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Upgraded Seismic Network in Myanmar

Oo Than
Seismological Division, Department of Meteorology and Hydrology, Myanmar

Dept. of Meteorology and Hydrology

INTRODUCTION

Myanmar is in a tectonically complex region. To improve the earthquake monitoring and research because of a lack of modern instrumentation, communication infrastructure. Since 2010, we have been upgraded Myanmar Seismic Network with financial and technical support from the China, USA, India and GFZ.

METHODS/DATA

We have installed 19 permanent broadband stations and, starting in 2010, collaborated with international organizations and real-time to get seismic waveform data using mobile network and to monitor 24/7 of Antelope, Apollo and Seismicomp3 systems.

START

RESULTS

Using the SeisComp3 system, and to issue the earthquake bulletins/news for our nations and neighboring countries. We are global sharing 10 stations at IRIS and GFZ. To issue the tsunami information for our country in collaboration with RTSPs in India Ocean Region.

CONCLUSION

We are monitoring 24/7 and to issue the earthquake activity news/bulletins. However, as a challenge, we have to improve our seismic network needed the communication system, human resource development, technologies, infrastructure and research.

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Introduction of Tectonic Setting in Myanmar

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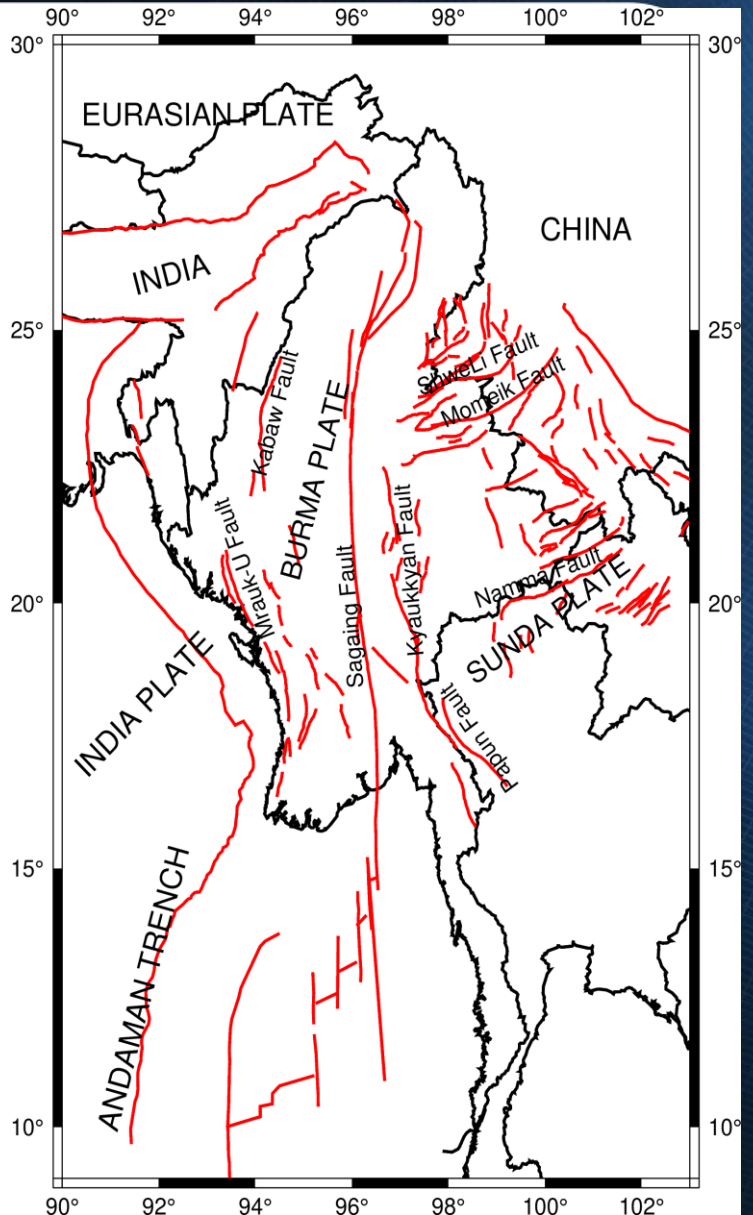
- Myanmar is in a tectonically complex region between the eastern edge of the Himalayan collision zone and the northern end of the Sunda megathrust.
- Myanmar is one of the most earthquake-prone countries.
- The Sagaing Fault is an active right-lateral strike-slip fault that strikes north-south over 1,000 km through the central Myanmar and into the Andaman Sea, and is a transform fault between the Burma and Sunda plate.
- The displacement rate on the Sagaing fault is 18 mm/yr, as obtained by GPS observation, indicating a short recurrence interval for large earthquakes.
- The Indian plate continues to move to the northeast at roughly 5 cm/yr, pushing the Himalayas higher as the India plate underthrusts the Eurasian plate and Burma micro plate.



