Automated Space Aid Program

Beau Bouchard	**Brian Tomaszewski, Ph.D.**
Graduate Research Assistant	Assistant Professor
Department of Information Sciences and Technologies	Department of Information Sciences and Technologies
Rochester Institute of Technology	Rochester Institute of Technology
bnb2011@rit.edu	bmtski@rit.edu

Statement of Topic

Automated GLIDE Number Resource Consolidation for Rapid Disaster Location Identification

Significance and Relevance of the Topic

The significance of the research reported in this poster is that we are investigating new ways to rapidly identify disaster locations from unstructured text to support targeting of space-based remote sensing platforms. Our topic is relevant to the conference as we are developing new spatial analysis models and information processing workflows applicable to the use of remote sensing in support of crisis management.

Abstract

As the geographic scale, operational complexity and frequency of disasters continues coupled with ever-increasing amounts of information related to disaster response activity, the crisis management practitioner and research communities are calling for new methodologies for processing and visually representing disaster information [1]. More specifically, there is a growing body of research focused on how analytical outputs based on remote sensing and Geographic Information System (GIS) such as disaster impact assessments can be formatted into usable information products for crisis management practitioners[2].

In this poster, we will describe our preliminary results on addressing this question via a web-based application called the Automated Space Aid Program or ASAP. ASAP digests text-based disaster descriptions and processes them through a spatial analysis model. The end product of the ASAP process is Area of Interest (AOI) polygons in Shapefile and KML file formats that can be downloaded and consumed immediately post-processing and potentially be used for satellite tasking and by GIS professionals and responders in the field. We outline a proof-of-concept case study of using ASAP to gathers text-based, disaster descriptions from the GLIDE number website (http://www.glidenumber.net). We also describe technical details of our study design such as the use of ArcGIS server geoprocessing services used in combination with Esri model builder functions and custom python geocoding scripts to address our research question (Figure 1).

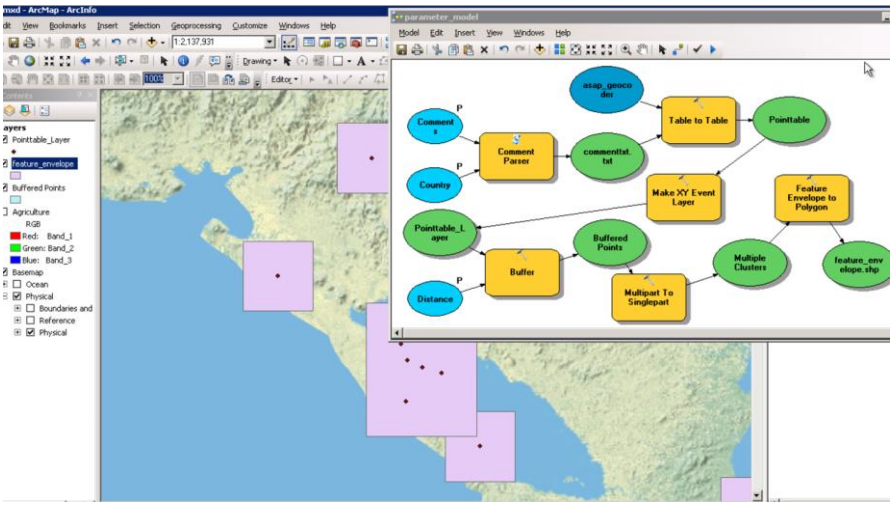

Figure 1. The ASAP tool shown in the ArcGIS. ASAP is based on a custom model built using the ArcGIS model builder tool (shown on the top right of Figure 1). Text-based disaster descriptions are inputted into the model and processed into area of interest (AOI) polygons. In this example, a disaster description from Nicaragua has just been processed resulting in four AOI polygons (shown

in purple on the map behind the model builder tool).

We then provide a walkthrough of using ASAP's ArcGIS API for JavaScript map interface for tasks such as a user either manually enter a textual description of the disaster, entering a GLIDE number directly or parsing disaster notification emails which are sent out shortly after a disaster from the GLIDE number website. We also offer ideas on how the ideas behind ASAP are applicable to processing other types of disaster descriptions than GLIDE numbers. For a video overview of the research, see: http://www.youtube.com/watch?v=hrQpNhKm7lQ

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References

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