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## GLOBAL SPATIAL DATA INFRASTRUCTURES and International Cartographic Association

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International Cartographic Association  
[www.icaci.org](http://www.icaci.org)

### OPERATING Environments

Science and technology

Education

Professional Practice (Nature, January 04)

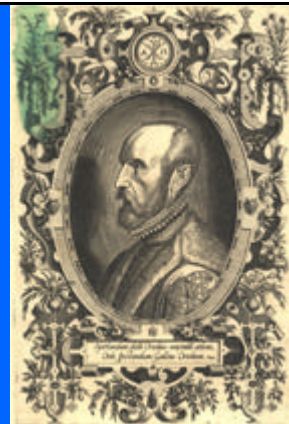
Society (social and organisational)



Geographer Ptolemy first developed the idea of atlases: how to subdivide the world into 26 parts, how to portray the world in its entirety and in parts. We are still using his ideas of subdividing the world, in parts from north to south and from west to east.

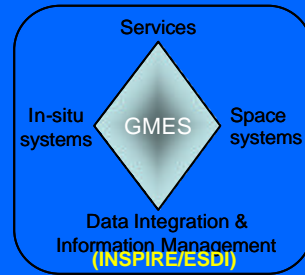
Ortelius Atlas

Mercator Atlas



## GMES and INSPIRE

### Global Monitoring for Environment and Security



## INSPIRE Infrastructure for Spatial Information in Europe

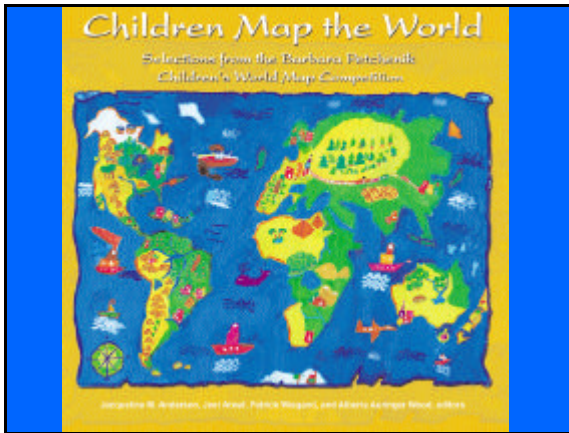
### The INSPIRE concept:

- Availability
- Accessibility
- Legislation rules.



### Bill CLINTON, EW III Conference, Bonn, March 27 urges:

*„Risk Reduction Become a Global Priority“*  
We need implementation of well known but under-applied measures to reduce risk.  
E.g. encouraging the practice of *Hazard Mapping* to identify areas of extreme vulnerability, better enforcement of uniform building codes to prompt safer construction, the expansion of access to insurance to help survivors recover and education to increase awareness.



## 4. Contemporary Cartography

It is *not enough* to build a nice technical infrastructure without teaching the population how to use the maps (analog or digital one).

We have to provide:

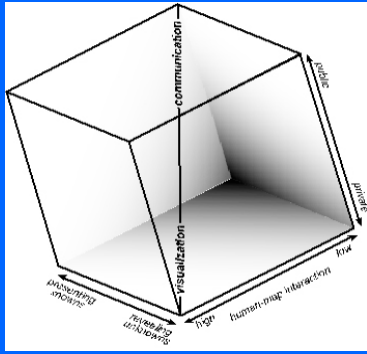
- the concepts with which the population is able to deal with geospatial information,
- to provide maps from which the population is able to derive the information they need: information that is *up-to date and tailor made* for solving the problems.

A new generation of electronic maps and atlases, mainly on the Internet, resulted in the definition of multimedia cartography.

