

Information Exploitation for Improved Situational Picture

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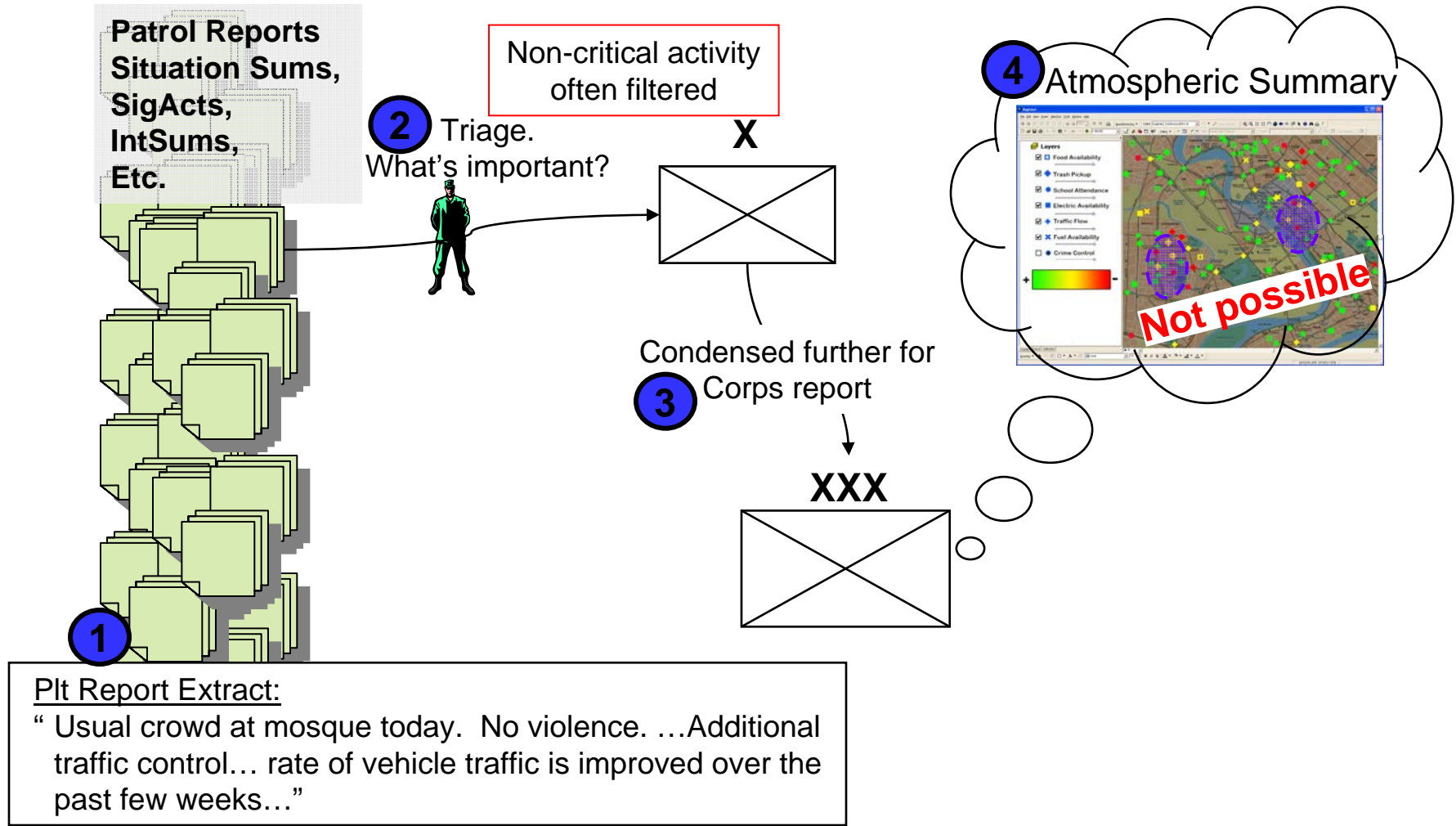
Janet Hitzeman



Problem

- Commanders in Stability and Support Operations (SASO) acknowledge that they are operating with incomplete knowledge of the “background atmosphere” (protests, traffic, gas shortage, etc.).
- While this information is often captured in unit reports, it is effectively unusable until our capabilities go beyond keyword retrieval of documents – a process that requires manually reading too many documents.
- *Commanders need a capability for automatically extracting the critical content from the volumes of text reports and assembling this content into an actionable form.*

Background



Objective

- Investigate and prototype a method for automatically processing text reports to identify and extract information relating to “background atmosphere” (protests, traffic, gas shortage, etc.).
- Go *beyond* the basics of “what (keyword)”, “where”, and “when”.
- *Determine richer information such as...*
 - “to what degree” (how severe)
 - “in what context”
 - “how often.”

Activities

- Use natural language processing to extract semantic information from a variety of reports
 - Army reports (patrol reports, INTSUM, SIGACT, etc.)
 - Open source information analogues:
 - On-line travel logs
 - Police reports
- Extract events and entities that contribute to assessing “atmospherics”
 - Special focus on detecting author’s opinion and capturing event polarity/modality
 - Statistical text classification incorporating a mix of lexical and semantic features
 - Corpus-based methods to empirically assess progress and conduct experiments

Highlight

Platoon Report Extract:

“Usual crowd at mosque today. Families shopping. We didn't see any groups of armed men wandering about. Heavy traffic, as usual, made it difficult to drive through Taqawa square.”

