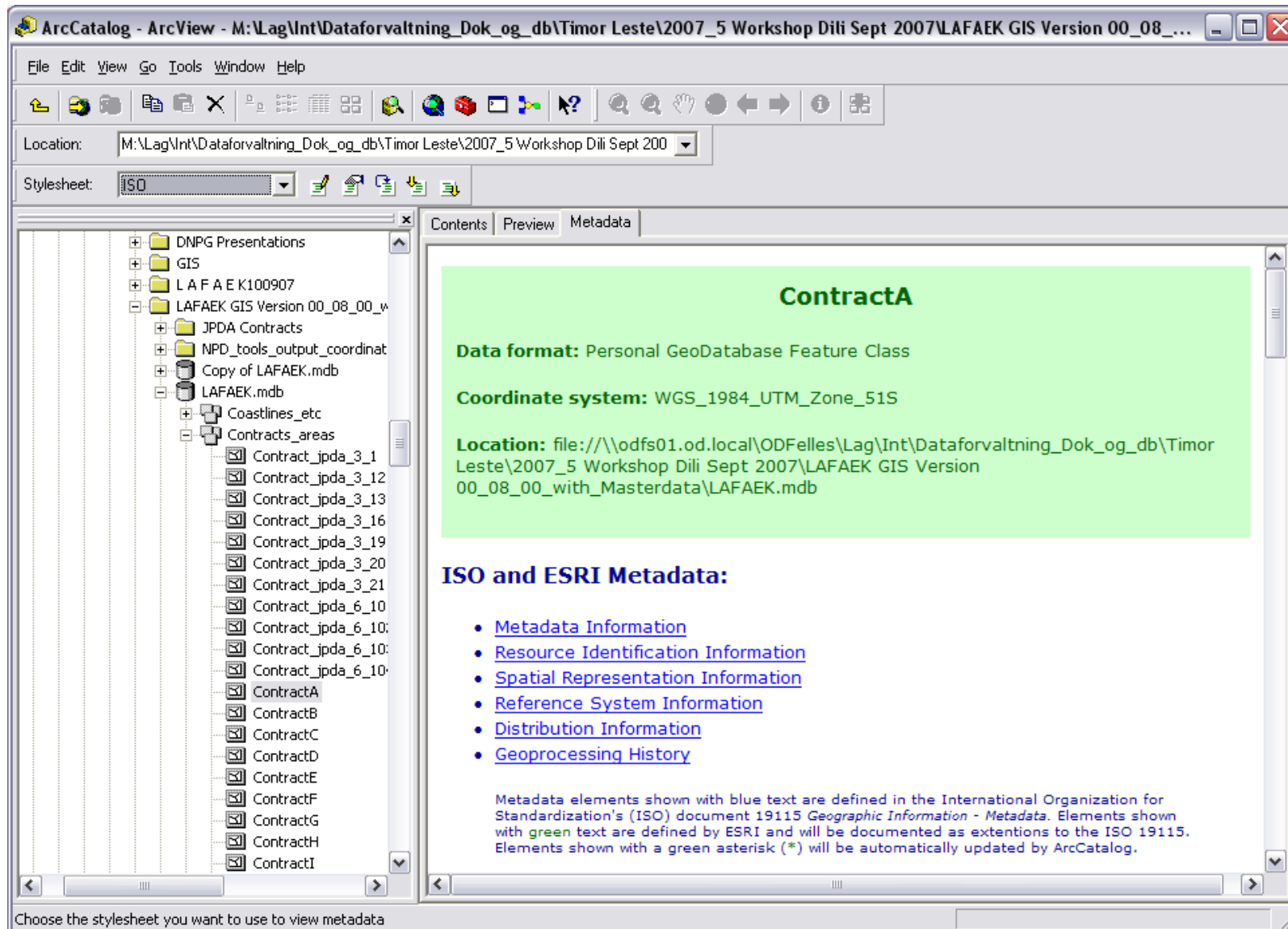


The screenshot displays the Microsoft Word 2007 interface. The main window title is 'Dokument1 - Microsoft Word'. The ribbon is set to 'Hjem' (Home), with sub-tabs for 'Sett inn', 'Sideoppsett', 'Referanser', 'Masseutsendelser', 'Se gjennom', and 'Visning'. The ribbon includes sections for 'Utklippstavle', 'Skrift', 'Avsnitt', 'Stiler', and 'Redigering'. The 'Dokumentegenskaper' (Document Properties) task pane is visible on the left, showing fields for 'Forfatter' (KRK), 'Tittel', 'Emne', 'Nøkkelord', 'Kategori', and 'Status'. A dialog box titled 'Egenskaper for Dokument1' is open, showing the 'Sammendrag' (Summary) tab. The dialog box contains the following fields: 'Tittel', 'Emne', 'Forfatter' (KRK), 'Overordnet', 'Firma' (OD - PTIL), 'Kategori', 'Nøkkelord', 'Merknader', 'Basis for hyperkobling', and 'Mal' (Normal.dotm). There is also a checkbox for 'Lagre bilde for forhåndsvisning'. The status bar at the bottom indicates 'Side: 1 av 1', 'Ord: 0', and 'Norsk (bokmål)'. The Windows taskbar at the bottom shows the Start button, several open applications (Inbox, Internet Explorer, 2009, Microsoft PowerPoint), and the system tray with the time 13:27.