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Seismic City and Strong Earthquake in Myanmar

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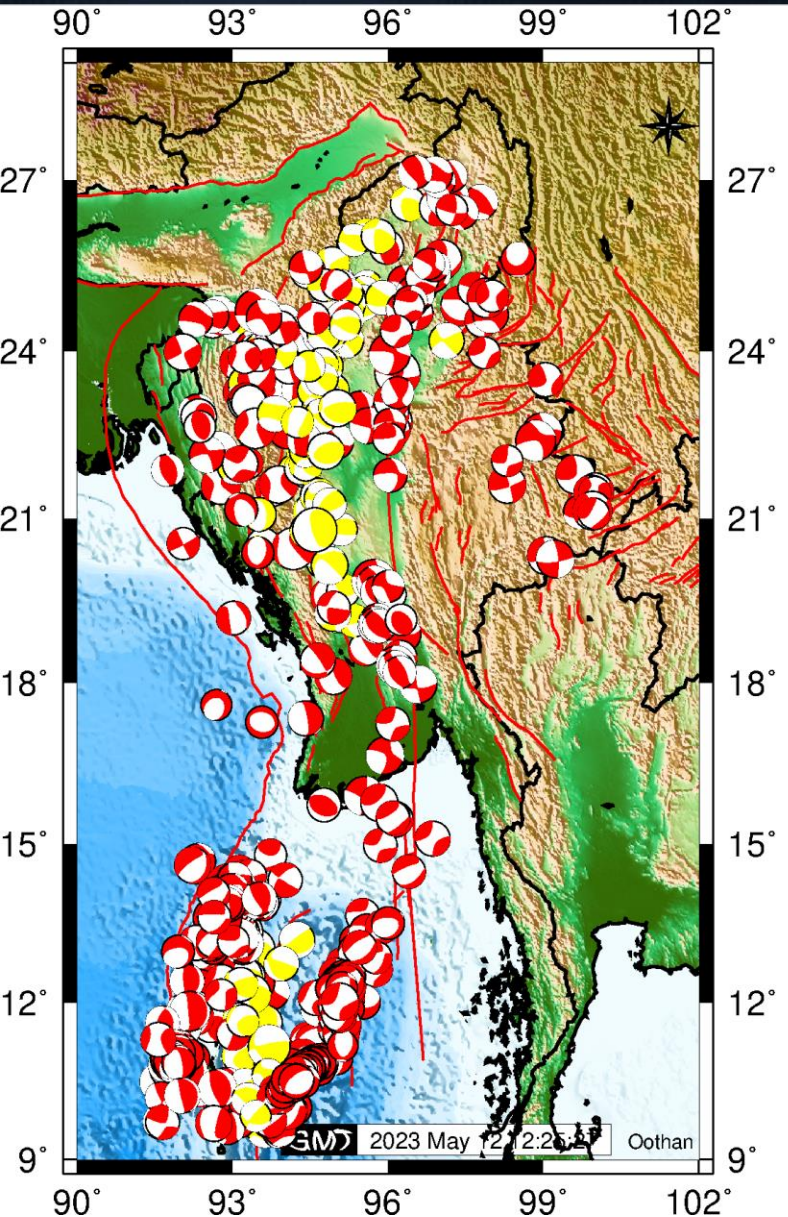
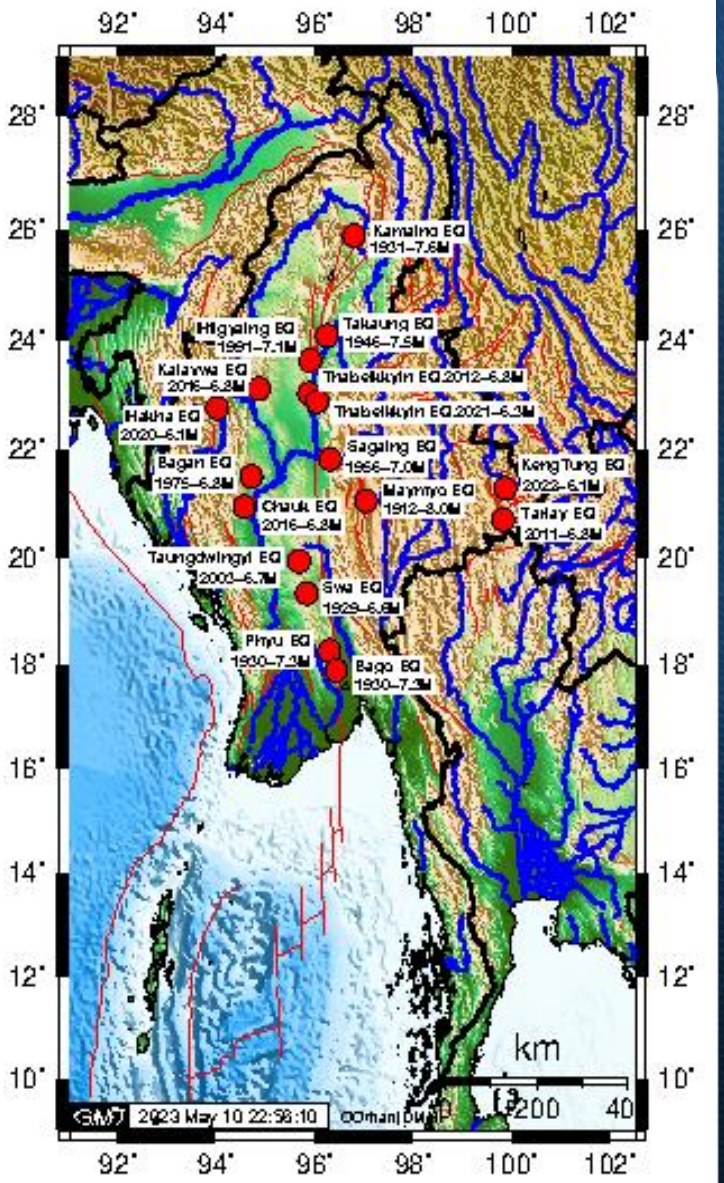


