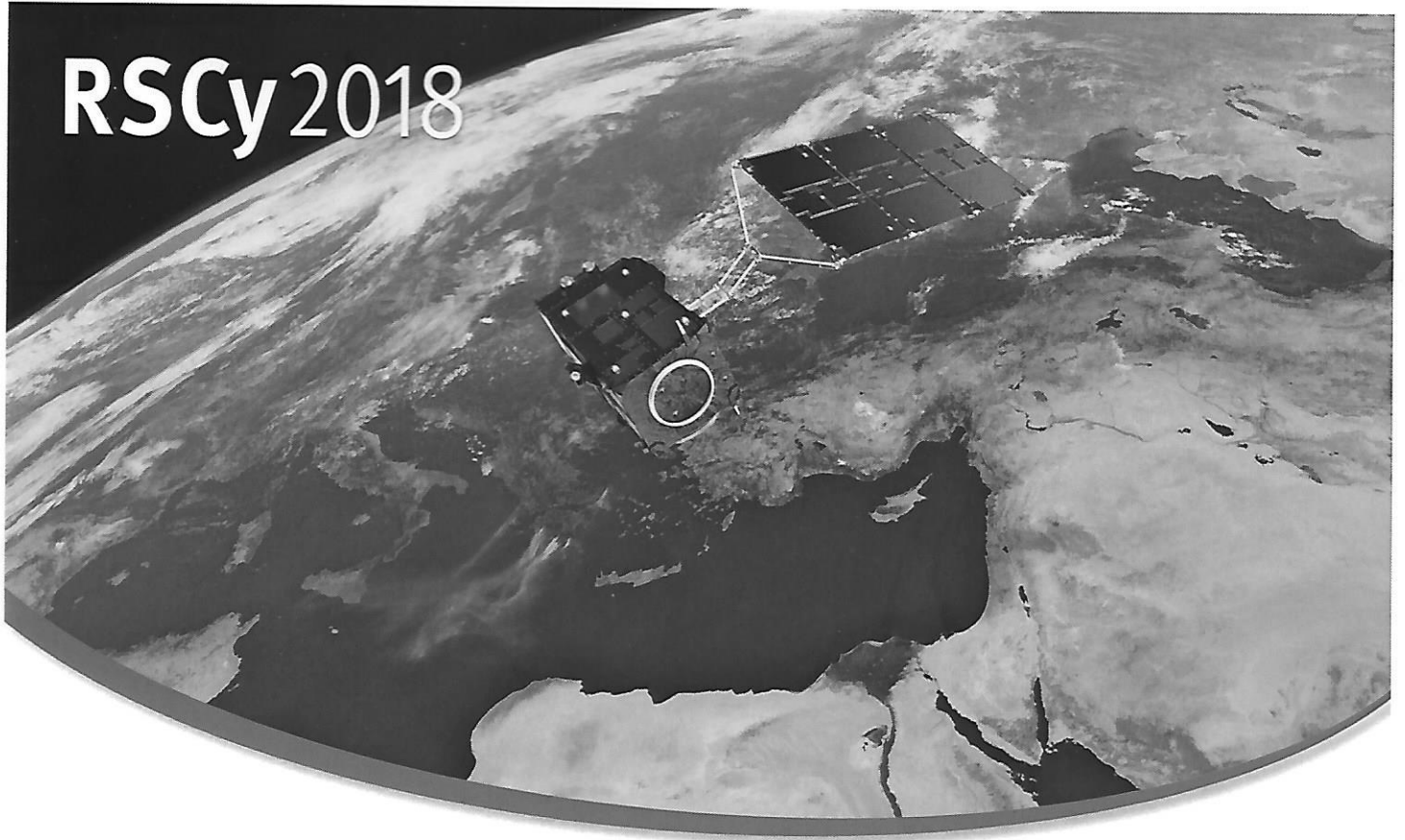


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Sixth International Conference on Remote Sensing and Geoinformation of Environment

26-29 March 2018, Paphos, Cyprus

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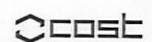
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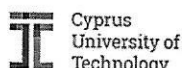
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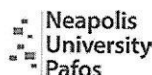
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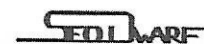
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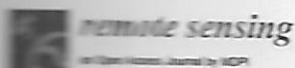


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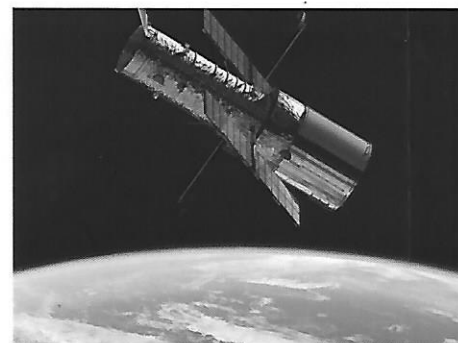
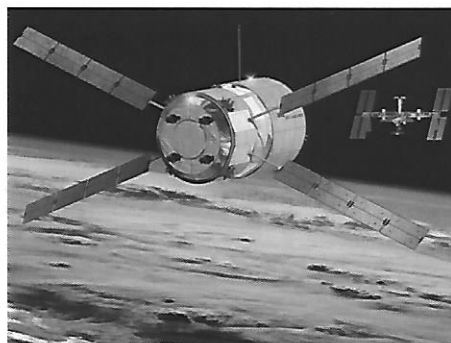
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ISBN # 978-9963-697-29-8

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Published by the Cyprus Remote Sensing Society, Limassol, Cyprus on behalf of RSCy 2018

SRTM 30, ALOS, ASTER) and aerial photographs. The calculated indices are represented by the basin elongation B_s/R_f , the basin asymmetry A_f , the valley width to valley height V_f and the stream length – gradient index SL . Based on the evaluation of the data and the assessment process different findings for each DEM are concluded. Thus, the means that are used in order to draw conclusions on an area's tectonic activity can have different importance and outcome on the calculation of separate components of the indices. As technology advances rapidly, it is rather clear that much more accurate DEMs will be available in future. However, as these products are acquired rather slowly, ALOS products can be regarded as accurate DEM basis for the purposes of the tectonic geomorphology.

