The Volcanological and Seismological Observatory of Costa Rica, National University (OVSICORI-UNA) is a University Research Institute dedicated to research of volcanoes, earthquakes and other tectonic processes, in order to find useful applications that help society to mitigate the adverse effects of these events to economic and social development. In 1984, the OVSICORI-UNA initiates the operation of a seismographic and volcanic network designed to monitor seismic and volcanic activity throughout the national territory. Currently the seismographic and volcanic network has a registration system analog and digital. The latter enables online analysis of seismic and volcanic signals digitally, allowing to expedite the analysis of signals and their interpretation using modern computerized methods.

SUMMARY

Volcanic seismology is performed through 15 broadband seismic stations located in the five active volcanoes in Costa Rica. Figure 4. Left represent number of daily volcanic earthquakes recorded between June and November , 2014 and right represent number of volcanic-tectonic earthquakes associated with Turrialba Volcano between June 01th and November 01th, 2014. Volcanic Video Surveillance in Active Volcanoes Costa Rica

The installation webcams in active volcanoes , we can observe in real time eruptions of ash and ballistic . The web cam in our volcanoes use technology light finder that reproduce images with level of light of 0.8 lux.

GPS Permanent Network in near-real time

10 stations Trimble receiver NETRS – NET90 and Zephir Antenna. During the eruption of October 29th , 2014. Figure 10 . Show the sites VTQO – VTNA – VTGP – VTCL and two references sites ( AACR - CRCRP ) they were used to reduce displacement by tectonic movements. The results show a rise of up to 1 cm in VTQO and VTGP points. In VTCL , VTNA and GIBE , the vertical movement is not significant . In the horizontal and only VTCI and VTQO show significant movement to the southwest , about 1 cm.

DATA ACQUISITION AND COMMUNICATION SYSTEMS

The OVSICORI-UNA network of data communications has been implemented a wireless broadband network a frequency 2.4GHz and 5.8 GHz with low cost equipment and high rate of bandwidth ( 40 Mbps ) in Turrialba , Irazu and Poas volcanoes. In the last years we have implemented the use of 3G cellular networks to send data of from all monitoring systems.

The data from International Data Centre – CTBTO is forwarding in Continuous Data Format ( CD1.1 ) to NDC in OVSICORI-UNA. Our systems acquisition of seismic data ( Antelope , Earthworm ,SeiscomP3) receive data from international stations around the world to get a better location for local and regional seismic events.

T3.1-P17 Network Monitoring Seismic and Volcanic OVSICORI-UNA COSTA RICA

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SEISMIC NEAR-REAL TIME MONITORING

Remote Monitoring of Volcanic Gases
Gas monitoring of SO2 in Turrialba Volcano in near real time, data sending with 3G cellular network. 2 Stations Type Minidoas with Ocean Optics Spectrometer and software acquisition system NOVAC.

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