34th IAA SYMPOSIUM ON SPACE AND SOCIETY (E5)
Space Assets and Disaster Management (4)

Author: Prof. Avid Roman-Gonzalez
Business on Engineering and Technology S.A.C. (BE Tech), Peru, avid.roman-gonzalez@ieee.org

Mr. Victor Romero-Alva
Image Processing Research Laboratory (INTI-Lab). Universidad de Ciencias y Humanidades - UCH, Peru, nielsrom93@gmail.com
Prof. Angel Navarro
Peru, anavarro@untels.edu.pe
Ms. Natalia Indira Vargas-Cuentas
Image Processing Research Laboratory (INTI-Lab). Universidad de Ciencias y Humanidades - UCH, Peru, nvargas@uch.edu.pe

QHAWASUNCHIS: A PROPOSAL SUPPORT CENTER FOR NATURAL DISASTER MANAGEMENT USING SATELLITE IMAGES IN PERÚ

Abstract

Peru is a country susceptible to the ravages of natural disasters such as earthquakes, landslides, floods, forest fires, among others. In Peru, during the first three months of the year, heavy rains have been faced that have caused rivers to overflow, landslides and, therefore, floods. The rains that result in floods at this time of the year occur in Peru cyclically. This phenomenon is known as the El Niño phenomenon. In 2017, this phenomenon was called the Coastal Child Phenomenon due to its great intensity. In the latter, it has been noted how harmful it can be for low-income families since most of them are located in hazardous areas. This cycle began in December 2016, which has caused human and material losses, paralyzing the economic movement and thus harming a country that is little prepared for the prevention of these natural phenomena. The present work has the primary purpose of proposing implementing a help centre in managing this and other types of disasters. The idea is not to usurp or compete with the functions of the COEN (National Emergency Operations Center) or with the functions of the CNOIS (National Center for Satellite Image Operations); on the contrary, the idea is to collaborate and support the identification of the most affected areas and their severity after the disaster occurred. All this is from satellite images of both the optical and radar types. These images may come from the Peruvian satellite PERUSAT-1, from North American satellites such as LANDSAT, or from the European Sentinel satellites for radar images. The country's situation will be analyzed by sectors (provinces, districts) referencing satellite images treated with geographic information systems (GIS) and processing them using image processing techniques. A situational analysis of the different affected areas will be prepared. From this, prepare maps and descriptive reports of the areas visibly affected in the satellite images, making comparisons with other satellite images taken before the event or disaster. The Qhawasunchis Center will have data storage equipment, high-performance computing equipment for image processing, and monitors for viewing georeferenced maps.