# ESRI: ArcCatalog Metadata

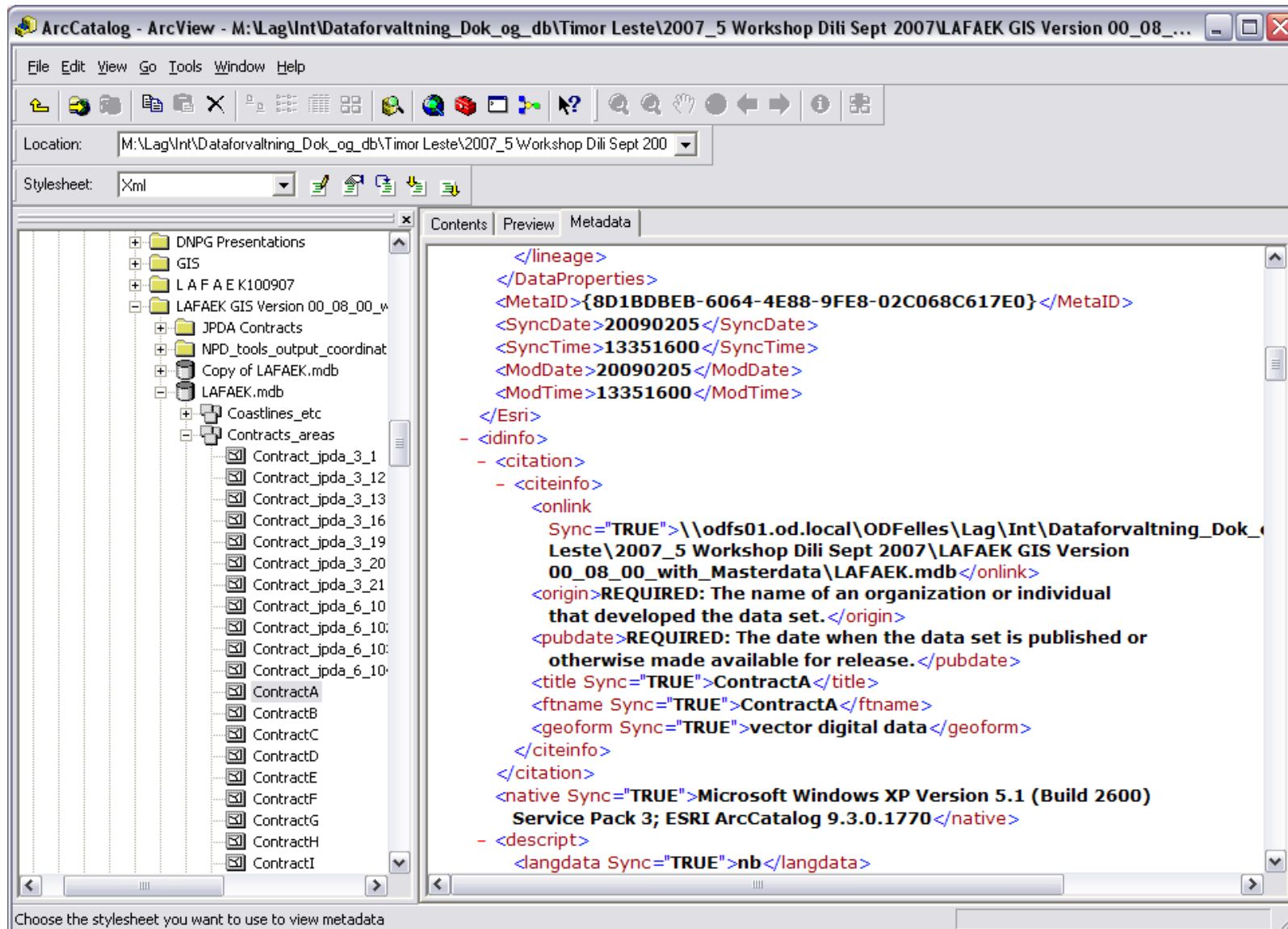


# ESRI: ArcCatalog Metadata





# ESRI: ArcCatalog Metadata



The screenshot shows the ArcCatalog interface with the following details:

- Title Bar:** ArcCatalog - ArcView - M:\Lag\Int\Dataforvaltning\_Dok\_og\_db\Timor Leste\2007\_5 Workshop Dili Sept 2007\LAF AEK GIS Version 00\_08\_...
- Menu Bar:** File Edit View Go Tools Window Help
- Location:** M:\Lag\Int\Dataforvaltning\_Dok\_og\_db\Timor Leste\2007\_5 Workshop Dili Sept 2007
- Stylesheet:** Xml
- Left Panel (Tree View):**
  - DNPG Presentations
  - GIS
  - L A F A E K100907
  - LAF AEK GIS Version 00\_08\_00\_w
    - JPDA Contracts
      - Contract\_jpda\_3\_1
      - Contract\_jpda\_3\_12
      - Contract\_jpda\_3\_13
      - Contract\_jpda\_3\_16
      - Contract\_jpda\_3\_19
      - Contract\_jpda\_3\_20
      - Contract\_jpda\_3\_21
      - Contract\_jpda\_6\_10
      - Contract\_jpda\_6\_10;
      - Contract\_jpda\_6\_10;
      - Contract\_jpda\_6\_10;
      - ContractA
      - ContractB
      - ContractC
      - ContractD
      - ContractE
      - ContractF
      - ContractG
      - ContractH
      - ContractI