- Myanmar is one of the most earthquake-prone countries.
- Most earthquakes are related to shallow depth at the Sagaing Fault and Eastern Shan, and moderate depth earthquakes occurred in Western Myanmar.
- The strongest earthquake occurred in 1912, with a magnitude of around 8.5.
- The left figure showed the focal mechanisms for earthquakes between 1976 to 2022 from the Global CMT catalogue with magnitudes greater than or equal to 4.0, and the right figure showed the strong earthquake in Myanmar.



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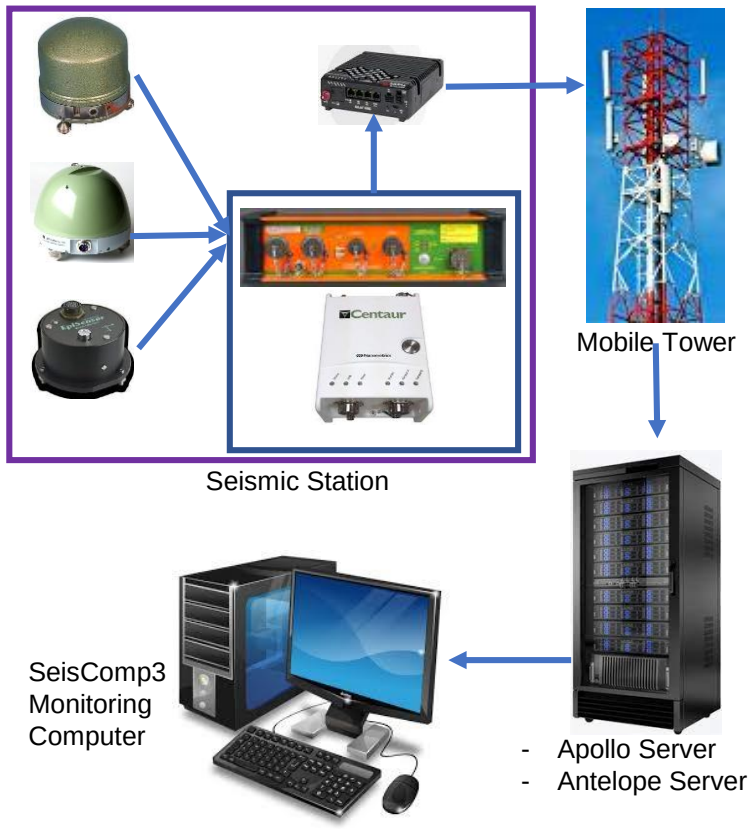
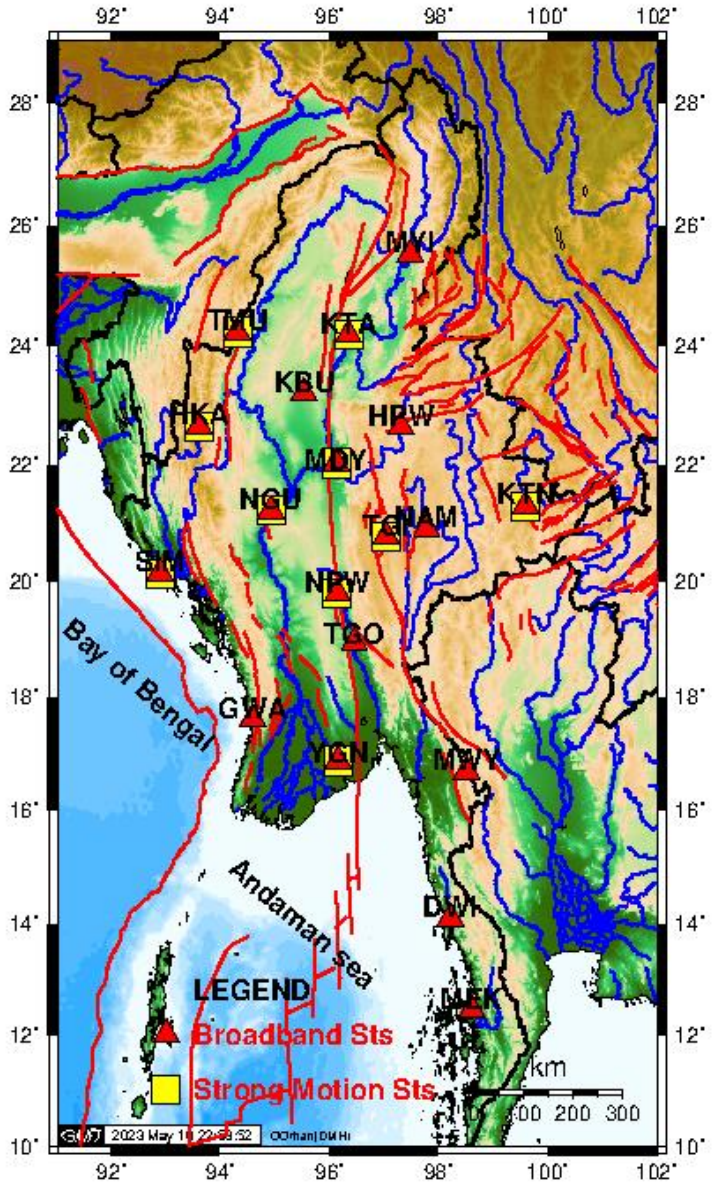


