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Conference papers: invited papers on recent developments in geospatial information management in addressing national, regional and global issues

Role of modern cartography for mission-critical applications

Note by the Secretariat

The Secretariat has the honour to bring to the attention of the Tenth United Nations Regional Cartographic Conference for the Americas a technical paper on the role of modern cartography for mission-critical applications.[1] The technical paper is available in the language of submission only from the website of the Conference (http://unstats.un.org/unsd/geoinfo/RCC/unrcca10.html). The Conference is invited to take note of the technical paper.

Summary of the technical paper

Today, maps can be created and used by any individual possessing even modest computing skills, in virtually any location on Earth and for almost any purpose. In this new mapmaking paradigm, users are often present at the location of interest and produce maps that address immediate needs. Cartographic data may be digitally and wirelessly delivered in finalized form to a handheld device, or the user may create the requested visualization from downloaded data in situ. Rapid advances in technology have enabled millions to participate in this mapmaking revolution. For example, it is possible to create maps very quickly after the data has been accessed on the Internet. Other significant developments include real-time data handling and visualization, location-based services, and mobile augmented reality for cartographic applications.

While the above advances have facilitated significant progress in the design and implementation of new ways of map production over the past decade, many cartographic principles have remained unchanged, the most important of which is

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[1] Prepared by Georg Gartner, President, International Cartographic Association.

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that maps are an abstraction of reality. In the visualization of selected information, some features present in reality are depicted more prominently, while many others might not be depicted at all. Maps are powerful tools in abstracting reality since they help in the interpretation of very complex situations very efficiently.

Abstraction is essential in all stages of the disaster management cycle. In the recovery phase, quick production of the imagery of the affected area is required, using depictions that allow emergency teams to understand the situation on the ground from a glance at the maps. Important ongoing developments supporting the rescue work in the recovery phase include map derivation technologies, crowdsourcing and neocartography techniques, and location-based services. The role of cartography in the protection phase of the disaster management cycle has always been crucial. In that phase, risk maps are produced to enable governors, decision makers, experts and the general public to understand the kind and levels of risk present in near and distant surroundings. Modern cartography enables the general public to participate on a voluntary basis in modelling and visualizing the risks that may affect neighbourhoods. Modern cartography also facilitates the rapid dissemination of crucial information.

For those and other reasons, cartography is highly relevant. Without maps, the world would be “spatially blind”. Knowledge about spatial relations and the location of objects is critical to the management of disasters and crisis situations, or simply to supporting sound decision-making. Cartography is also an essentially contemporary discipline, with innovative technologies having an important impact on the work of cartographers. Maps can be created automatically from geodata acquisition methods, such as laser scanning, remote sensing or sensor-networks. Smart models of geodata can be built to allow in-depth analysis of structures and patterns. Maps and geoinformation can be presented in a wide range of forms today, including on mobile phones and through augmented reality demonstrations.