Ethiopian Seismic Station Networks (ESSN)

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Aim of the IGSSA

❑ To provide the world seismic community with seismological data.

❑ To produce seismic event map of the country.

❑ To produce seismic risk zone map of Ethiopia which is used by the government and engineering officials.

❑ To study the crustal structure and the upper mantle of the Ethiopian rift valley.

History and Operational Capacity of Ethiopian Seismic Station Network (ESSN)

❑ Current capacity of the ESSN is to understand earthquake and volcano hazards in the region and mitigate risks.

❑ Ever since earthquake recording started in Ethiopia in 1959, monitoring facility has evolved over the last half a century. Three component digital seismogram recording with GPS time sampling started in 1994.

❑ In 1999 and 2000, several remote stations were upgraded to be digital seismic stations.

❑ Currently more than 9 state of the art broad band seismic stations are running in the country.

❑ The seismic data from ATD (Djibouti),KMBO (Kenya) and MBAR (Uganda) global stations are made to be accessible for the IGSSA near real time.

Ethiopia Seismic Station (ESSN)
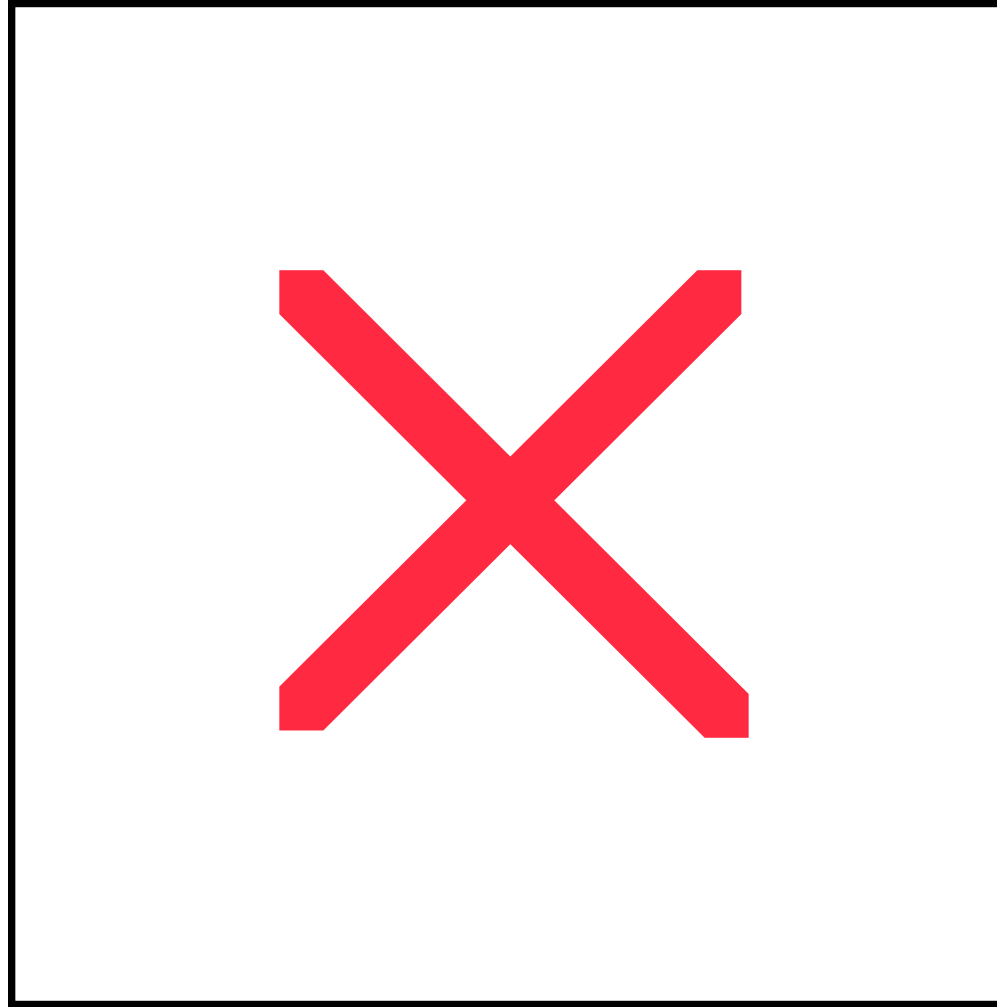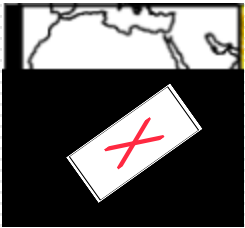
ESSN state-of-the-art station list

