

#### Abstract

Seismic events that have had a significant impact on the Colombian population (Earthquake-Tsunami Tumaco 1979, M 7.9, Earthquake Manizales 1979 M 7.9, Earthquake Popayán 1983 M 5.5, Nevado del Ruiz Eruption 1985), along with other natural disasters, resulted in the government of Colombia to assign to INGEOMINAS (now Servicio Geológico Colombiano - SGC) the functions of study and prevention of all types of geological risks in the Colombian territory. In 1987 INGEOMINAS created the project of monitoring seismic activity that includes the National Seismological Network of Colombia and the National Accelerometer Network of Colombia (RSNC and RNAC), which began its activities in June 1993. The RSNC has been operating continuously, 24/7, providing information to disaster prevention agencies and the general public during crises and deploying specialized personnel and portable monitoring equipment for the complete analysis of the seismic source. The RSNC and RNAC have national coverage and have the best and most modern seismic monitoring equipment, with a total of 170 permanent monitoring stations, between acceleration sensors and speed sensors (short period, strong motion and broad band, including ROSC station from the CTBTO), 94 of them with real time transmission to the headquarters in Bogotá.

### History



- **1979** Tumaco Earthquake (M 7.9) and Tsunami.
- **1979** Manizales Earthquake (M 7.9).
- **1983** Popayán Earthquake (M 5.5)
- 1985 Nevado del Ruiz Volcano Eruption and enormous lahars volcanically induced mudslides, landslides and debris flows (25.000 casualties).
- Creation of the National System for Disaster Risk Management • **1987** At INGEOMINAS, currently Colombian Geological Survey (Servicio
- Geológico Colombiano), started the Colombian National Seismological Network, which included a Strong Motion Network
- **1993:** Colombian National Seismological Network (RSNC) and Strong Motion Network start operations (RNAC).
- 2003: ROSC (PS14) is certified as a CTBT station.
- **2008**: Upgrade and densification of the Seismic and Strong Motion Networks.

**Colombian Seismological Network (RSNC) and Strong Motion Network (RNAC)** Evolution



82'W

80'W

76'W

78'W

74'W

70°W

1993 RSNC-SGC <u>13 satellite short</u> stations

In 2003 ROS is certified for CTBT. (First Broad Band Station)

# 2009 **RSNC-SGC**

- 30 satellite stations
- 17 short period
- 13 broad band

## 2017 **RSNC-SGC**

- 55 satellite stations
- 12 short period
- 40 broad band 3 Strong motion
- velocity sensors TSM-1 (SATREPS

Project)

#### 2017 RNAC-SGC 116 stations • 42 real time stations • 70 remote

stations We share stations with: Neighboring countries Volcanological and Seismological **Observatories (SGC)** 



82'W 80'W 78'W

# Monitoring earthquakes in Colombia since 1993 Viviana Dionicio

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