Geographic Information System (GIS) in Protection and Rescue

Mladen CVRLJE
What is GIS?

Geographic Information System

Geographics
- Vectors
- Rasters
- TIN
- Ortophoto
- DMT

Informatics
- Hardware
- Software
- Network

Users
- Military
- Police
- Protection and Rescue
- Transport
- Telecomunication
- Agriculture
- Environmental protection

National Protection and Rescue Directorate

www.duzs.hr
GIS functions

- Capture
- Store
- Query
- Analyze
- Display
- Output

Most people are still using GIS to make maps.

GIS can do much more.
Technological organization

<table>
<thead>
<tr>
<th>Data Source in Croatia</th>
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<td>SGA</td>
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<td>MHS</td>
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<th>Data Source in NDPR</th>
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<td>Civil Protection Service</td>
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<td>Fire Service</td>
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<td>112 Service</td>
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<td>NDPR National Coordination</td>
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<td>NDPR International Coordination</td>
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<td>NDPR Operational Units</td>
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NDPR System

- 112
- CPS
- FPAR High School
- National Centre 112
- Fire Service

LAN & Internet

Aplication

DB management

Data Source in NDPR

Satellite Images

UAV

NDPR Civil Protection Service

GIS Analysis Unit

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Customer architecture

WEB Field Work
WEB CPS
WEB 112 National Centre
112 County Centres
FPAR High School

Crisis Management National Headquarters

Integration and Data Base Management

SGA
MHS
SINS
PLINACRO JANAF Etc

DB Editors Serving NDPR IT System

Powerful Users NDPR Analysts

Application 1
Application 2
Application n

Document Data Base
.pdf
.xls
.www
.jpeg
.cdr
.dwg

Alfa-numeric Data Base
Define tables for data management in NDPR Services

GIS Data Base
2D atlas
3D atlas
Topical Maps
Industrial Infrastructure
Demographic Data
Address Model
Land Cover

Central NDPR Data Base

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Telecommunicational and informatical architecture
Hardware architecture
Software architecture
Using GIS in NDPR

Risk map of Croatia

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Seismically map of Croatia
Seismically map of Zagreb County and City of Zagreb
Radiological measurements stations

National Protection and Rescue Directorate
Radiologically risk of Zagreb County and City of Zagreb

National Protection and Rescue Directorate
112 Service
Application
Using satellite images and land cover for forest fire risk assessment

\[ \frac{(0.50 - 0.08)}{(0.50 + 0.08)} = 0.72 \]
\[ \frac{(0.4 - 0.30)}{(0.4 + 0.30)} = 0.14 \]

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Forest fires over-borders early warning
Real Time Data Processing
Forest fires spreading prediction module
Multicriterial analysis
THANK YOU
FOR YOUR ATTENTION