

Activities of COST Action Working Group 1: Acquiring and Managing Volunteered Geographic Information (VGI)

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Abstract. This paper outlines the aims and tasks of Working Group 1 (WG1) of the European Cooperation in Science and Technology (COST) Action: Mapping and the Citizen Sensor. The first task of the group is to review the current status of the collection, storage and dissemination of Volunteered Geographic Information (VGI), which will be reported in more detail at the meeting in Dresden. Other aims and tasks of WG1 are provided along with the main directions for future work.

Keywords: Volunteered Geographic Information (VGI), VGI acquisition, VGI management, VGI dissemination, COST

1. Introduction

Mapping of the Earth's surface has changed radically over the last decade with open access to satellite imagery (e.g. through Google Earth, Bing Maps, Landsat and Sentinel in the future), the evolution of Web 2.0, a growing interest in aerial photography and 3D scanning for 3D surface modeling, and the emergence of citizen sensors, i.e. individuals who collect geographically referenced data (or Volunteered Geographic Information – VGI) using GPS enabled mobile devices and online applications. The considerable potential of citizen sensing is as yet unrealized, however, since there is now almost 'too much' data available. The problem doesn't merely lie in the quantity of data which is available but rather involves: data of varying quality, collected using different methods and technologies, collected by citizens with different skills and motivations, and differing levels of trust and certainty which can be attached to these data. In fact Voigt et al. (2012) recognize that handling this store of spatial big data is a key mapping challenge in the GI sciences. The recently formed COST (Cooperation in Science and Technology) Action: Mapping and the Citizen Sensor is tasked with considering many of the issues that arise from this challenge. The aim of this paper is to introduce the work being undertaken by Working Group 1 (WG1) of this COST Action.

2. Aims of WG1 and Tasks for Year 1

The main aim of WG1 is to provide a sound understanding of current practices involving the acquisition, description, storage and distribution of VGI that arises from citizen sensors. WG1 will characterize key issues such as:

- the nature of different VGI data sources, identifying best, good and bad practices of VGI data collection;
- the expertise and training of citizen sensors;
- the mechanisms by which VGI is made available;
- the metadata available and any quality control measures undertaken.

This basic knowledge will form the basis of many future activities of the COST Action. The first task involves a review of the current status of VGI data collection, storage and dissemination. The group will consider a range of major issues such as the use of volunteered photography (e.g. from web-based volunteer projects), the accuracy of geographic object labeling by volunteers and consider metadata reporting and needs (e.g. dates and orientation of photographs, importance of scale, potential of smartphone apps etc.), collection of VGI data through citizen participation, extraction of VGI data using passive means such as Twitter feeds and social media feeds. A

review paper will be produced to document the state-of-the-art and feed into the work being undertaken by the other three WGs within the Action.

3. Ongoing and Future Work

WG1 will complete the literature review during the summer of 2013 and report on the main findings at the International Cartographic Conference in Dresden. This review will then form the basis for further collaborations with WG2, where a number of issues will be further debated and discussed including: how to add value to VGI by encouraging certain behaviors; how to address ethical and legal issues regarding the use of VGI; methods for making VGI available; and how to foster a greater degree of consistency and standardization without constraining individuals. Legal and ethical issues, data collection over digital divides, and data management and dissemination will become the core focus of WG1 in 2014.

References

Voigt S et al., (2011) Rapid Damage Assessment and Situation Mapping: Learning from the 2010 Haiti Earthquake. *Photogrammetric Engineering and Remote Sensing* 77: 923-931