

Digital Earth's nervous system and Volunteered Geographic Information sensing: towards a self-aware planet

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Digital Earth is a powerful metaphor for the organisation and access to digital information through a multi-scale 3D representation of the globe. Progress made since Al Gore's speech gave a concrete body to this vision. However, this body is not yet self-aware: a better integration of the temporal and voluntary dimension is needed to better portray the event-based nature of our world. We thus aim to extend Digital Earth vision to include a *digital nervous system of the globe*, providing decision makers with alerts on events of both a known and unknown nature. Such timely, event-based, information has practical applications for crisis management. In order to respond effectively to a crisis situation, managers need up-to-date situational awareness, which is traditionally built through trusted information sources (e.g. police, civil protection, media reports, *etc.*). Recent research highlighted the important role citizens can play on disaster sites by providing geo-referenced information, known as Volunteered Geographic Information (VGI) in real time, as a complement to traditional sources. Although workflows have been successfully implemented to create, validate and distribute VGI-based datasets for various thematic domains, the issue of exploiting VGI in real time and its integration into existing concepts of Digital Earth, such as Spatial Data Infrastructures, still needs to be further addressed. In this paper we suggest to bridge this gap, by proposing the development of sensor web enablement for VGI. In this way, VGI sensing becomes a sense of the Digital Earth's Nervous System.