- Right Panel (Metadata View):**
- Contents | Preview | Metadata
- XML Metadata Content (XMC) for 'ContractA':

```

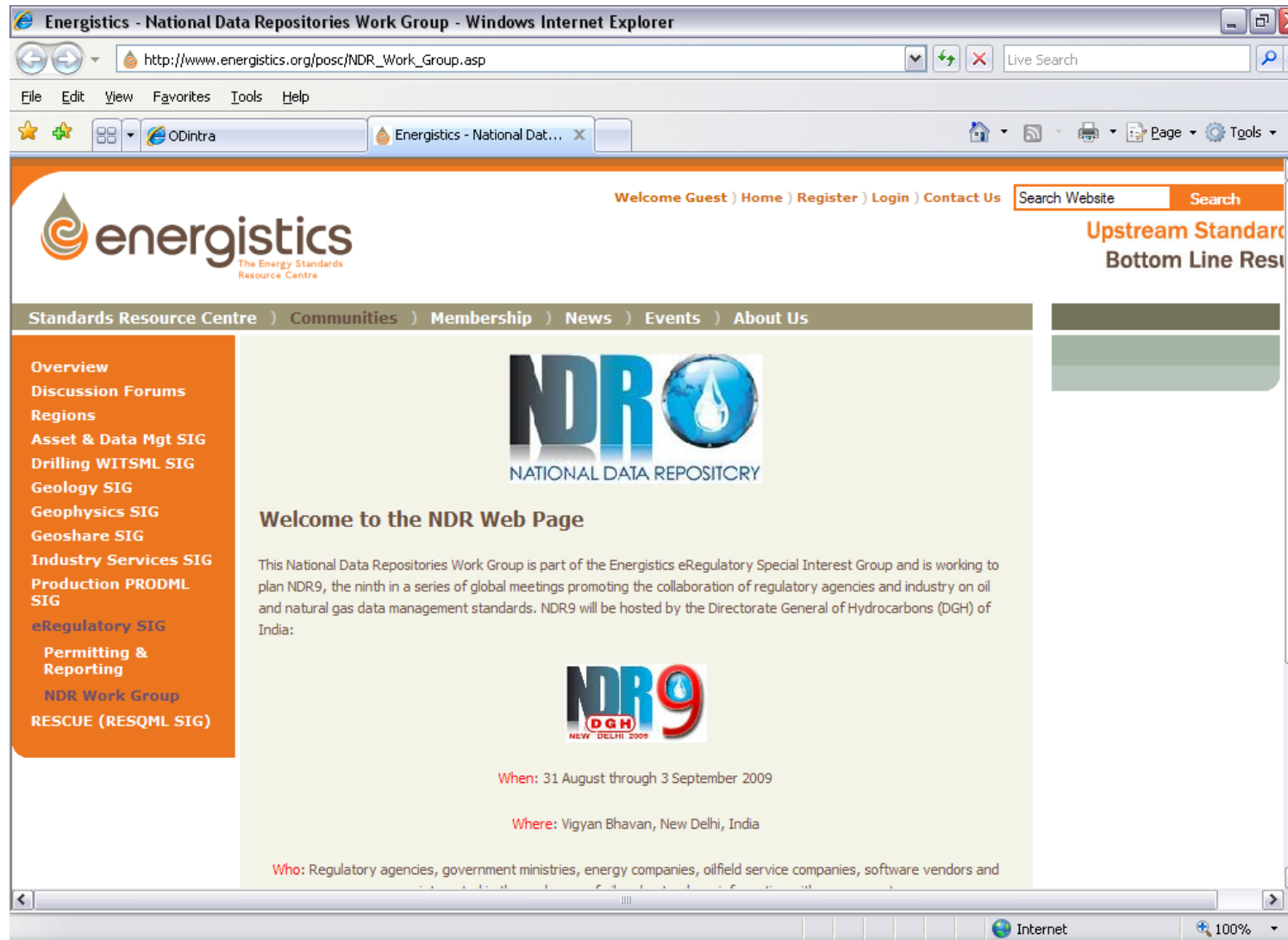
</lineage>
</DataProperties>
<MetaID>{8D1BDBEB-6064-4E88-9FE8-02C068C617E0}</MetaID>
<SyncDate>20090205</SyncDate>
<SyncTime>13351600</SyncTime>
<ModDate>20090205</ModDate>
<ModTime>13351600</ModTime>
</Esri>
- <idinfo>
- <citation>
- <citeinfo>
  <onlink
    Sync="TRUE">\\odfs01.od.local\ODFelles\Lag\Int\Dataforvaltning_Dok_og_db\Timor Leste\2007_5 Workshop Dili Sept 2007\LAF AEK GIS Version 00_08_00_with_Masterdata\LAF AEK.mdb</onlink>
  <origin>REQUIRED: The name of an organization or individual that developed the data set.</origin>
  <pubdate>REQUIRED: The date when the data set is published or otherwise made available for release.</pubdate>
  <title Sync="TRUE">ContractA</title>
  <ftname Sync="TRUE">ContractA</ftname>
  <geoform Sync="TRUE">vector digital data</geoform>
</citeinfo>
</citation>
<native Sync="TRUE">Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 3; ESRI ArcCatalog 9.3.0.1770</native>
- <descript>
  <langdata Sync="TRUE">nb</langdata>

```

# Data models

---

- ◆ EPICENTER (POSC)
- ◆ NPD -SAMBA
- ◆ PPDM



# Other metadata standards

(used in petroleum E&P data management)

---

- ◆ Standards on how to organize information
  - ◆ Naming conventions & definitions
    - wells
    - fields
    - seismic surveys
    - etc

# Semantic Web Initiatives

---

- ◆ **Computers can speak together** (structured databases not needed ?)
  - ◆ **Semantic Web**

An evolving extension of the World Wide Web in which the semantics of information and services on the web is defined, making it possible for the web to understand and satisfy the requests of people and machines to use the web content
  - ◆ **Ontology**

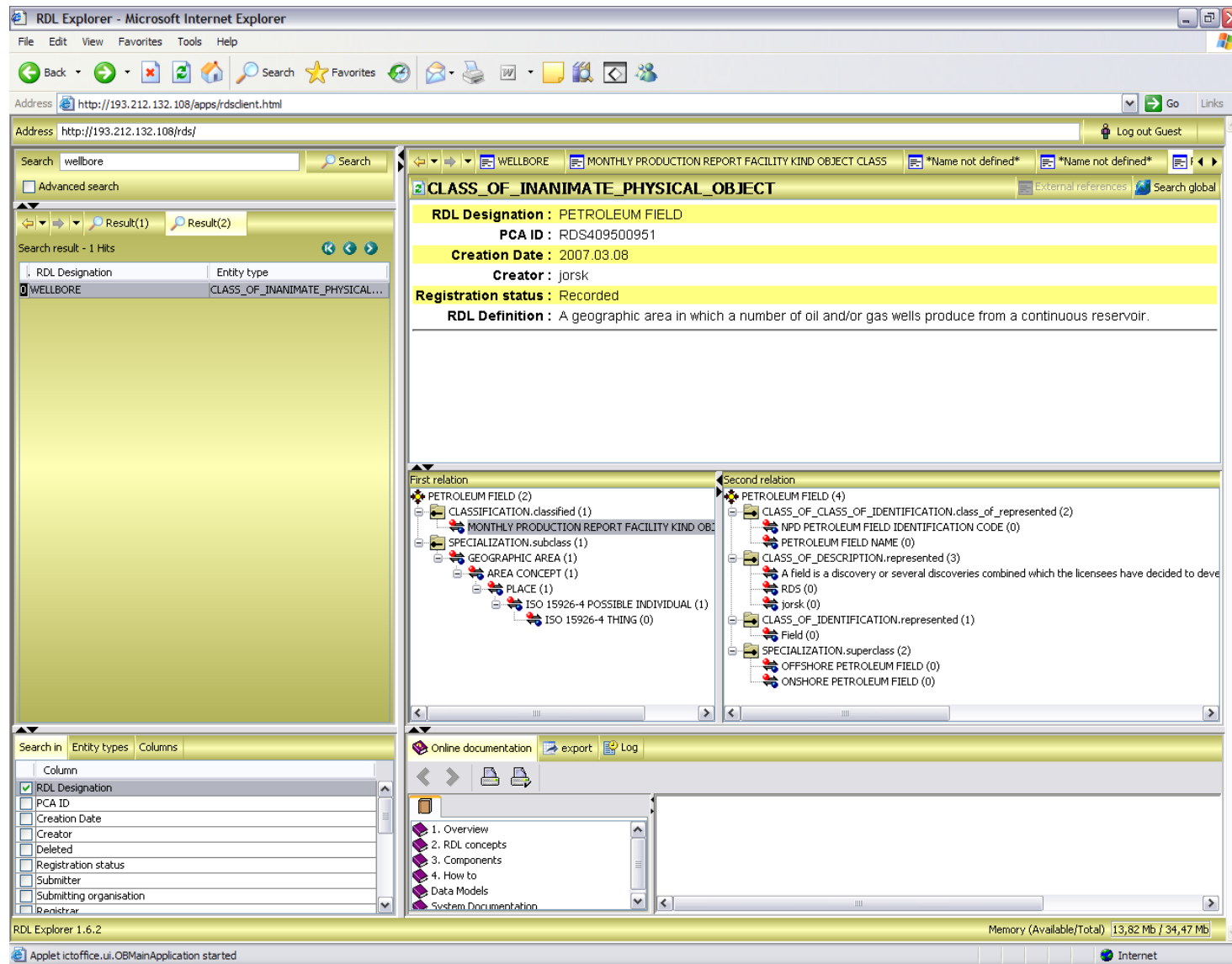
An ontology provides a shared vocabulary, which can be used to model a domain – that is, the type of objects and/or concepts that exist, and their properties and relations.

