

## NeoCITIES Geo-Tools

Development of scaled world simulation incorporating geo-tools to understand and support collaborative crisis management

NeoCITIES Geo-tools is both an update and an extension of the original NeoCITIES scaled world simulation developed based on knowledge elicitation from crisis management experts. At its core, the NeoCITIES simulation is a resource allocation problem involving police, fire and hazmat teams designed to mimic the emergent situations that comprise real-life emergencies and to measure decision-related outputs.

NeoCITIES Geo-tools incorporates a host of geo-spatial tools, including: an interactive multi-layer map, an annotated geo-chat capability (linking chat to map objects to avoid misunderstandings), and elementary GIS analysis features. Developed using Adobe Flex technology, NeoCITIES Geo-tools can potentially run on any device capable of supporting Adobe Flash player. Thus, it is not only web deployable, but can also be scaled to work with portable devices like tablet PCs or PDAs. The simulation is in the advanced stages of implementation and testing, having undergone multiple cycles of design, usability evaluation, and redesign.

With this environment as a base, we plan to test the impact of map-based tools on team collaboration through controlled experiments. Specifically, we plan to test whether access to specific geo-collaborative tools (e.g., map annotation, annotated geo-chat, elementary GIS analysis feature) impacts teamwork during crisis management. We are specifically interested in the interaction effect of these tools, i.e. whether the impact of one tool is affected by the presence or absence of another tool. Through a full factorial experiment, incorporating quantitative as well as qualitative measures assessing team performance and team communication, we hope to determine changes to the development of team mental models, sense making strategies, and performance.

**Benefit:** *NeoCITIES Geo-Tools helps to understand how geo-collaborative tools impact team communication and response to emergency situations. The NeoCITIES simulation is used as a platform to empirically examine how specific geo-tools affect team cognition and the formation of a common operational picture through perceptual anchoring and information complexity management.*

**Collaborators:**

- MINDS Group & USE Lab
- GeoVISTA Center



**NeoCITIES Geo-Tools used in emergency management simulation:** *Police, Fire and EMS can use geo-tools to keep track of their responses to events, here a bomb threat and a separate crowd disturbance. How can our tools help us understand group work within a crisis scenario.*

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