- **19 Broadband Stations**
- **10 Strong Motion Accelerograph Stations**
- **Global Sharing 10 Stations: YGN, MDY, HKA, TMU, KTA, NGU, SIM, and TGI are at the IRIS, and NPW is at the GFZ.**

- China Earthquake Administration-CEA supported two stations (MYI and NAM) in 2010.
- United State Geological Survey-USGS supported five stations (YNG, MDY, HKA, TMU and KTN) in 2016.
- India (INCOIS) and RIMES supported 10 stations (GWA, NGU, TGO, KBU, KTA, HPW, TGI, MWY, DWI and MEK)in 2018 and another one stations supported by RIMES-UNESCO (SIM) in 2010.
- GFZ upgraded NPW stations in 2018.



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Monitoring Seismic Network in Myanmar

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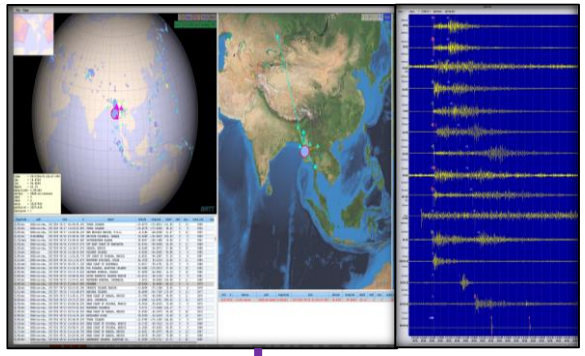
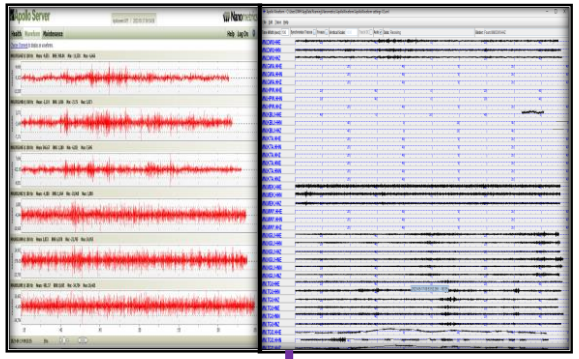
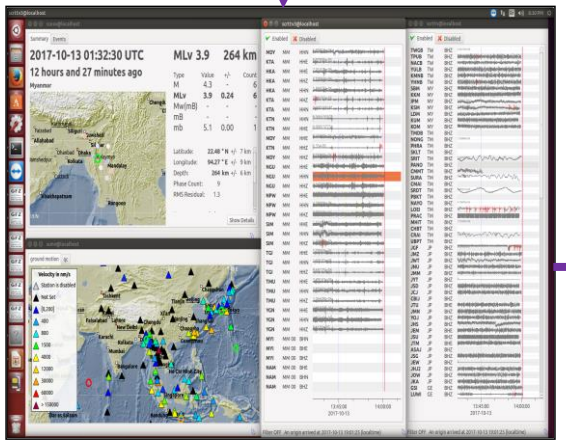