# Semantic Web Initiatives

---

- ◆ OLF (Oil companies interest organization, Norway)
  - ◆ initiative on Petroleum Integrated Operation (Smart Field)  
Project IIP (Integrated Information Platform)
- ◆ ISO 15 926
  - ◆ is a standard for data integration, sharing, exchange, and hand-over between computer systems.
- ◆ POSC/CAESAR RDL
  - ◆ Reference Data Library to ISO 15 926 Part 4

# RDL ( Reference Data Library for ISO 15 926)



The screenshot displays the RDL Explorer web application interface. The main content area shows details for the object **CLASS\_OF\_INANIMATE\_PHYSICAL\_OBJECT**. The details include:

- RDL Designation:** PETROLEUM FIELD
- PCA ID:** RDS409500951
- Creation Date:** 2007.03.08
- Creator:** jorsk
- Registration status:** Recorded
- RDL Definition:** A geographic area in which a number of oil and/or gas wells produce from a continuous reservoir.

Below the details, there are two relation trees:

- First relation:**
  - PETROLEUM FIELD (2)
    - CLASSIFICATION.classified (1)
    - MONTHLY PRODUCTION REPORT FACILITY KIND OBJ...
    - SPECIALIZATION.subclass (1)
    - GEOGRAPHIC AREA (1)
      - AREA CONCEPT (1)
      - PLACE (1)
      - ISO 15926-4 POSSIBLE INDIVIDUAL (1)
      - ISO 15926-4 THING (0)

- Second relation:**
- PETROLEUM FIELD (4)
  - CLASS\_OF\_CLASS\_OF\_IDENTIFICATION.class\_of\_represented (2)
  - NPD PETROLEUM FIELD IDENTIFICATION CODE (0)
  - PETROLEUM FIELD NAME (0)
  - CLASS\_OF\_DESCRIPTION.represented (3)
    - A field is a discovery or several discoveries combined which the licensees have decided to deve
    - RDS (0)
    - jorsk (0)
  - CLASS\_OF\_IDENTIFICATION.represented (1)
  - Field (0)
  - SPECIALIZATION.superclass (2)
  - OFFSHORE PETROLEUM FIELD (0)
  - ONSHORE PETROLEUM FIELD (0)

The interface also includes a search bar with the term "wellbore", a search result table, and a column selection panel. The status bar at the bottom indicates "RDL Explorer 1.6.2" and "Memory (Available/Total) 13,82 Mb / 34,47 Mb".

# Resource classification systems

---

400 Mill SM

- ◆ What does the number reflect?
  - ◆ A discovered resource?
  - ◆ Recoverable oil or gas?
  - ◆ Only primary recovery?

**Must have some information about the number in the box**



# Resource classification systems

---

- ◆ The CCOP Petroleum Resource Classification System
- ◆ SPE/WPC/AAPG/SPEE PRMS (SPE PRMS 2007)
  - ◆ Petroleum Resources Management System
- ◆ Norwegian Petroleum Resource Classification System
  - ◆ Norwegian Petroleum Directorate
- ◆ United Nation Framework Classification for Fossil Energy and Mineral Reserves and Resources
  - ◆ UNFC-2009

