Natural Hazards and Earth System Sciences

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Discussions

Interactive comment on "Developing open geographic data model and analysis tools for disaster management: landslide case" *by* A. C. Aydinoglu and M. S. Bilgin

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Comment 1 (SC C2444) have some comments to develop this article;

1. In Introduction, the authors should summarize scientific research about this topic and Why is this study and What is difference? Emphasize briefly.

- After GIS, data management, and GDI vision was explained, current situation about disaster management data models were summarized.

Page 3 /Line 3: . . . As a part of National GDI initiatives, Federal Geographic Data Committee (FGDC) Department of Homeland Security (DHS) developed the DHS data

model to support data interoperability in disaster management community with allies (FGDC, 2009). Hazus is a national methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes especially (Schneider and Schauer, 2006). Geo-spatial Data Infrastructure for Disaster Management (GDI4DM) project develops open national data models to manage preparedness and response phase of disasters. Information Model for Safety and Security (IMOOV) compliant with other national data specifications of the Netherlands provides a general approach for disaster or event management, similar to GDI4DM (Geonovum, 2008; Zlatanova et al., 2010). Integrated disaster management and developing data models compatible with National GDI are current research topics.

Additional citations; FGDC: Geospatial Data Model. V.2.7, Federal Geographic Data Committee, Homeland Security Working Group, Washington, USA, 2009. Schneider, P.J., Schauer, B.A.: HAZUS- Its Development and Its Future. Nat. Hazards Rev. 7, Special Issue: Multihazards Loss Estimation and HAZUS, 40–44, 2006. Geonovum: Information Model IMOOV- Conceptual Model. V.1.1, Geonovum, The Netherlands, 2008. Zlatanova, S., Dilo, A., De Vries, M., Fichtinger, A.: Models of Dynamic Data For Emergency Response: A Comparative Study. A special joint symposium of ISPRS Technical Commission IV & AutoCarto, Orlando, Florida, 2010.

- Then, some explanations were added to different parts of this paper to emphasize why is this study and what is difference. Original conceptual model for integrated disaster management and the method to develop open data model and software tools were explained.

Page 1/ Line 12 (Abstract): . . . This study with an original conceptual approach aims to develop interoperable geographic data model. . .

Page 3 / Line 15: . . . aims to determine an original conceptual model for harmonized and integrated disaster management. According to the conceptual model of disaster type-activity-task-data relations with landslide case, this paper offers a method to de-

velop open/general data specifications based on the requirements of all disaster management activities at different phases and to understand how open data sets can be analysed with open software tools. As the first case of Turkey National GIS (TUCBS) infrastructure following GDI vision, the interoperable data model for disaster management (ADYS) that makes up-to-date exchange of geographic data sets from different sources possible was designed. . ..

Page 5 / Line 7: . . . actors and examining academic research, for landslide, 39 sub-activities of 15 activity group were defined at all disaster management phases (Aydinoglu, et al., 2012). As well as landslide hazard and vulnerability analysis studied often at mitigation phase, the activities at preparedness, response, and recovery phases were analysed.

2. What is current situation in Turkey? Especially in terms of generating hazard and risk maps, this study should be expanded with additional studies according to Turkish experience. Explain briefly.

- Current situation for geographic data management and disaster management was examined in Section 2.4. According to Turkish experience, additional studies were explained and cited.

Page 7/ Line 8: Disaster management projects of Turkey have been initiated after devastating Marmara earthquake in 1999. Turkey Disaster Information System (TABĂřS) project developed a database structure and GIS standards for disaster management. These standards were implemented for Istanbul in a project (Bilgi et al., 2008). Hazturk project based on Hazus developed an earthquake loss estimation for Turkey. Various projects more have been triggered, such as meteorological early warning system, seismic risk mitigation, emergency transportation network planning, and disaster information system projects especially focused on earthquake (Korkmaz, 2009). In 2009, the Prime Ministry of Turkey established Disaster and Emergency Management Presidency according to the law N.5902. It aims to coordinate all disaster events under a

central administration structure and provincial administrations are responsible for managing disaster events (Gazette of Republic of Turkey, 2009). However, data management and coordination approach have not been determined yet to manage disaster types, actors, and disaster activities (Aydinoglu, et al., 2011; Erden 2012).

Page 7/ Line 21: Turkey National GIS (TUCBS) base data specifications were designed to enable geographic data interoperability between data providers and users, after General Directorate of GIS was built in 2012. However, TUCBS data models have not put into practice yet and stakeholders have met with problems such as the usability of data models, and data sharing problems, and repetitive data production. Data interoperability is required between sector data models like disaster management and national data models like TUCBS (GDGIS, 2012-1).

Additional citations; Bilgi, S., Ipbuker, C., Ucar, D., Sahin, M.: Map Entropy Analysis of Topographic Data Used in Disaster Information Systems. Journal of Earthquake Engineering 12(2), 23-36, 2008. Erden, T.: Disaster and Emergency Management Activities by Geospatial Tools with Special Reference to Turkey. Disaster Advances 5(1), 29-36, 2012. Erden, T., Karaman, H.: Analysis of earthquake parameters to generate hazard maps by integrating AHP and GIS for Küçükçekmece region. Natural hazards and earth system sciences 12(2), 475-483, 2012. GDGIS: Turkey National GIS Institutional Data Requirement Analysis. Republic of Turkey, Ministry of Environment and Urbanization, General Directorate of GIS, V.1.1, Editor: Yomralioglu T. and Aydinoglu A.C., Ankara, Turkey, 2012-1. Korkmaz, K.A.: Earthquake disaster risk assessment and evaluation for Turkey. Environmental Geology 57(2), 307-320, 2009. Aydinoglu, A.C., Demir, E., Yomralioglu, T.: An Approach to Use Geo-Information Effectively in Disaster & Emergency Management Activities in Turkey. FIG Working Week 2011, Marrakech, Morocco, 2011.

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