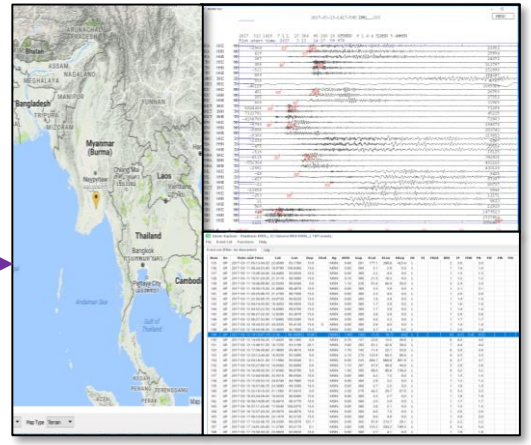
Antelope Software



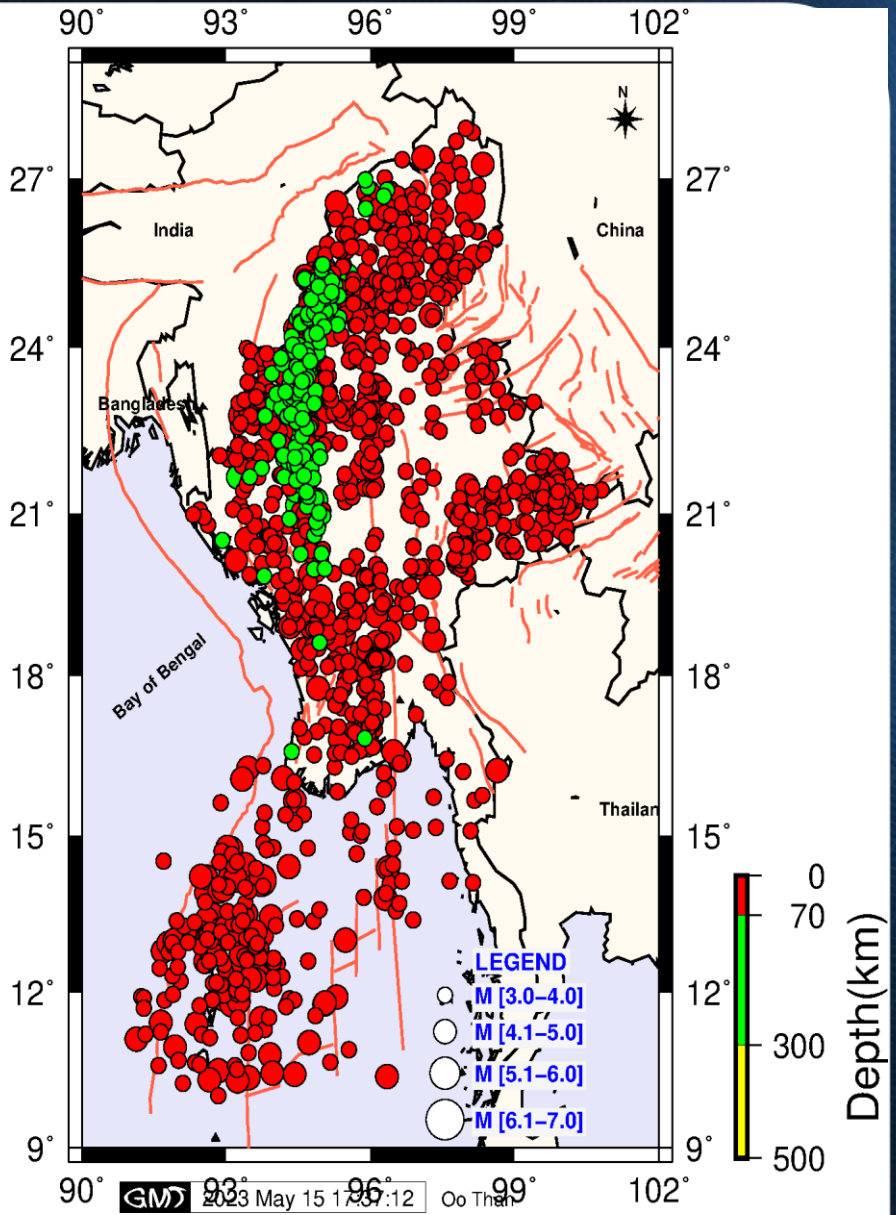
Apollo Software



SeiComp3 Software



SeiSan Software



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Conclusion

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- Myanmar is one of the most earthquake-prone countries in the world.
- We are now running the 19 stations on our seismic network with the capability of receiving data in real time via the mobile network. But our country has a large inland area; therefore, we need more stations to cover the whole country.
- We are monitoring 24/7 with shift duty of our staff for our seismic network and the international seismic network and to issue earthquake news/bulletins when earthquakes occur in Myanmar and around neighboring countries.
- However, as a challenge, we have to improve our seismic network communication system, human resource development, technologies, infrastructure, and research in seismic and tsunami activities.
- We are welcome to study our country's seismic network and seismic activities.

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