# The CCOP Petroleum Resource Classification System (1999)



# SPE PRMS 2007

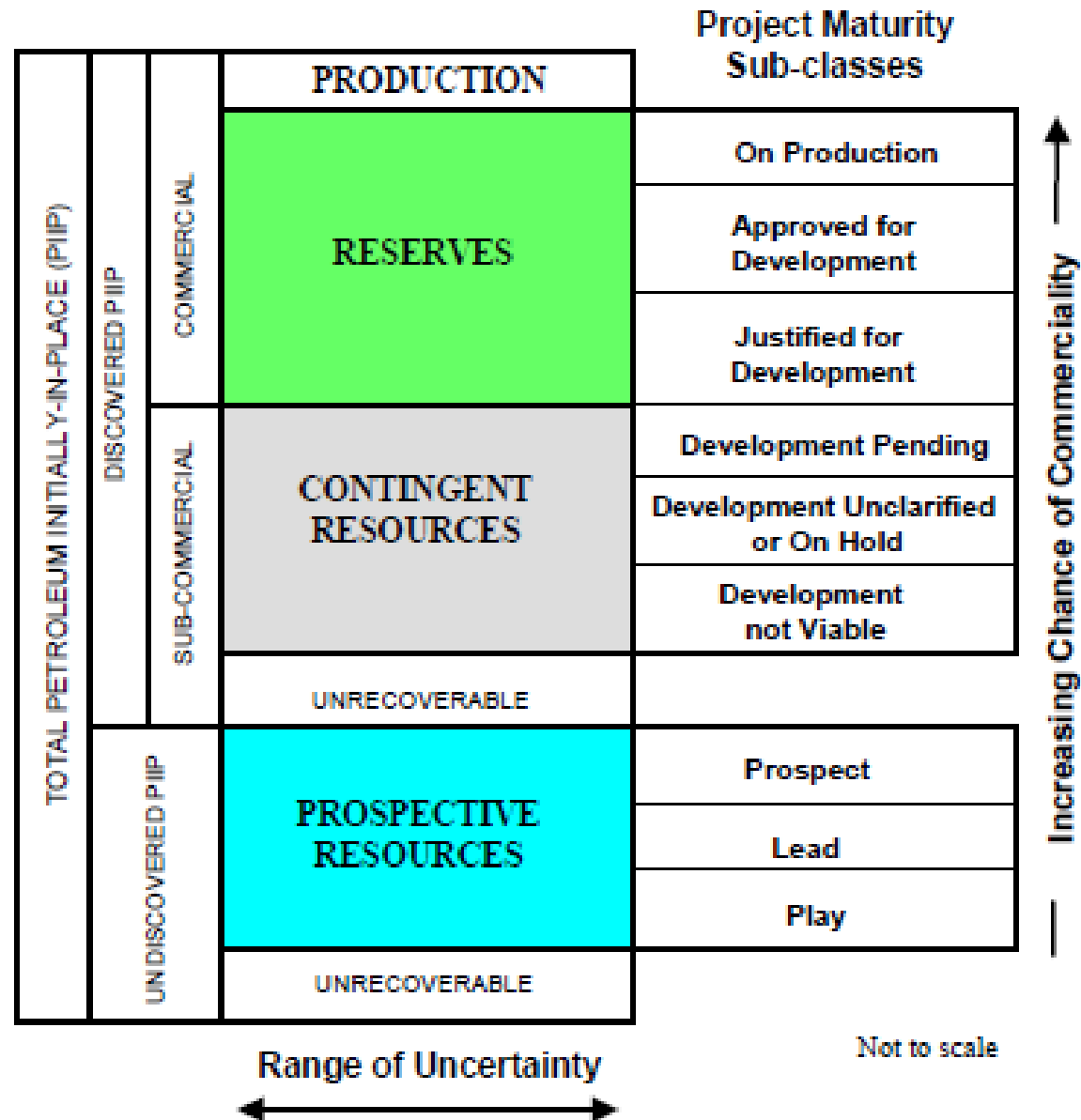
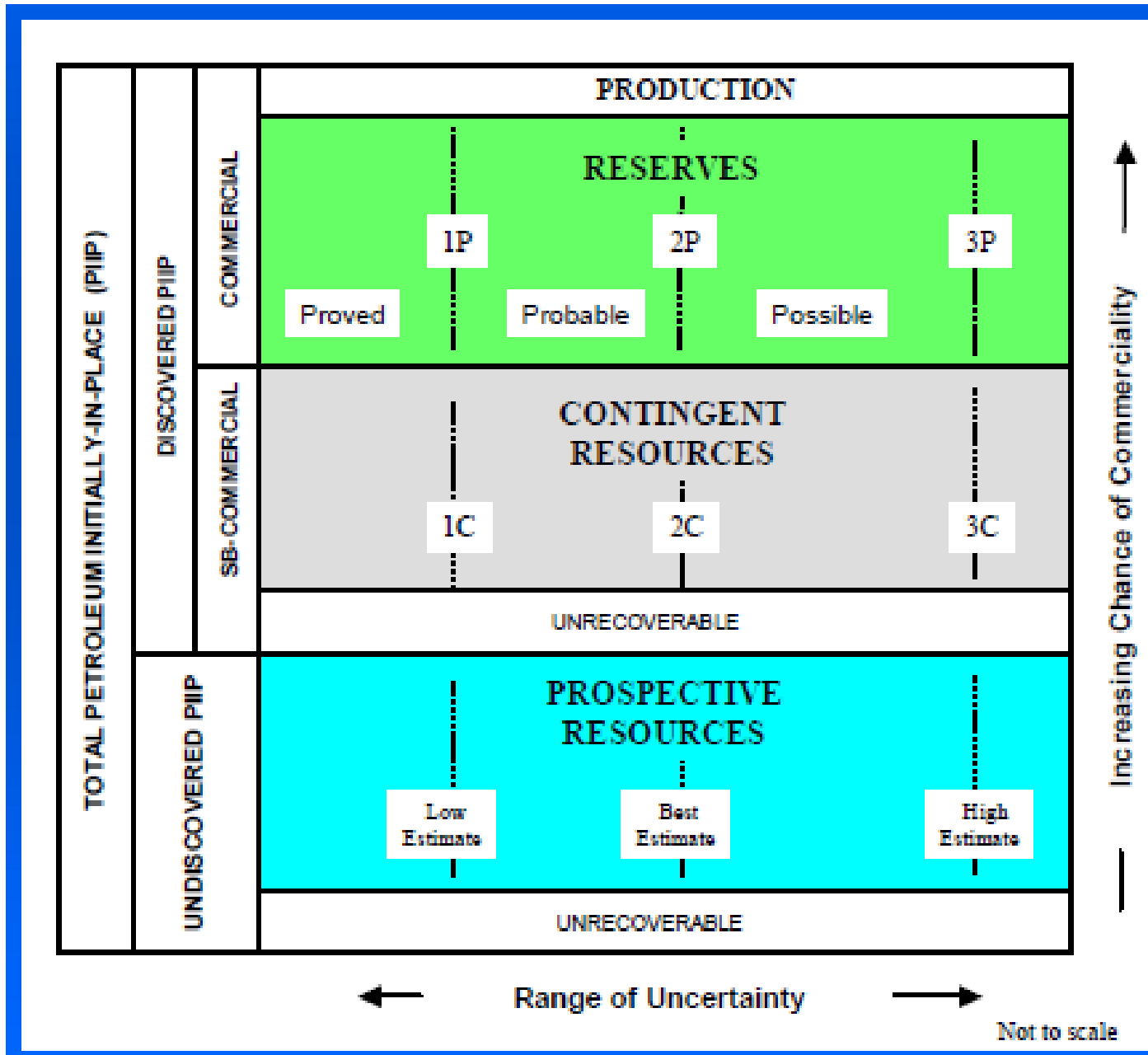


Figure 2-1: Sub-classes based on Project Maturity.

