Magnitude 7.7 Myanmar Earthquake March 28, 2025

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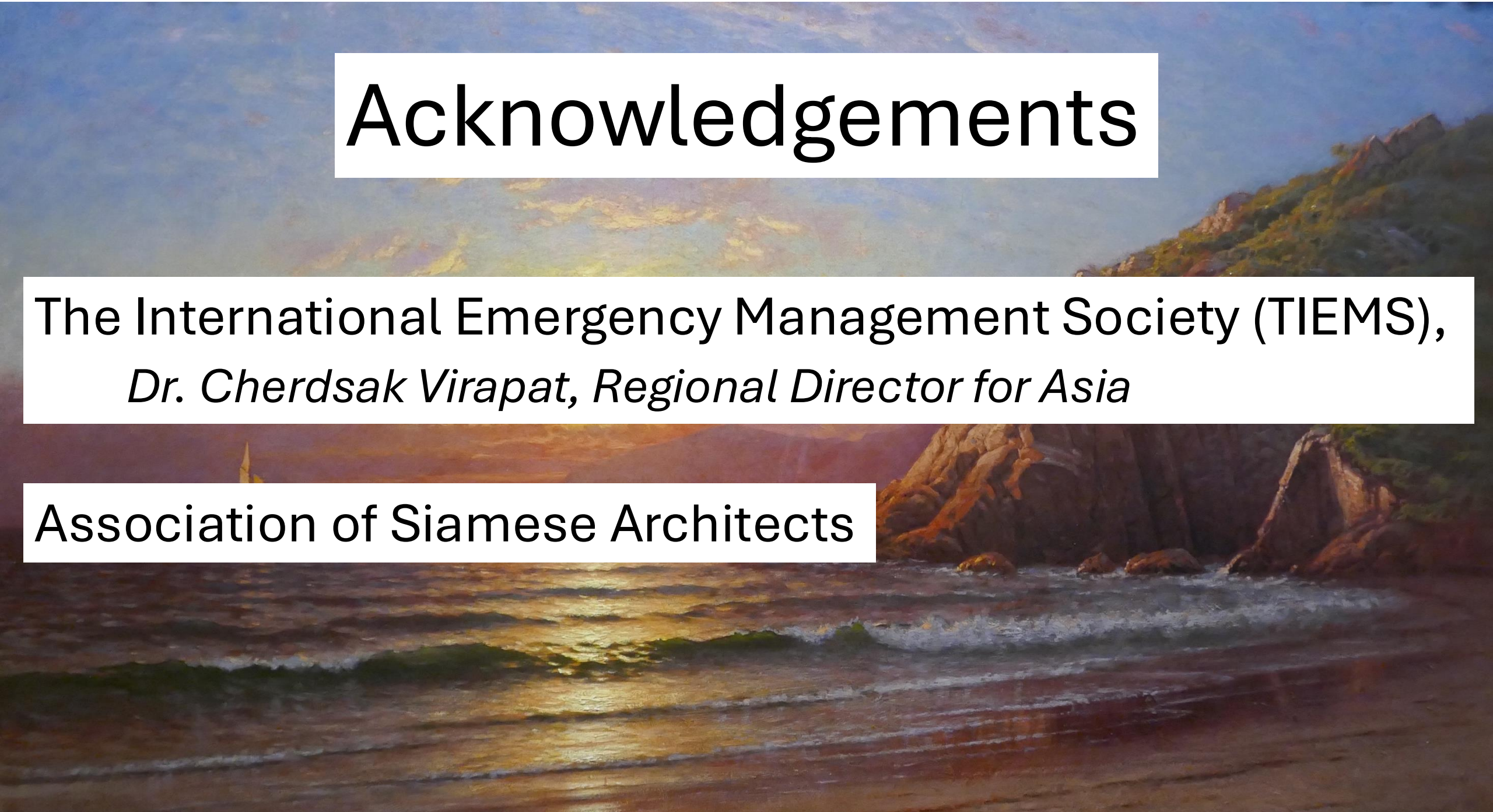
USGS
science for a changing world



