Operational Applications of Geospatial Information Technology for Disaster Risk Reduction (GIT4DRR) (Fiji, Solomon Islands, Vanuatu)

Satellite Analysis and Applied Research

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□□□□:	Environment, Climate Change, Satellite Imagery and Analysis
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□□:	https://www.commonsensing.org.uk/
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Pacific Island Countries are on the front line of climate change and natural hazards. These countries combine high exposure to frequent and damaging natural hazards with low capacity to manage the resulting risks. According to the World Bank, since 1950 extreme events have affected approximately 9.2 million people in the Pacific region. The CommonSensing (CS) project led by UNITAR-UNOSAT, was created with the aim to improve resilience to climate change, including disaster risk reduction, and to contribute to sustainable development in three Commonwealth Pacific island countries: Fiji, the Solomon Islands and Vanuatu. The project aims at developing satellite-based information services that will directly match challenges and needs to support the three nations in their goals to strengthen capacity to access climate finance and report on climate funds; strengthen national and regional climate action policy; and reduce the impact and improved risk management of natural disasters and food security.

This blended training intends to develop the capacities of technical staff from CommonSensing countries in the build the capacities in the use Geospatial Information Technology (GIT) and Earth Observation (EO) for enhanced Disaster Risk Management. The methodological choice reflects the challenges imparted by COVID-19 and aims to complement the in-person trainings originally planned to be delivered by UNOSAT and UoP. According to the capacity development needs assessment conducted in 2019, government departments in Fiji, Vanuatu, and Solomon Islands have several learning needs that cannot be covered by handful training events. These learning needs can be addressed through self-paced micro learning modules offered through the CommonSensing knowledge hub and UNITAR Learning Platform.

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In this course, since the participants will have the opportunity to chose among 8 different topics on Disaster Risk Reduction, their learning objectives will include the following according to their preferences:

- Describe key concepts on Disaster Risk Reduction and the application of Geospatial Information Technology for different phases of disaster risk reduction;
- Use multi-temporal satellite image analysis using Google Earth Engine to detect changes in waterbody, forest, and coastal areas;
- Perform various hydrological analysis using opensource tools and plug-ins inside QGIS. Topics to be covered- DEM reconditioning, Catchments Mapping, and Flood Susceptibility Mapping;
- Apply the Semi-Automatic classification plug-in of QGIS to perform supervised and un-supervised image classification using satellite imagery;
- Perform a multi-risk Hazard Mapping using sub-national INFORM methodology;
- Produce a map of coastal hazard zones and vulnerable features to visualise coastal risk landscapes and prioritise locations for risk management;
- Prepare terrain analysis using DEM data and geomorphometrics; slope hazard zones, from water-logging to landsliding; Water Security Mapping and possible impacts of climate change;
- Process Sentinel-1 RADAR imagery with SNAP freeware for monitoring flooding and deforestation and prepare rapid damage mapping using daily PlanetScope imagery;
- Apply safe and effective remote sensing uses of Unmanned Aerial Vehicles (UAVs/drones) for Disaster Management, from preparedness to response and recovery;
- Convey information for decision-making through advanced data visualization.

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This is a blended learning course that contains two main blocks:

(1) Two mandatory micro-learning modules: "Introduction to Geospatial Information Technology (GIT) for Disaster Risk Reduction" and "Advanced Data Visualization"

(2) Optional micro-learning* modules with online or in-person support from instructors. Participants will be able to choose at least 2 modules out of 8 optional modules.

 * Microlearning refers to e-learning processes that use small learning units or short-term learning activities, usually with a focus on specific skills development.

When possible, in-country experts will provide in-person support for the participants to complete the modules.

Software: QGIS

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The number of participants is limited to 75 participants from Fiji, Vanuatu, and Solomon Islands. The course is designed to accommodate participants with prior basic knowledge in GIS and Remote Sensing, especially those who have already attended the Introductory and Advanced Training Sessions on Earth Observation (EO) and Geospatial Information Technology (GIT) Applications for Climate Resilience held in 2019/2020 in Fiji, Vanuatu, and Solomon Islands. Participants also need to have appropriate access to a computer, software, and internet connectivity to complete the modules.

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Unfortunately the course you are interested in is already reserved for a selected group of participants in Fiji, Vanuatu, and Solomon Islands. If you are interested in future opportunities, please fill up this form. Due to the high demand, we will not be able to timely answer requests via email. Thank you for your interest!