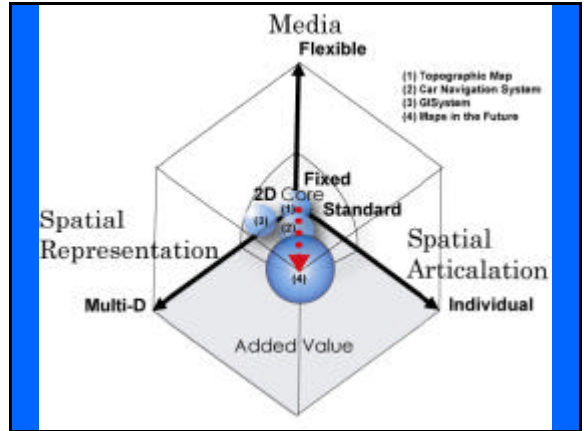
Multimedia, global communication systems, and global publishing offer possibilities for the production of dynamic and interactive visualizations, which utilize mainly virtual environments (developed originally for the computer games industry).

Intelligent access to databases and interactive user support can be used not only for the location of suitable maps on the Internet, but also for map creation (art) and modification according to *specific and individual requirements*.

Instead of just *using maps* created by someone else in advance, these new research technologies allow individuals to use cartography *interactively, on the basis of individual user's requirement*, to study and present spatial information.



The Map use cube showing four forms of visualization for exploration, Analysis and Presentation (A.M. MacEachren)



### Three most dynamic streams in cartography:

1. Cartographic visualization (ICA Commission on Visualization and Virtual Environments).
2. Ubiquitous mapping
3. Internet maps

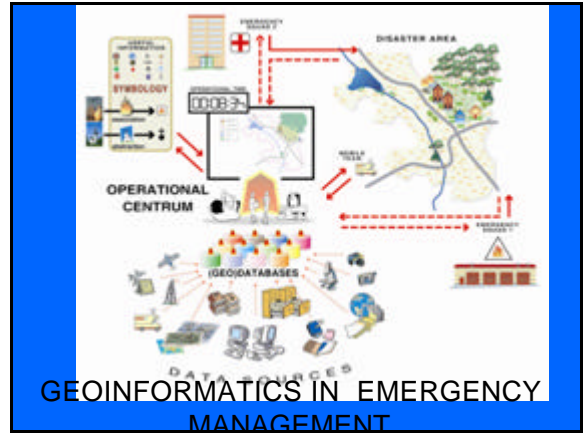
### Ubiquitous mapping

Mobile Internet / TeleCartography  
Map based LBS  
Navigation systems

#### Working fields:

Mobile  
Adaptabile  
SENSOR Cartography





## GEOINFORMATICS IN EMERGENCY MANAGEMENT

### MOBILE AND ADAPTIVE CARTOGRAPHY

1. no adaptation - full dataset
2. adapted for G1. those in charge of human evacuation
3. adapted for G2. those looking to protect biological sites
4. adapted for G3. those looking to recover some of the spilled oil
5. adapted for G4. those in charge of repairing the leak to the oil pipeline

### MOBILE AND ADAPTIVE CARTOGRAPHY

#### Cartography in Current Emergency management:

- Analogue maps or static digital sources.
- No real time cartographic support in emergency situation.
- Insufficient cartographic legibility for particular emergency situation.
- Maps for user needed (not user for maps)=personalisation of cartographic output.

### MOBILE AND ADAPTIVE CARTOGRAPHY

#### Adaptability of Cartographic Representation

1. User level—operational units, dispatching units and stakeholders need different scales, themes and map extent, but over the same data.
2. User background—different educational and map use bias.
3. Theme importance— different features in map content and variable significance with changing emergency situation.

### MOBILE AND ADAPTIVE CARTOGRAPHY

#### Adaptability of Cartographic Representation

4. New phenomena – new features reflecting the emergency status need to be inserted into map consistently.
5. Interaction device and environment – various electronic visualization devices are used and they are also in interaction with environment which is influencing visibility and amount of information used.

## Examples of Deployment



## Ilustracní foto – mini ARAX



### *mini AVAX*

Monitoring

Scanning

Application *Wi-Fi* 25-50km<sup>2</sup>

Retranslation

## MOBILE CARTOGRAPHY DEVICES



## XXIII International Cartographic Conference

4-10 August Moscow 2007, Russia

Cartography for everyone and for you

**DANKE SCHON !!!!!**  
**THANK YOU VERY MUCH**

*Shukran*  
*Aligator*  
*Xie, Xie*  
*Spasibo*

**DEKUJI ( in Czech)**