# SPE PRMS



# The Norwegian Resource Classification system

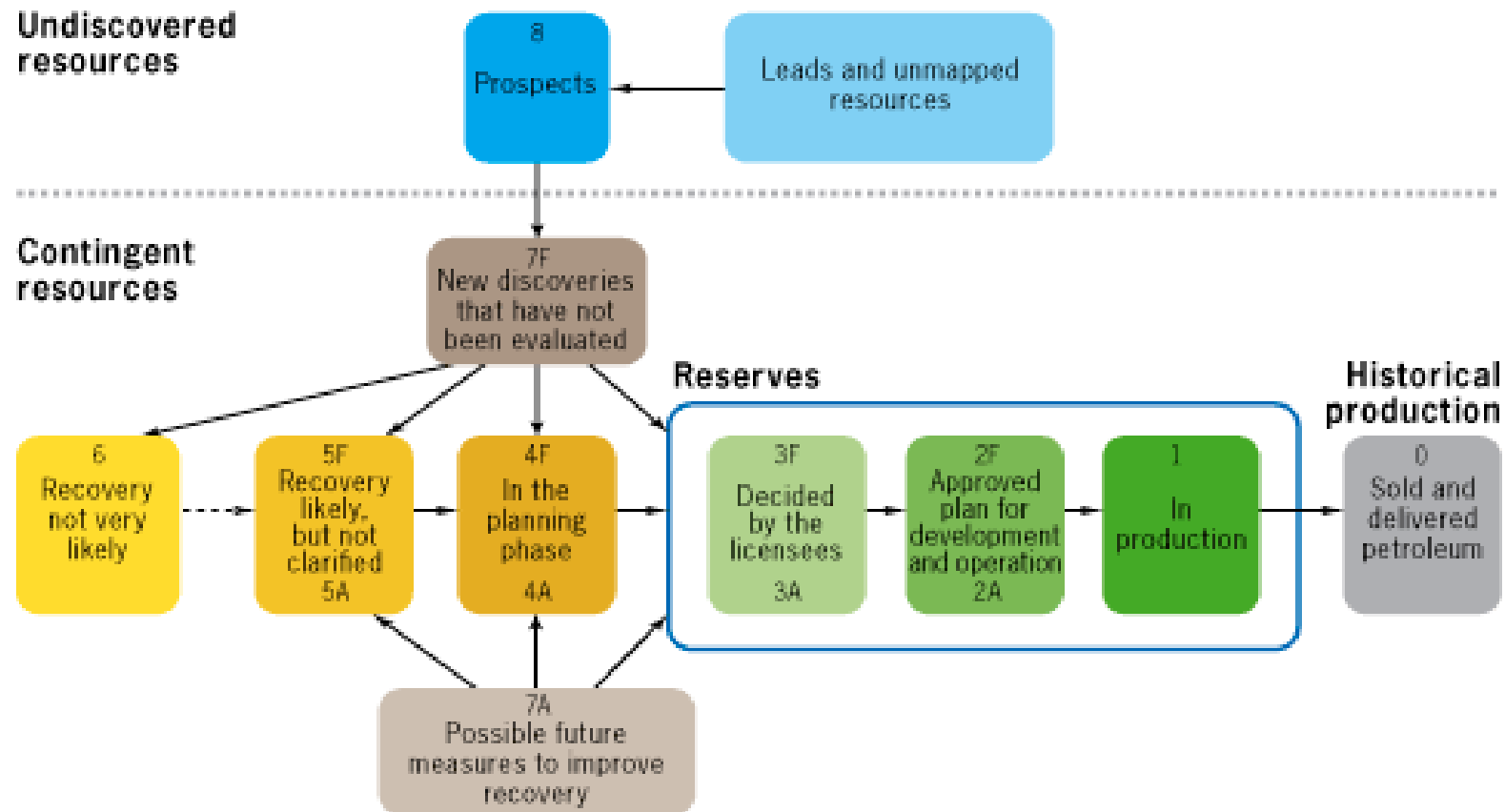


Figure 2.3. The Norwegian Petroleum Directorate's classification of the petroleum resources

# The total Norwegian Petroleum Resources (2006)



Status	Resource class	Category	Project status	Oil mill. Sm <sup>3</sup>	Gas mrd. Sm <sup>3</sup>	NGL** mill. t.	Cond. mill. Sm <sup>3</sup>	Sum o.e. mill. Sm <sup>3</sup>	
Discovered	Field	Historic production	0	Sold and delivered	3 155	1 142	99	89	4 573
		Reserves	1	In production	944	1 371	96	-0	2 497
			2	Approved plan	105	607	14	42	781
			3*	Decided by the licensees	26	324	13	7	381
			Sum reserves		1 075	2 302	123	49	3 659
		Contingent resources	4	In the planning phase	187	79	12	3	291
			5	Recovery likely, but not clarified	177	87	8	2	282
	7F		New discoveries tied to fields being evaluated	12	1	0	0	13	
	7A		Possible future measures for increased recovery	140	130			270	
	Sum contingent resources in fields		515	296	20	5	855		
	Sum reserves and contingent resources in fields		1 591	2 599	143	53	4 514		
	Discovery	Contingent resources	4F	In the planning phase	102	104	14	12	243
			5F	Recovery likely, but not clarified	48	318	9	23	405
			7F	New discoveries being evaluated	2	2	0	0	5
Sum contingent resources in fields		152	424	22	35	654			
Undiscovered	Undiscovered resources	8 and 9	Prospects and unmapped resources	1 260	1 875		265	3 400	
Total resources			Sum total resources	6 158	6 040	263	442	13 141	
			Sum remaining resources	3 003	4 897	165	354	8 568	

