

FOREST FIRE DETECTION BY SATELLITE DATA OVER BULGARIA: COMMON ACTIVITIES OF THE EXECUTIVE FOREST AGENCY AND THE NATIONAL INSTITUTE OF METEOROLOGY AND HYDROLOGY

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Vegetation fire ignition, propagation and impact depend on the interaction among climate, vegetation structure and land use on local to regional scale. For Bulgaria, the problem of forest fires is of a national concern due to its activity, which ranged our country as one strongly influenced by their hazard during the last decade. In order to mitigate this problem, the Executive Forest Agency /EFA/ and the National Institute of Meteorology and Hydrology /NIMH/ of Bulgaria have performed common activities on fire detection and monitoring since 2007.

This report presents the common work among EFA and NIMH for assessing the applicability of advanced space technology for fire detection over Bulgaria by using data from meteorological geostationary satellites Meteosat Second Generation /MSG/.

Thermal anomalies reported by MSG FIR product, operationally generated each 5 minutes by EUMETSAT, the European Organization for Meteorological Satellites were validated by using ground-based fire monitoring data from EFA of Bulgaria. The EFA Fire Data Base, developed according to the European Standard, includes information for approximate fire burst time, location and evolution, affected area (total, under/at the forest canopy), fire rescue operations, etc. These data are used in our study to assess FIR algorithm ability to detect thermal signals from any burned area and to serve as a tool for early warning of fire burst. The MSG satellite product sensitivity to forest fires of different dimensions and fuel types, as well as its possible shortcomings for issuing 'false fire alarms' are evaluated. The studied period is 2007 – 2009 that includes the performance of the three MSG FIR Algorithm versions.