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Abstract

Integrated Platform for Wildfire Prevention and Management: The S2IGI Project

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Abstract

Integrated Platform for Wildfire Prevention and Management: The S2IGI Project [†]

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Abstract: The purpose of the S2IGI (Sistema Satellitare Integrato Gestione Incendi) project is to support the different phases of wildland fire prevention and management by a set of toolboxes, aiming to provide a short- and medium-term forecast of wildfire danger, an early detection of wildland fires, real-time forecasting of wildland fire propagation, and an assessment of fire damages; all the services are based on the integration of: Earth observation (EO) advanced technologies of remote sensing; high-resolution weather numerical models; and a decision support system platform. The project can support the wildland fire management activities along the following three phases: (1) forecast and prevention, (2) monitoring, detection and suppression, and (3) damage assessment and vegetation recovery. One of the main products of the project is an integrated system for the early detection of ignitions, based on an improved version of the SFIDE algorithm, derived from the analysis of the MSG SEVIRI sensor data. The hot-spots provided by the SFIDE algorithm are automatically processed by a wildfire simulator in order to predict a probabilistic wildfire spread map, together with some themes related to the wildfire intensity. The modeling chain can be used for real-time or off-line applications. Again, the project provided a spatially consistent estimation of the wildfire risk and a map of burned areas updated on a weekly basis. The set of products is also completed by the generation of maps of areas suitable for prescribed fire interventions and, regarding the post-fire applications, by maps of the soil erosion risk.

Keywords: wildfire detection; wildfire hazard assessment; burned areas estimation; wildfire propagation; Mediterranean areas



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