| No.	Station Code	Site Name	Installation Date	Remark
1	AAE	Addis Ababa, Ethiopia	1959	This station is located in the Observatory. The sensor is CMG-3T and the data logger is RT130
2	FURI	Mount Furi	1997	Located in the tunnel of Mount FURI. The sensors are STS1 and STS2 working with Quantera 330. This station is affiliated to the IRIS/USGS
3	ANKE	Ankober museum	2007	Trillium compact sensor with RT130 data logger
4	DESE	Dese W/Sehen	1999	Le-3d/20s working with RT130
5	HARA	Harar town	June, 2012	CMG-3ESP working with Taurus data logger. This station replaced ALME
	ALME	Alemaya University	1976	LE-3d/5s + RefTek DAS
6	DILA	DILA University	June, 2012	Trillim compact with Taurus. This is a new site just installed
7	KOFE	Kofele High School	June, 2012	Le-3d/5sec working with old RefTek DAS
8	ARBA	Arba Minch Univ	December, 2012	CMG-3ESP + Taurus
9	SEME	Samara University		Trillium Compact + Taurus
10	MEKE	Mekele University		Trillim compact + Taurus

Why state-of-the-art station network?

- ☐ Digital and broadband with GPS time stamping
- ☐ IT connectivity for real-time data access
- ☐ High dynamic range and sampling frequency
- ☐ High storage capacity
- ☐ Low power consumption

DATA PROCESSING

Seismic phase Picking

The REFTAKE wave format decompressed to SEGY so that ready for plot using PQL,DEMAS and SAC (Seismic Analysis Software).
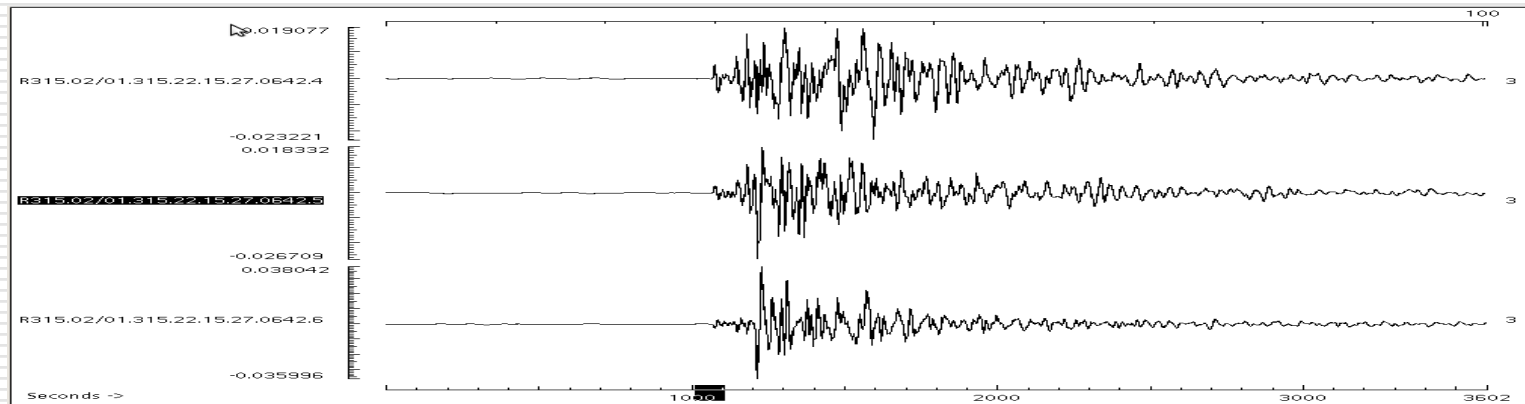
PQL format unfiltered wave form from station Bahir Dar sation ,it is the 2001:05:24 ,20:24:13 with location at latitude of 9.95^0 & longitude of 41.15^0 .

SEISAN software to locate events as well as to calculate magnitude.

Earthworm is currently installed .

Sensors STS1 and STS2 working with Quantera 330. This station is affiliated to the IRIS/USGS

Thank you for your attention