Informações Espaciais

✓ GIS / Remote Sensing Lab (LabGEO)
  o Project: Space-Time Analysis of Accidents (Road and Urban Environments) to Support Prevention Measures.

Figura 4 – Acidentes por dia da semana – domingo – 2010 a 2012

Figura 5 – Acidentes por dia da semana – segunda-feira – 2010 a 2012

Figura 6 – Acidentes por dia da semana – terça-feira – 2010 a 2012
Informações Espaciais

- GIS / Remote Sensing Lab (LabGEO)
  - Project: Spatial Big Data Mining to Support Accessibility and Mobility Mapping.

AVL data from Trucks in São Paulo Megacity (Territory Identification, Parking and Consolidation to Support Urban Logistic Planning).

Smart Card Data Analysis from São Paulo Megacity (Calculating Travel Time to Measure Accessibility Indexes).
Informações Espaciais

GIS / Remote Sensing Lab (LabGEO)


Pesquisas no PTR

Figure: Lidar, Orbital Image and Aerial Photography Classification of Land Cover.
The main objective is to present a methodology to process an extensive temporal series of Landsat imagery and classify land cover changes associated with forest loss in water supply reservoir areas. This is done in order to support the definition of priority areas for water and landscape management, which could be better investigated based on high resolution remote sensing data.
Vegetation loss/conversion classes

Reservoir area shrinkage

Relief Subdivision

Relief Features at the landslide region
Multiple Classifiers System
Landslide scars identification
Characterization of the sites of traffic accidents involving vulnerable road users (VRU) in São Paulo City, Brazil and Rome, Italy

Kernel Density Estimator Analysis
Non-spatial and spatial analysis indicate the same critical zones - accidents hotspots.

The most critical condition!

José Alberto Quintanilha – Associate Professor

Mariana Abrantes Giannotti – Doctor Professor

Brazil, September 2015
Main Goal

- Bring up methodologies to GIS based in a SDI - to assist the developments of a system to support the management of technological disasters concerning road transport of hazardous materials (RTHM)

Thematic Relevance

- Road Transport mode is main type of transport of hazardous materials (RTHM). Last decades has been increased the incidence of accidents with RTHM.

- The spatial data has been used to decision making policies for disasters management to provide methodological support to enrolled stakeholders in technological risk management
**Description**

- High incidence of accidents with RTHM;
- To many different data providers;
- Methodologies to integrate spatial data sets;
- Specify a GIS to RTHM based on SDI

**Methodology**

- Identify the data providers of the data bases, attribute information, the guides and specifications to the system interoperability;
- Modeling of GIS prototype based in a SDI;
Georreferenciamento dos acidentes
Georreferenciamento dos acidentes
The Expected Outcomes

- Develop a methodology to spatial data sharing between different stakeholders to assist the management of technological disaster upon RTHM by a modeling of GIS prototype based in a SDI;
- Specify the data integration procedure;
- Technical specification to provide methodological support to enrolled stakeholders in technological risk management.
1.24 million people died in a car accident in 2010.

(WHO)
1.24 million people died in a car accident in 2010 (WHO)

Brazil: 43,869 deaths in 2010
52,260 homicides in 2010
Vietnam War: 58,193 U.S. deaths in 20 years
1.24 million people died in a car accident in 2010 (WHO)

Brazil: 43,869 deaths in 2010
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22 deaths/100,000 inhabitants
USA: 11.4 deaths/100,000 inhabitants
Point-of-Interest proximity warning

Used to announce:
- Points along a planned trajectory
- Speed traps
- Speed cameras
Lack of attention
Not keeping safety distance
Incompatible speed
Disregard to traffic signs
Substance abuse
Mechanical malfunction
Sleeping
Irregular takeover
Animals on the road
Road defect
New use to POI proximity warning:

Attention: in XXX meters approaching point with a high concentration of highway accidents – reduce your speed and pay attention to road conditions.
• Clean original data, obtain state/local data
• Enhance spatial analysis
• Define a suitable threshold to consider a point as dangerous
• Get traffic volume statistics per highway segment (normalization)
• Inform number of deaths in the segment
• Publish as GPS-ready POI data files
• Study the implementation for smartphones and the integration to existing navigation and traffic monitoring apps
• Study urban uses
The road safety targets have been included in the final text of the new Sustainable Development Goals adopted by UN member states in New York.

A specific stand-alone target in the Health Goal to reduce road traffic fatalities by 50% by 2020 and a target on sustainable urban transport in the Cities Goal has been approved, in a landmark achievement for the global road safety community.
The final wording of the targets, which will be formally adopted, is:

“**Goal 3:** Ensure healthy lives and promote well-being for all at all ages:

3.6. By 2020, halve the number of global deaths and injuries from road traffic accidents

**Goal 11:** Make cities and human settlements inclusive, safe, resilient and sustainable:

11.2. By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.”
Our research group is applying to contribute to the implementation guide for academia, scientific and research entities and networks.