

Botswana Seismic Network
(BSN)

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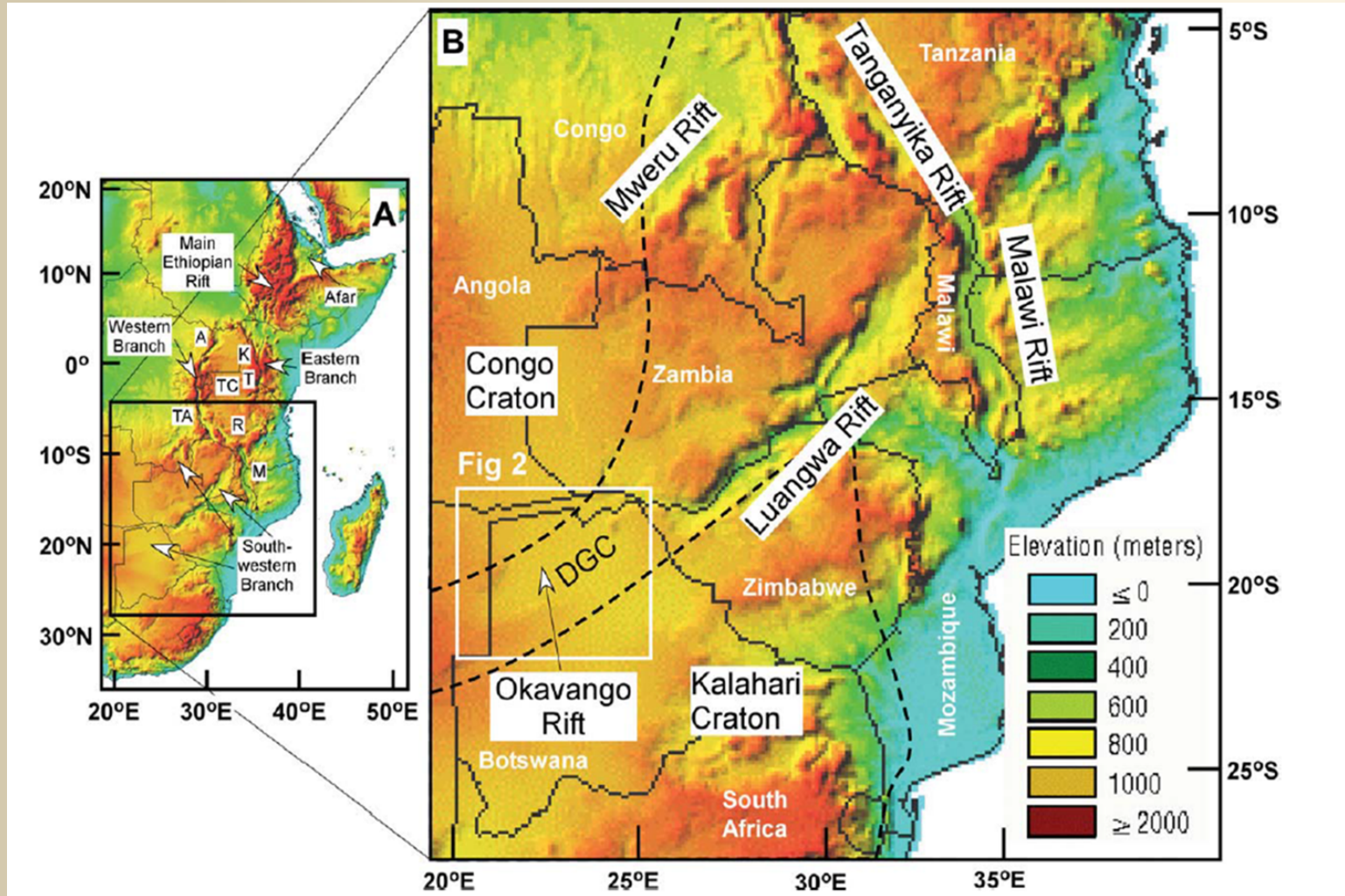
Map of Southern Africa



List of seismic stations

STN	LAT	LON	ELVN	NAME
TOT1	20.377°S	22.965°E	940m	TOTENG
SVT1	18.582°S	24.072°E	940m	SAVUTI
MTP1	20.230°S	24.099°E	936m	MOTOPI
MWG	19.630°S	23.820°E	962m	MOWANA
KBH1	20.702°S	23.051°E	1042m	KGWEBE
TSD1	18.707°S	21.713°E	10450m	TSODILO
LBTS	25.015	25.597°E	1128m	LOBATSE
UBOT	20.540°S	22.740°E	957m	BOTHATO GO

ORS



Motivation

- Scientific curiosity to better understand long-term seismicity of the OKD region
- Explore detailed seismological characteristics of the OKD: e.g. 1-D & 3-D seismic wavespeed structures associated with the crust beneath the region

