GIS and Remote Sensing for natural disaster support: emergency and planning actions

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Natural Disasters at the Southeast of Brazil

- Slidings
- Floods
Natural Disaster at the South East of Brazil

• Causes
  • Deficiency of Urban planning
  • Inappropriate human occupation

• Consequences
  • Loss of lives
  • Spread of diseases

• Solution
  • Use of Spatial information and GIS to subsides the decision-making
Natural Disasters Projects – GIS Lab

• Flood Dynamic Mapping
• Spatial Data Infrastructure for Natural Disasters
• Humanitarian Logistics – Food banks
• Reallocation of population living in risk areas
SDI for Natural Disaster policies – Dangerous cargo

- Sao Paulo State
- Great amount of spatial information
- Many research Institutes
- Difficulties for sharing the information
SDI for Natural Disaster policies

- Developing a conceptual model for SDI to subside policies for managing and prevent Natural Disasters at the Sao Paulo state (BRA)
  - Satellite and GPS information
  - Understand the institutional agreements
  - Establish the SDI
Flooding dynamic maps

- Citizen is a Sensor Goodchild (2007)
- Volunteered Geographic Information (VGI) for flood dynamic mapping at Sao Paulo city
  - Satellite images information
  - Cell phones GPS
  - Conceptual model
Humanitarian Logistics – Food banks

- Ontologies to increase the semantic interoperability for humanitarian logistics systems
  - Geographic Information Services
  - Food banks operation
- Use for Geographical Information Services development
Reallocation of population living in risk areas
Reallocation of population living in risk areas

- Difficulty of finding adequate areas
- Population needs
- Sao Paulo Metropolitan Region
  - Sliding
  - Flooding
- Develop of methodology to identify and classify the best areas for reallocate population
Reallocation of population living in risk areas

- Identification of areas
  - Agreement with the GRI of MSU
  - Develop of rules for Geographic Object-Based Image Analysis (GEOBIA) classification

- Classification of the potential areas
  - Infrastructure information
  - Costs on drainage interventions
  - Areas prices
  - Other relevant Information
  - Multi-criteria decision analysis
GIS Lab Contributions to SPIDER

- Training in SDI and Remote Sensing Techniques
- Infrastructure and Knowledge exchange
- University of Sao Paulo and Polytechnic School Infrastructure availability
- Methodology development
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Thank you!!!