Distributed Information Sharing for Disaster Response and Recovery: www.VirtualDisasterViewer.com

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ABSTRACT

A prototype geospatially-based information sharing tool for disaster response and recovery was first announced at the Sixth International Workshop on Remote Sensing for Disaster Management, Pavia, in 2008. One year on, the Virtual Disaster Viewer (www.virtualdisasterviewer.com) *is gathering momentum as a unique integrated visualisation and community remote sensing and GIS tool for past and future disasters. Its first foray into the disaster realm saw VDV used by a panel of international experts to provide distributed remote damage assessment following the Wenchuan, China earthquake. VDV has since been used for pre-deployment planning and in-field support, allowing instant sharing of field information to a global audience. Used also as a repository for historical data to support resilient planning and mitigation activities, VDV is evolving to meet user needs in many areas of disaster management. This paper outlines the evolution of the system to date, and gives an insight into the future challenges and the many potential uses of this exciting online system.*

1. INTRODUCTION

Significant populations throughout the world are prone to the effects of natural disasters, whether from hurricane events in the Atlantic and Caribbean regions, or from earthquakes along tectonic plate boundaries. Many of these catastrophes strike in remote regions of the globe as was evident from the September 2009 South Pacific tsunami, for which, at time of writing, the full extent is still unknown, but has caused in excess of 150 fatalities in American Samoa, Samoa and Tonga. Disaster managers, research scientists, NGOs and governments rely on rapid and accurate information following natural disasters to inform their response and recovery decisions. One method that has been created to provide this information is the Virtual Disaster Viewer (VDV).

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not demanding to participate in the analysis, and 79% were impressed with the interface and overall concept of the system, with only 1 negative response. Several users provided comments for how VDV could be extended, and specific feedback was received from a number of international and local organisations who have used the system. UNOSAT, whose remote sensing technical team trialled the system, saw potential for the future use of the damage assessment in their online maps, as a way of harnessing the community aspect of remote sensing. The British Geological Survey (BGS), who were keen to share their archive data from the 1999 Izmit, Turkey Earthquake in VDV, viewed the system as a potentially very powerful tool. They see potential in the system for the establishment and promotion of best practise for data collection, and the potential for public dissemination of data from archive events has already beginning to be realised. VDV has also been chosen as a flagship project for the Community Remote Sensing plenary session in the 2010 IGARS Symposium.

The future development potential of VDV is considerable, and several priorities have been identified as some of the possible areas for improvement. Current research is focusing on the inclusion of an Expert Judgement Model, which would apply a quantified score for each volunteer, depending on their experience, expertise and the nature of the catastrophe event. Incorporating this innovation would allow the weighting of results and the identification of *super-users* who can be used to randomly validate the analysis that has taken place. To date, the results from the expert analysis have not been verified, and this is one of the immediate priorities for the next phase of funding. Additional funding is currently being sought for such enhancements, and is planned on an ad-hoc, per-disaster basis.

What VDV can do for you

There is potential for VDV to be used as a field support tool for future EEFIT missions, building on the experiences of the L'Aquila earthquake, and the system is open to be used to support multiple and simultaneous field teams who are willing to share their data with the wider scientific community. At time of writing, VDV is on standby to support teams of earthquake engineers who may deploy following the recent Padang, Sumatra earthquake and the Samoan Islands tsunami events. Opportunities exist to extend the reach of the system and bring together the disaster community using this web-portal: VDV can provide a repository and community discussion forum for new data and the plethora of underutilised archive data collected after previous disaster events currently stored on CDs and hard drives in many scientific offices. VDV can disseminate your information and facilitate a new understanding of disasters through shared knowledge.