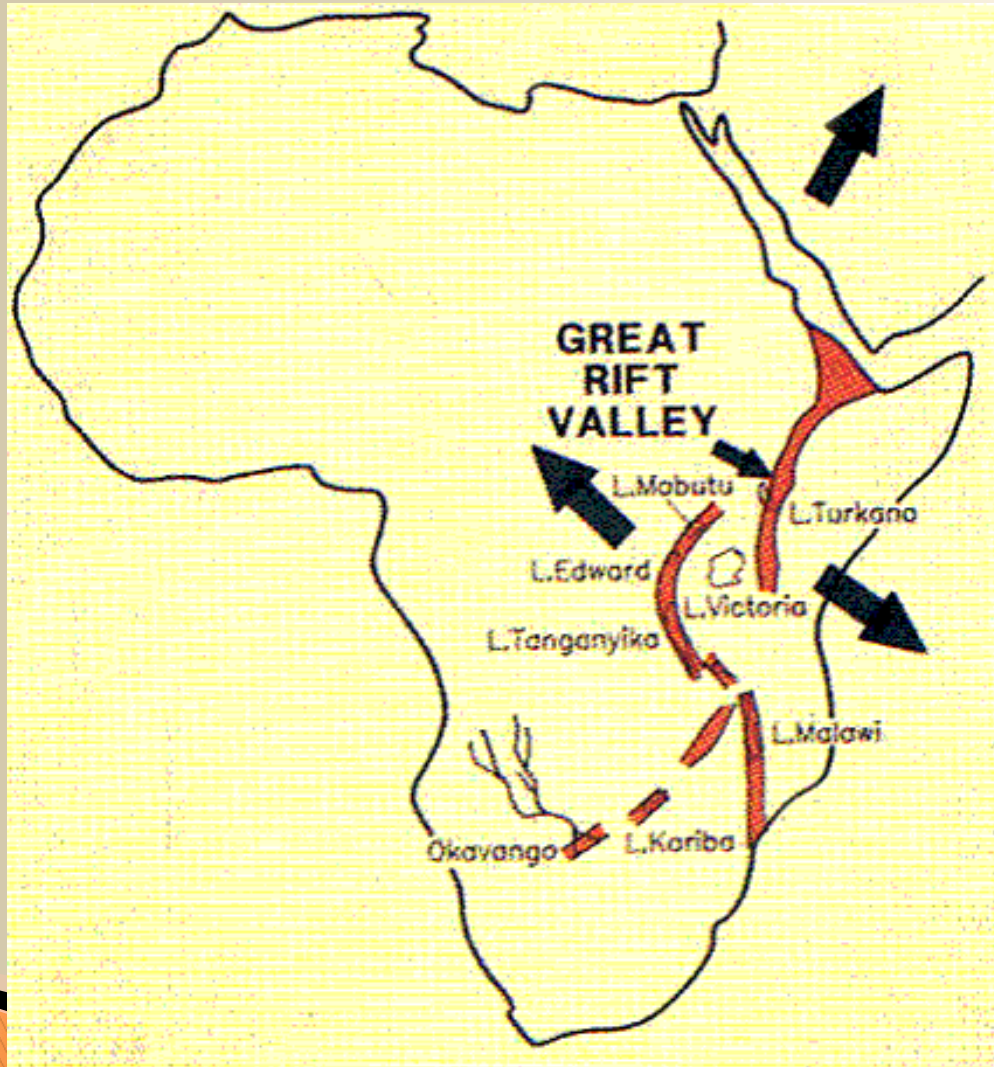
Statement of the problem

- Lack of seismic networks in Botswana to monitor local and regional seismicity
- Few seismological studies of earth structure beneath the OKD compared with many other regions of the world such as Japan, United States and Europe so there is a need for detailed definition of the seismic radiation pattern & earth structure in the OKD region

Significance & contribution to knowledge

- ▶ According to Bufford et al (2012):
- ▶ Okavango Rift Zone (ORZ) in Botswana represents an incipient rift at the southern tip of the Southwestern Branch of the East African Rift System.

Significance & contribution to knowledge



Significance & contribution to knowledge

- ▶ It provides a unique opportunity to investigate fault characteristics and activities related to early rifting processes.
- ▶ As such, the ORZ has been the focus of several surface and shallow sub-surface geologic and geophysical investigations, including monitoring microseismicity of the delta aimed at determining the geometry of the rift zone and the nature and kinematics of associated faults.

Main objective of BSN

- ▶ Monitor local microseismicity of the Okavango Rift System.
- ▶ Recorded time series data will allow a variety of seismological techniques to be used to investigate crustal structure below the ORS, and to understand the ORS neotectonics within the context of EARS
- ▶ Long-term Monitoring of microseismicity of ORS will allow seismic hazard assessment.

State of progress

- ▶ BSN was established 17 years ago & since then it has been recording seismic events from all over the Okavango Delta region
- ▶ One product of the BSN has been the collation of annual **Seismological Bulletin of the Department of Geological Survey for the period 2001-upto-date**
- ▶ However, no waveform qc has been undertaken to ensure acquisition & archiving of high quality data

Future activities

- ▶ BSN will deploy more stations in the next few fiscal years with the aim of attaining a homogeneous station coverage of the entire country
- ▶ Undertake routine quality checking of the collected data
- ▶ Establish a data format suitable for regional and international data exchange collaboration

Thank you!!!