

Context Discovery Application

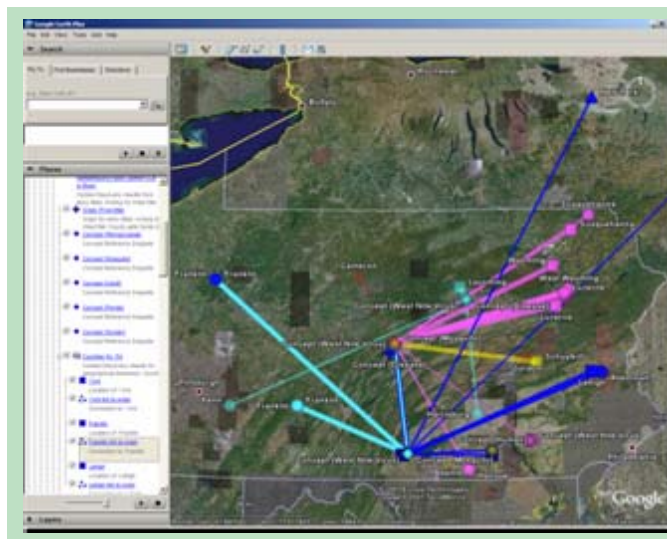
Benefit: *The CDA supports knowledge-enabled retrieval of news stories and other documents relevant to user specified issues and places. It extracts and geo-tags references to places and enables situation assessment through web-map services that build a geo-historical context through which to interpret ongoing events.*

Developing geo-temporal context from implicit sources to support geocollaborative crisis management decision making

Crisis management activities inherently rely on geographical information, which abounds in open-source channels such as news stories that implicitly contain numerous references to place (e.g. cities, counties) that are not readily accessible or viewable on maps. This information can provide geographical and temporal context to support decision making and situation assessment in geocollaborative crisis management activity in many ways, such as to help understand varied geographic reactions to a disaster event, develop postevent intelligence about what happened during a crisis and why, aid in collection of information about hazard mitigation discussions underway in various locales, and assess threats and vulnerabilities before disasters happen.

The underlying science problem examined by this research is how visual artifacts and virtual environments can support and mediate the development of geographical and temporal context information as a result of the social process of group work activity. Heterogeneous data sources are combined within a geocollaborative decision making environment named the "Context Discovery Application" (CDA) which facilitates the development of geographical and temporal context. The notion of the "discovery" of context implies that users will be able to find geographical and temporal context information that was previously unknown, and be able to share and synthesize this information with co-collaborators by applying combined expertise to finding relevant information and interpreting results of searches.

Geovisual analytical functionality of the CDA includes automated retrieval of news stories based on a user-specified crisis context, computational processing and visualization of geographic place names and possible relationships between places across user-defined geographic scales over time, formal ontology integration to find potentially relevant non-spatial dimensions within data retrieved, and tightly coupled map displays that allow users to simultaneously view geographical locations in 3D-realistic terrain and standard 2D cartographic perspectives.



Results of a CDA search on news stories related to West Nile Virus in Pennsylvania: *Each place found in the search is plotted in a Google Earth™ view. Places are connected to the story origin, with line thickness indicating number of times the place was mentioned and transparency indicating story age. The web application supports quick filtering and geocontextualization of information retrieved.*

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Early Development

Lab Prototype

Commercial Product

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