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A Dynamic Integration Method for Borderland Database using OSM data

X.-G. Zhou, Y. Jiang, K.-X. Zhou, and L. Zeng

School of Geosciences and Info-Physics, Central South University, Changsha, Hunan 410083, PR China

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Abstract. Spatial data is the fundamental of borderland analysis of the geography, natural resources, demography, politics, economy, and culture. As the spatial region used in borderland researching usually covers several neighboring countries' borderland regions, the data is difficult to achieve by one research institution or government. VGI has been proven to be a very successful means of acquiring timely and detailed global spatial data at very low cost. Therefore VGI will be one reasonable source of borderland spatial data. OpenStreetMap (OSM) has been known as the most successful VGI resource. But OSM data model is far different from the traditional authoritative geographic information. Thus the OSM data needs to be converted to the scientist customized data model. With the real world changing fast, the converted data needs to be updated. Therefore, a dynamic integration method for borderland data is presented in this paper. In this method, a machine study mechanism is used to convert the OSM data model to the user data model; a method used to select the changed objects in the researching area over a given period from OSM whole world daily diff file is presented, the change-only information file with designed form is produced automatically. Based on the rules and algorithms mentioned above, we enabled the automatic (or semiautomatic) integration and updating of the borderland database by programming. The developed system was intensively tested.

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