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FROM SPACE POSSIBILITIES TO EARTHLY PRACTICE – INTEGRATED USE OF SPACE-DERIVED INFORMATION FOR CIVIL PROTECTION

Abstract

[The paper is a re-submission of the updated paper accepted for IAC2016, later withdrawn due to author's inability to participate in the Congress.]

The effective management of crisis situations requires timely access to reliable information. Space solutions have a significant potential to offer but their effective use requires implementation into operational systems and procedures of crisis management institutions and emergency services. It also requires proper awareness among and training of the users.

The paper presents results of the analytical activities conducted in Poland in 2015-17 by the Crisis Information Centre SRC and the High School of Fire Service. The analysis was aimed at identification of the most promising functionalities offered by already available space applications that can be effectively integrated into the logic of the crisis management operations on national and regional level.

The foundation for the analysis were simulations and exercises, including series of simulations using the dedicated experimental IT environment that facilitated access to EO-based products, exchange of crisis-related information and alerting population using GNSS-based messages. It also builds upon evaluation of functionalities of modern technical solutions during field and tabletop exercises of crisis management institutions and services.

Building upon evaluation of the results of both projects and the ongoing cooperation with crisis management institutions in Poland, the list of promising geoinformation services based on space solutions have been developed. The list have been downselected to a limited number of services offering potentially highly valuable information for improved decision processes during crisis operations. The priority list includes, among others, regular generation of several types of risk assessment and risk monitoring information based on EO data (including European Sentinel satellites); provision of GNSS-based information and alerts for operational units; and efficient exchange of geospatial information.

The paper presents the concrete practical examples of information needs that can be served by satellite-derived services. It also discusses the comprehensive approach to implement the priority services being under consideration in Poland. The approach covers: national portal for access for crisis-related EO products; the pilot use of the existing GIS system of crisis management institutions to provide access to EO products; integration of information services with the currently developed new generation of command systems of emergency services; integration with the existing operational information system used for provision of meteorological data; national standard for distribution of location-based information and alerts; series of interactive training to build user readiness for efficient use of space-based information.