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ORIGINAL PAPER

# Designing a flood forecasting and inundation-mapping system integrated with spatial data infrastructures for Turkey

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**Abstract** Turkey currently lacks a fully functional flood forecasting system (FFS). However, the studies necessary for establishing such a system are still being performed by the Turkish State Meteorological Service. The main purpose of this study was to determine the technical architecture of the FFS intended to be developed in Turkey and to design a flood forecasting and inundation-mapping system integrated with spatial data infrastructure (SDI). Because SDIs provide interoperability among the institutions by enabling collective use of data and services, this enables decision makers to take correct and rapid decisions regarding the forecasting. In the design of the system, the Web services architecture presented by the open geospatial consortium that develops international standards for SDI realizations was taken as a basis. Designed with flexibility and an expandable architecture, the system will enable instant access to up-to-date data from different institutions through Web services and meets the requirements of a real-time FFS. While the criteria requiring the expansion of the designed system were explained, its implementation was left for future studies.

**Keywords** Flood forecasting and inundation-mapping system · SDI · OGC · Web services

## 1 Introduction

Disaster is defined as “a situation or an event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering” (Vos

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