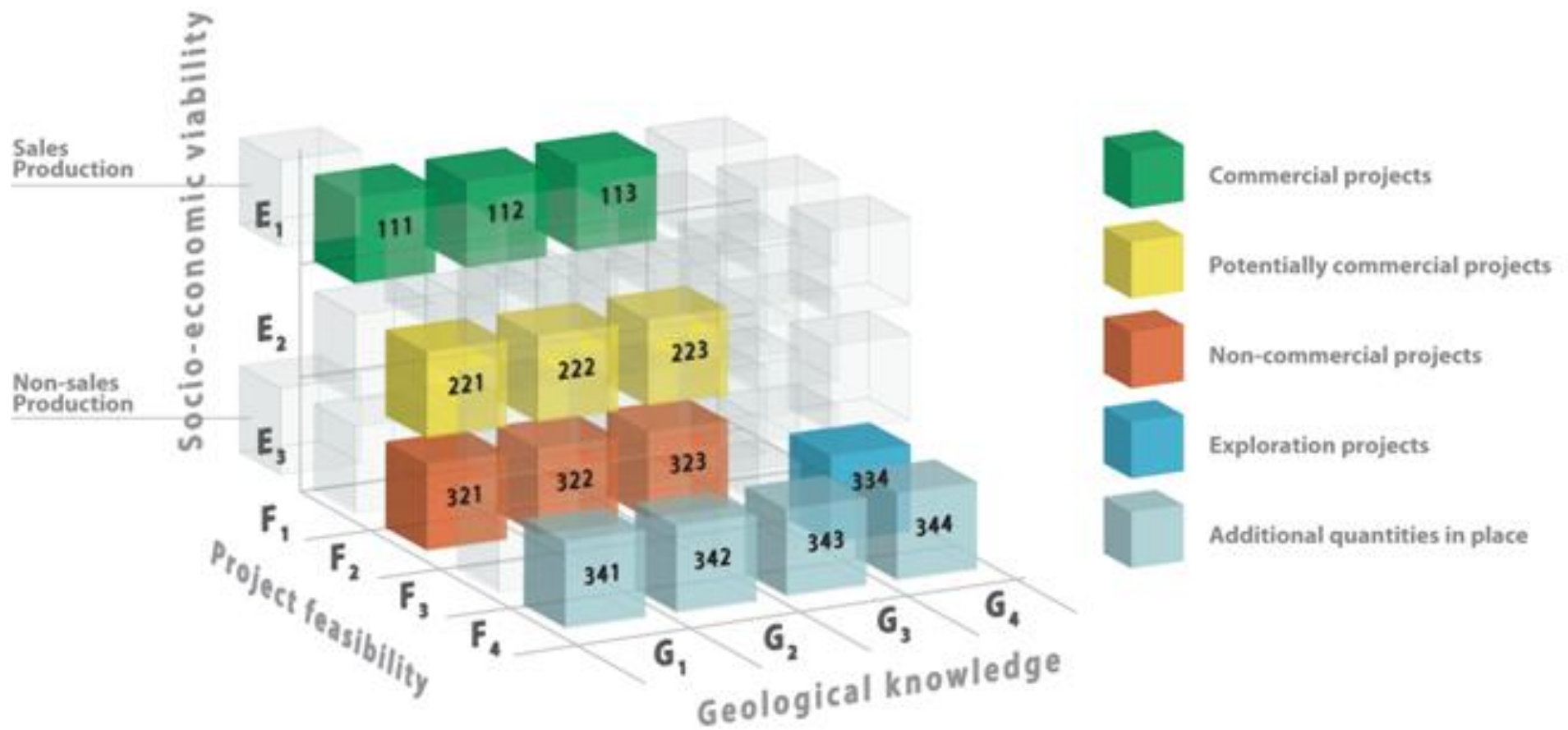
\* Includes reserves from discoveries

\*\* 1 tonne of NGL = 1,9 Sm<sup>3</sup> o.e.

# UNFC-2009



Figure 1. UNFC categories and examples of classes



# UNFC-2009



DRAFT (16 March 2009)

Figure 2. Abbreviated version of the UNFC, showing primary classes

	Extracted	Sales Production			
		Non-sales Production <sup>2</sup>			
		Class	Categories		
			E	F	G <sup>3</sup>
Total commodity initially in place	Future recovery by commercial development projects or mining operations	Commercial Projects <sup>4</sup>	1	1	1, 2, 3
	Potential future recovery by contingent development projects or mining operations	Potentially Commercial Projects <sup>5</sup>	2 <sup>6</sup>	2	1, 2, 3
		Non-Commercial Projects <sup>7</sup>	3	2	1, 2, 3
	Additional quantities in place associated with known deposits <sup>8</sup>		3	4	1, 2, 3
	Potential future recovery by successful exploration activities	Exploration Projects	3	3	4
	Additional quantities in place associated with potential deposits <sup>9</sup>		3	4	4



# Joint Oil Data Initiative (JODI)



The screenshot shows the International Energy Forum (IEF) website. At the top, there is a navigation bar with links for Home, Ministers, CEOs, JODI, and What's New. Below this is a large world map with JODI member countries highlighted in orange. The map is titled "International Energy Forum" and includes a projection dropdown menu set to "Equidistant".

On the left side, there is a vertical navigation menu with the following items: IEF, IEF, Events, Newsletters, IEF Lecture Series, Archive, Executive Board, International Support Group, Industry Advisory, Committees, IEF Secretariat, Contacts, JODI, and Vacancies. Below the menu is a "JODI Report" button and a "Data Map" section with a small world map.

At the bottom of the page, there is a "JODI" logo and the text "The Joint Oil Data Initiative" followed by the tagline "A concrete outcome of the producer-consumer dialogue". Below this is a circular logo for the JODI initiative. The footer contains the copyright notice "Copyright © International Energy Forum, 2009" and a navigation bar with links for Home, FAQ, Feedback, Site Map, and Support.

# Challenge:

## What level metadata in the EPPM-project?

- ◆ According to needs
- ◆ According to ambitions
- ◆ For future extension to online data

# End of presentation..

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# Extra for the discussions

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# Arguments (Discussion topics)

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- ◆ The EPPM project is not an IT-project
  - ◆ Templates exist already (ex BGS, CCOP-metadata portal)
  - ◆ Challenge is to put in the right data
    - What is relevant ( not too much, start in the right end, which search criteria)
    - Compatible with emerging technology (free text search, metacarta(spatial data retrieval),semantic web)
- ◆ The focus must be on
  - ◆ Define a short keyword hierarchy that is relevant (classification)
  - ◆ Use “best practice ontology”
  - ◆ Harmonize regional reference databases to allow for future dataflow between databases

# Technical standards bodies

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- ◆ Society of Exploration Geophysicists (SEG)
  - ◆ <http://seg.org/publications/tech-stand/>
- ◆ American Petroleum Institute (API)
- ◆ Public Petroleum Data Model (PPDM) Association
- ◆ Energistics (former POSC)
- ◆ POSC/CAESAR

NDR9 Save the Date! - Melding (HTML)

Melding

Svar Svar til alle Videresend til alle Svar

Slett Overfør til mappe Lag regel Andre handlinger

Handlinger

Blokker avsender Ikke søppelpost Søppelpost

Sikker-lister


Kategoriser Følg opp Marker som ulest Alternativer

Søk Relatert Velg Søker

Send til OneNote OneNote

Fra: Jerry Hubbard [membership@energistics.ccsend.com] på vegne av Jerry Hubbard [jerry.hubbard@energistics.org] Sendt: ti 03.02.2009 00:26  
Til: Knudsen Kjell-Reidar  
Kopi:  
Emne: NDR9 Save the Date!


