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Automated Natural Hazard Zonation System with Internet-SMS Warning: Distributed GIS for Sustainable Societies Creating Schema and Interface for Mapping and Communication

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Abstract : The research describes the implementation of a novel and stand-alone system for dynamic hazard warning. The system uses all existing infrastructure already in place like mobile networks, a laptop/PC and the small installation software. The geospatial dataset are the maps of a region which are again frugal. Hence there is no need to invest and it reaches everyone with a mobile. A novel architecture of hazard assessment and warning introduced where major technologies in ICT interfaced to give a unique WebGIS based dynamic real time geohazard warning communication system. A never before architecture introduced for integrating WebGIS with telecommunication technology. Existing technologies interfaced in a novel architectural design to address a neglected domain in a way never done before–through dynamically updatable WebGIS based warning communication. The work publishes new architecture and novelty in addressing hazard warning techniques in sustainable way and user friendly manner. Coupling of hazard zonation and hazard warning procedures into a single system has been shown. Generalized architecture for deciphering a range of geo-hazards has been developed. Hence the developmental work presented here can be summarized as the development of internet-SMS based automated geo-hazard warning communication system; integrating a warning communication system with a hazard evaluation system; interfacing different open-source technologies towards design and development of a warning system; modularization of different technologies towards development of a warning communication system; automated data creation, transformation and dissemination over different interfaces. The architecture of the developed warning system has been functionally automated as well as generalized enough that can be used for any hazard and setup requirement has been kept to a minimum.

Keywords : geospatial, web-based GIS, geohazard, warning system
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