565

A COMPARISON OF DIFFERENT DATASETS FOR THE RAPID MAPPING OF NATURAL HAZARDS

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KEYWORDS: Rapid Mapping, natural hazards, mudflow, platform, sensor, efficiency

ABSTRACT: In case of natural hazards, a rapid assessment of the crisis situation is paramount to gather information on the magnitude of the disaster and the extent of its impact on the population, the infrastructures and the environment. In this regard, data remotely acquired from satellite, aircraft and UAV (Unmanned Aerial Vehicle) platforms can be efficiently adopted within an immediate post-event phase, usually referred to as "Rapid Mapping", in order to support the spatial understanding of the phenomenon and the collection of standardized information. The presented work aims to critically review the major geomatics solutions available on the market and their potentialities for Rapid Mapping applications. With this in mind, the study is focused on testing the applicability of different sensors, along with the corresponding data processing workflows, in a real-case scenario. Such hazard consists of a series of mudflow events, that occurred on the border between Switzerland and Italy in August 2017. In the immediate post-disaster phase, a multi-sensor and multi-platform data acquisition campaign was conducted, including the collection of high resolution, multispectral WorldView-4 satellite imagery, aerial imagery with ADS100 camera, helicopter-based optical imagery and LiDAR data, as well as UAV-based images. These data, together with pre-disaster mapping products, represents a unique dataset to perform a benchmark analysis of different sensors and processing workflows with respect to Rapid Mapping. In particular, comparative tests are carried out to (i) highlight the pros and cons in terms of platform, sensor, and production pipeline; (ii) evaluate the performance of the processing workflows, especially with respect to their time efficiency; (iii) give suggestions to optimise the existing Rapid Mapping services. This on-going benchmarking study, although limited to a specific hazard event, offers a privileged means to critically reflect on the usefulness and applicability of the different sensors and datasets in a "real" case study.

571

ASSESSING THE SUITABILITY OF DSM AND DTM PRODUCED WITH HIGH RESOLUTION UAV IMAGES FOR FLOOD MODELLING

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KEYWORDS: Flood hazard, UAV images, DSM, DTM, Hydraulic modelling

ABSTRACT: According to the EU flood risks directive, flood hazard maps must be used to assess the flood risk. These maps can be produced by combining hydrologic and hydraulic models using a Digital Surface Runoff Model. During the last decade, acquisition and processing of spatial data have progressed and impacted on the terrain surface modeling improving the hydraulic flood modeling results. Unmanned Aerial Vehicles (UAV) offer a fast way to acquire aerial images at a relatively low cost. This source of data allows representing the terrain surface with a high level of resolution and accuracy certainly at the expenses of powerful image matching algorithms that produce dense point clouds. These can be converted to Digital Surface and Terrain Models (DSM) Digital Terrain Model (DTM). In this work, the suitability of these DSM and DTM to represent the channel geometry and the floodplain surface, which have an inherent impact on flow velocity and water depth, is studied. To this end, the hydrologic model HEC-HMS is used to define the boundary conditions and the hydraulic model HEC-RAS is run for an 9.8 km reach of the Águeda River situated in the river basin of Vouga (Centre of Portugal), where flooding frequently occurs.

603

PREPARATION OF LANDSLIDE INVENTORY ALONG HIGHWAY CORRIDORS USING REMOTE SENSING AND GIS DATA

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KEYWORDS: Landslides, Landslide Inventory, GIS, Mapping, Natural Hazards

ABSTRACT: Landslides are considered as a significant problem along highways in hilly regions. Objective of this study is to prepare a landslide inventory along SH 32 using GIS. A field survey is done to collect the data related to landslides. The landslide data from aerial survey is also collected. The data about the location of landslide, its activity, date of occurrence, areal extent of landslides is collected. This data is incorporated in geographical information system for making a landslide inventory. A primary level landslide inventory is the final output of the study which provides the information about the landslides along the highway section. It is a digital tool which provides preliminary information of landslides and helps in understanding the casual factors of landslides. The output of the study can be used for creation of landslide hazard zonation maps of the study area. The output can be used by transportation system planners and road contractors. The output of the study can be extended to landslide susceptibility mapping and risk susceptibility mapping.

621

URBAN FLOOD VULNERABILITY STUDY USING GEOSPATIAL APPROACH FOR HYDERABAD CITY

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KEYWORDS: Remote Sensing, Flood Vulnerability, Urbanization, Watershed, Land Change Modeler (LCM)

ABSTRACT: Flood disasters account for about a third of all natural disasters throughout the world (by number and economic losses) and are responsible for more than half of the fatalities. Trend analyses reveal that major flood disasters and the losses generated by them have increased drastically in recent years. The flooding problem in the city of Hyderabad is one of the major problems. The present study tries to understand the problem of urbanization during 2000 to 2016 and conclude with flooding problem. Further prediction in land use change for 2025 and