## National Data Repository Press Release



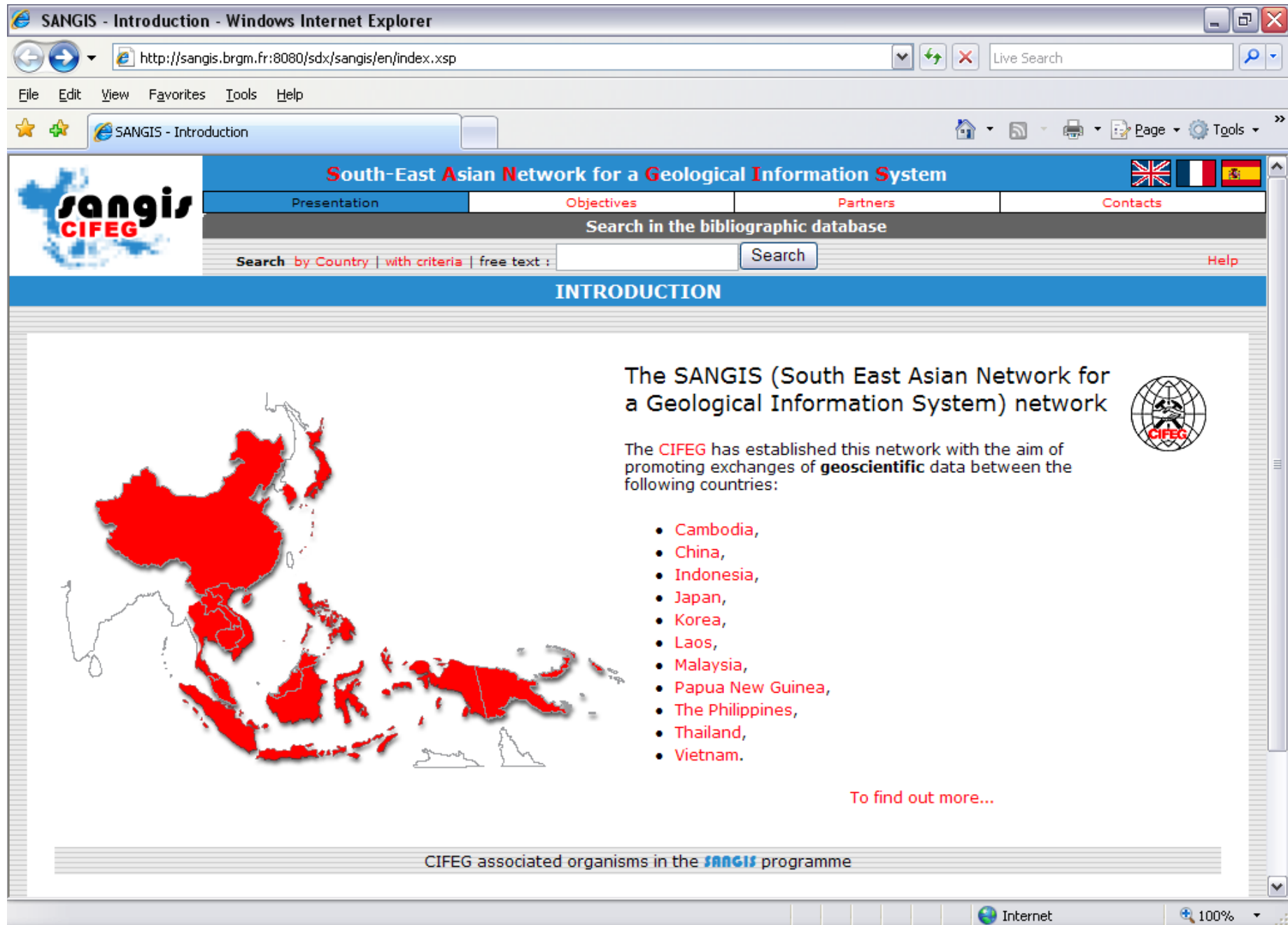
### SAVE THE DATE!

**When:** 31st August - 3rd September 2009  
**Where:** New Delhi, India

Sponsored by the Directorate General of Hydrocarbons (DGH) of India, NDR9 will be held at the Vigyan Bhavan in New Delhi. Please mark the dates on your calendars and diaries and plan to join us for informational presentations on data management topics for regulatory agencies and government ministries charged with managing oil and natural gas data. More information will follow soon on hotels and the agenda.



# CCOP Sangis



The screenshot shows a Windows Internet Explorer browser window displaying the SANGIS website. The browser title is "SANGIS - Introduction - Windows Internet Explorer" and the address bar shows "http://sangis.brgm.fr:8080/sdx/sangis/en/index.xsp". The website header includes the SANGIS logo, the title "South-East Asian Network for a Geological Information System", and navigation links for "Presentation", "Objectives", "Partners", and "Contacts". A search bar is present with the text "Search in the bibliographic database" and a "Search" button. The main content area is titled "INTRODUCTION" and features a map of Southeast Asia with countries highlighted in red. To the right of the map, the text reads: "The SANGIS (South East Asian Network for a Geological Information System) network" and "The CIFEG has established this network with the aim of promoting exchanges of geoscientific data between the following countries:". A list of countries follows: Cambodia, China, Indonesia, Japan, Korea, Laos, Malaysia, Papua New Guinea, The Philippines, Thailand, and Vietnam. A "CIFEG" logo is also visible. At the bottom of the page, there is a link "To find out more..." and a footer section titled "CIFEG associated organisms in the SANGIS programme".

SANGIS - Introduction - Windows Internet Explorer

http://sangis.brgm.fr:8080/sdx/sangis/en/index.xsp

File Edit View Favorites Tools Help

SANGIS - Introduction


South-East Asian Network for a Geological Information System

Presentation Objectives Partners Contacts

Search in the bibliographic database

Search by Country | with criteria | free text :  Search Help

## INTRODUCTION



The SANGIS (South East Asian Network for a Geological Information System) network

The CIFEG has established this network with the aim of promoting exchanges of **geoscientific** data between the following countries:

- Cambodia,
- China,
- Indonesia,
- Japan,
- Korea,
- Laos,
- Malaysia,
- Papua New Guinea,
- The Philippines,
- Thailand,
- Vietnam.

[To find out more...](#)

CIFEG associated organisms in the **SANGIS** programme

Internet 100%



Search in the bibliographic database

Search by Country | with criteria | free text:

[Help](#)

### SEARCH FORM

You may use the fields for your query. Choose a term in a list and click on the  button to use the term as a criteria. To remove a criteria, use the  button.

**Themes**

AND  OR

**Scientific keyword**

AND  OR

**Geographical keyword**

AND  OR

**Country**

AND  OR

**Author**

AND  OR

**Affiliation**

AND  OR

Publication date between:  and

AND  OR

Full text:

Sort results

# CCOP Metadata Project

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## ◆ CCOP Metadata Project Phase I

- ◆ To seek the location database of the information in each country for the advanced utilization of geological publications.
- ◆ CCOP countries jointly own and mutually exchange some of these information under XML standardization of metadata through the internet
- ◆ To introduce the distributed system of the metadata clearinghouse for the information

## ◆ CCOP Metadata Project Phase II

- ◆ It is planned to publish the final CCOP Metadata Standard in 2008, and to start the development of the CCOP Metadata System Software for data collection and data search and retrieval in 2009.