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A Spatial Data Infrastructure for Landslides and Floods in Italy

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The Institute for Geo-Hydrologic Hazard Assessment (IRPI), of the Italian National Research Council (CNR), is part of the GIIDA project. GIIDA, an Italian acronym for Integrated and Interoperable Management of Environmental Data, aims at establishing a multi-disciplinary e-infrastructure for the efficient management, processing, and dissemination of Earth and Environmental information resources, including data, services, models, and sensors. GIIDA is compliant to the INSPIRE (Infrastructure for Spatial Information in Europe) Directive 2007/2/EC promoted by the European Parliament in 2007. For the GIIDA project, IRPI coordinates the thematic area on natural and man-made hazards and risk, focusing on the dissemination of spatial information on landslides and floods in Italy, including catalogues of historical landslide and flood events, inventory maps, landslide hazard zonations, and risk maps. For the purpose, a specific (dedicated) Spatial Data Infrastructure (SDI) was implemented, using chiefly open source (OS) software, which favors interoperability and adoption to international standards. In the SDI, multiple services have been implemented, including: (i) Web Mapping Services (WMS) for the visualization of geographical data as images, (ii) Web Feature Services (WFS) and Web Coverage Services (WCS) for the delivery of geographical information in vector (feature) and raster (coverage) format, and (iii) Catalogue Services for the Web (CSW) for the design and the implementation of digital catalogues of metadata for the published geospatial data and services. Prototypes of Web Processing Processes (WPS) were experimented using pyWPS (http://pywps.wald.intevation.org), a Python implementation of the Open Geospatial Consortium WPS standard. In addition, dedicated Web-GIS applications were designed and implemented to allow user-friendly visualization of the geographical information. In our presentation, we describe the SDI infrastructure and the different types of implemented services; and we discuss the problems encountered and the solutions adopted to overcome the problems.