

## Extending Distributed GIS to Support Geo-Collaborative Crisis Management

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### Abstract

Crises are often complex, geographical scale problems that require professionals to work in teams while dealing with a large amount of geographic information for decision making. However, current geospatial technologies do not directly support group entities working with geographic information—they impede rather than facilitate human-human collaborations and communication. Towards the goal of making GIS “collaboration-friendly,” this paper explores the potentials of extending distributed GIS with groupware and intelligent communication agents to support geo-collaborative crisis management by teams. Members of such a team are often geographically distributed and play different roles. In addition to the architectural choice, special attention was given to the computational approach to enable collaborative geographic information dialogues in spatial decision-making contexts. Collaboration requires representation and reasoning on a team mental model, which must be constructed from dialogue contexts and shared knowledge. An implementation of an intelligent, multimodal, multi-user geographic information environment, called GCCM\_Connect, is presented as a proof-of-concept for the proposed architecture.

### Keywords

geo-collaboration, distributed GIS, groupware, crisis management

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