

# Integrating geographical information in the Linked Digital Earth

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Many progresses have been made since the Digital Earth notion was envisioned thirteen years ago. However, the mechanism for integrating geographic information into the Digital Earth is still quite limited. In this context, we have developed a process to generate, integrate and publish geospatial Linked Data from several Spanish National data-sets. These data-sets are related to four Infrastructure for Spatial Information in the European Community (INSPIRE) themes, specifically with Administrative units, Hydrography, Statistical units, and Meteorology. Our main goal is to combine different sources (heterogeneous, multidisciplinary, multitemporal, multiresolution, and multilingual) using Linked Data principles. This goal allows the overcoming of current problems of information integration and driving geographical information toward the next decade scenario, that is, 'Linked Digital Earth.'

**Keywords:** geographical information; integration; Digital Earth; Linked Data

## 1. Introduction

In 1999, the Digital Earth was envisioned as a multiresolution, three-dimensional representation of the planet that would make it possible to find, visualize and make sense of vast amounts of geo-referenced information on physical and social environments. Such a system would allow users to navigate through space and time, accessing historical data as well as future predictions (based for example on environmental models), and would support its use by scientists, policy-makers and children alike (Gore 1999). Hence, The Digital Earth was motivated by the insight that complex questions cannot be answered from within one domain alone but span over multiple disciplines ranging from the natural and earth sciences to the social sciences, information sciences, and engineering (Janowicz and Hitzler 2012).

In these 13 years, many progresses have been made toward this vision, by defining standards, implementing prototypes, popularizing industry products, and building applications through several initiatives around the world (Yang et al. 2010). Many of the elements of Digital Earth are not only available but also used daily by hundreds of millions of people worldwide; thanks to innovative ways to organize and present the data and rapid technological advancements (Craglia et al. 2008).

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