University of Heidelberg
Faculty for Chemistry and Geoscience
Geographical Institute
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Seminar: GIS Analysis using Free and Open-Source Software
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Project Proposal: GIS Tool to help in the search of missing people

Targets:

- GIS-based support for the search of missing subjects in different regions in Europe.
- Calculation of different parameters e.g., Probability of Area (POA), Probability of Detection (POD).
- Definition and separation of spatial search areas, depending on the Probability of Detection of the subject.
- Display of isochrones, starting from the Initial Planning Point (IPP).
- Tool for rescue organizations to combine demographic information (age, fitness, etc. of the subject) and geographic conditions into a spatial search grid.
- Addition to the information above: Locating critical rescue/first aid infrastructure for potentially injured subjects.

Approach:

- Utilize FOSSGIS tools (e.g., QGIS, GDAL) to address the raised objectives.
- Integration of a cost-distance method to include on-site environmental conditions (topography, land use, vegetation, etc.) in the analysis
- Mobility behavior will be modelled based on demographic characteristics (age, fitness, health status, type of activity)
- Combining these two thematic directions into one spatial layer

Data Sources:

- OpenStreetMap Data (Information on roads, trails, rivers, infrastructure, etc.)
- DEM of the research area
- Data on the land use (e.g., CORINE)

Literature:

- Doherty, P.; Guo, Q.; Doke, J. & Ferguson, D. (2014): An analysis of probability of area techniques for missing persons in Yosemite National Park. In: Applied Geography, 47, 99-110.
- Ferguson, D. (2008): GIS for Wilderness Search and Rescue. ESRI Federal User Conference. Washington.