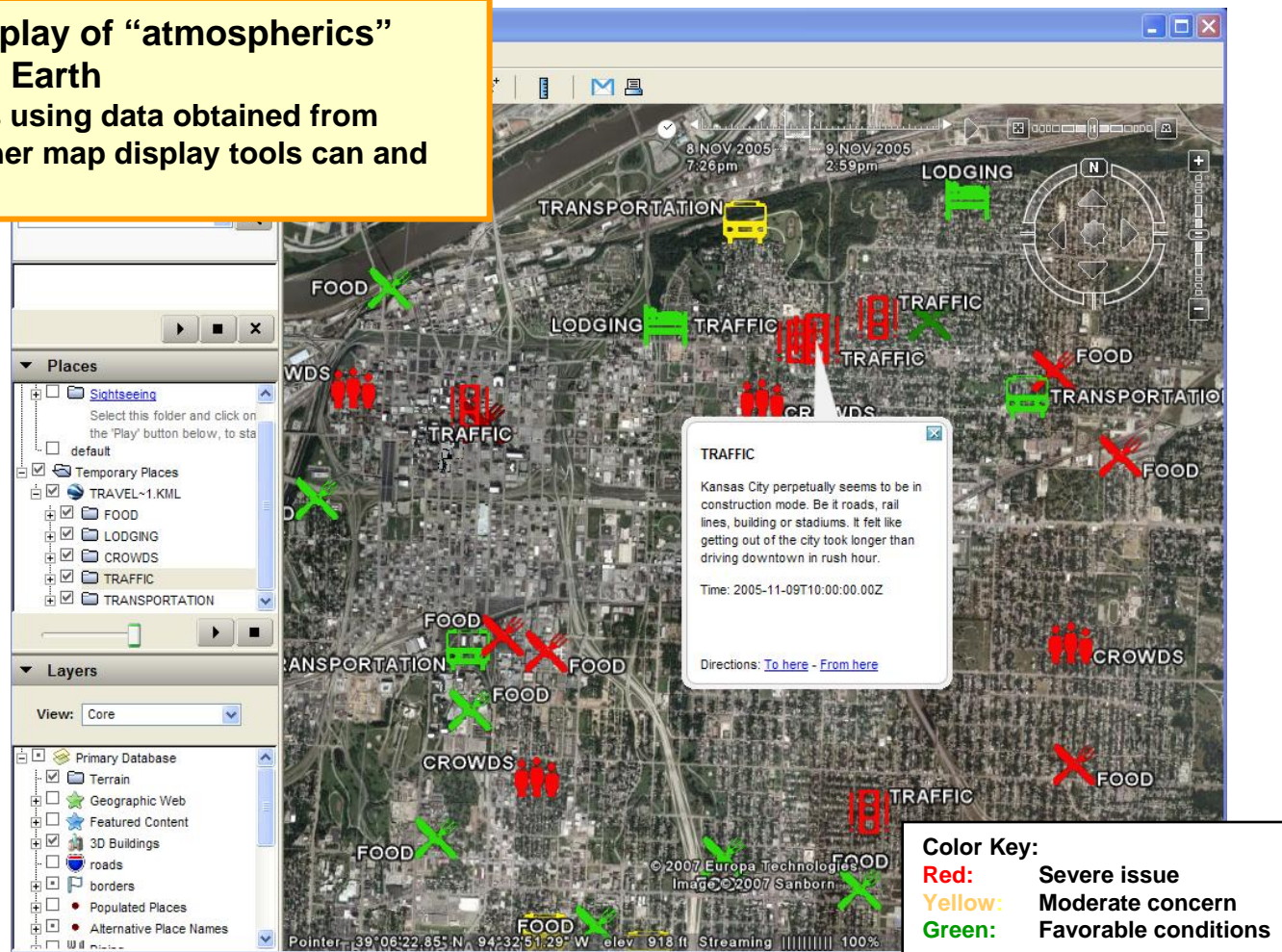
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- Variety of particular events/activities and their participants indicative of a particular type of social “atmosphere”
- Dangerous entities or activities are properly characterized as being absent (polarity = negative) via linguistic context
- Overall report assessed as being “positive”
- System looks for indications of degree (“heavy traffic”) and comparisons to “typicality” of activities

Demonstration

Graphical display of “atmospherics” using Google Earth

This example is using data obtained from travel logs. Other map display tools can and will be used.



* Placeholder highlighting anticipated capabilities

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Impacts

- Identify new ways to exploit available operational reports to improve decision making
 - SASO/SOSO require improved insight into reports that describe a much greater variety of activities (demonstrations, “normal business activities,” etc.)
 - Atmospherics are critical to operations planning and increased safety and success
- Accurately capture key severity indicators of events in written reports
 - Translate to structured, colored icons on map
- Analyze area-specific reports according to report author’s opinions and assessments beyond the “mere facts”

Future Plans