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Association of Siamese Architects

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Dr. Sugunyanee Yavinchan, Director General
and
TMD Earthquake Observation Division

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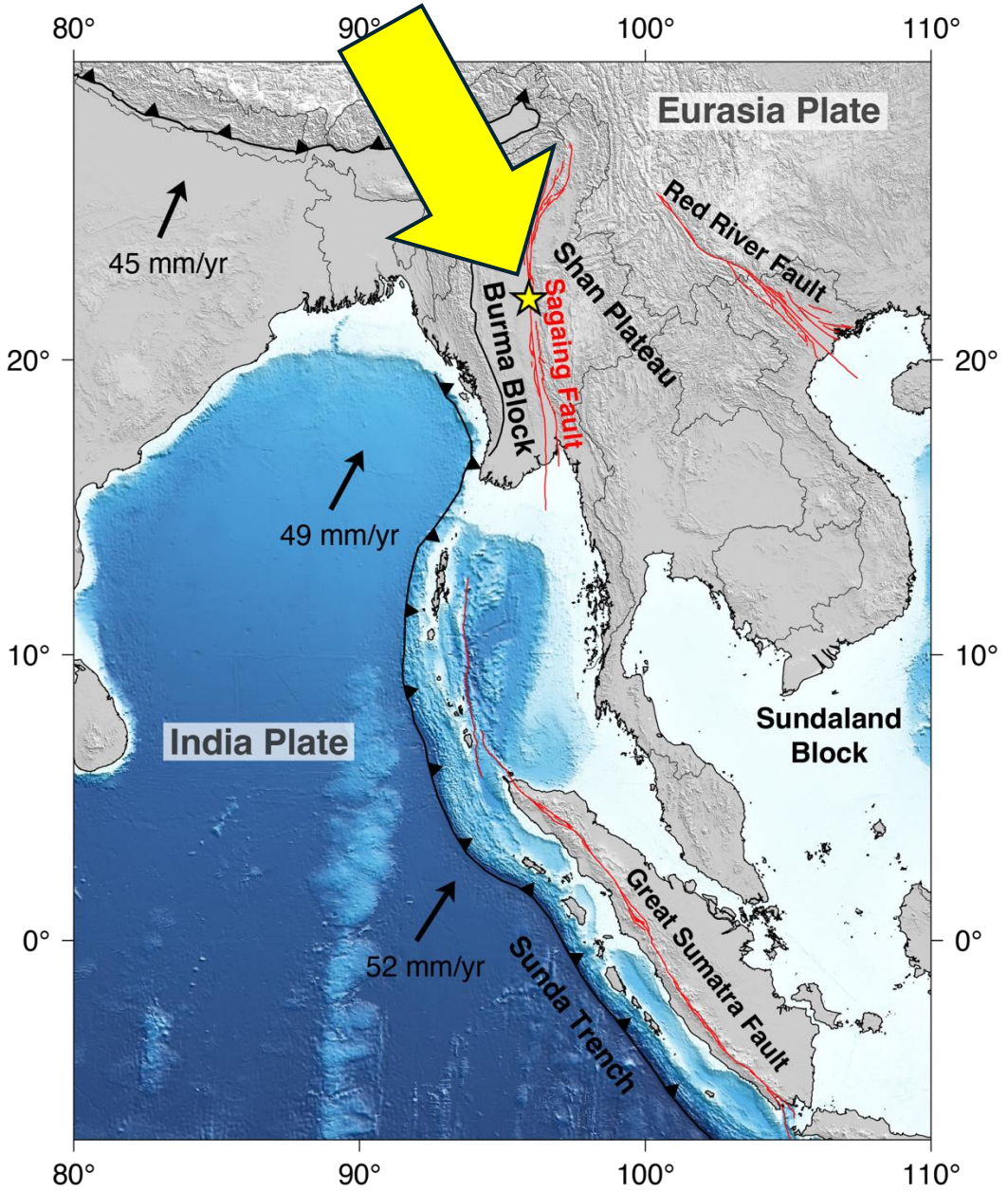
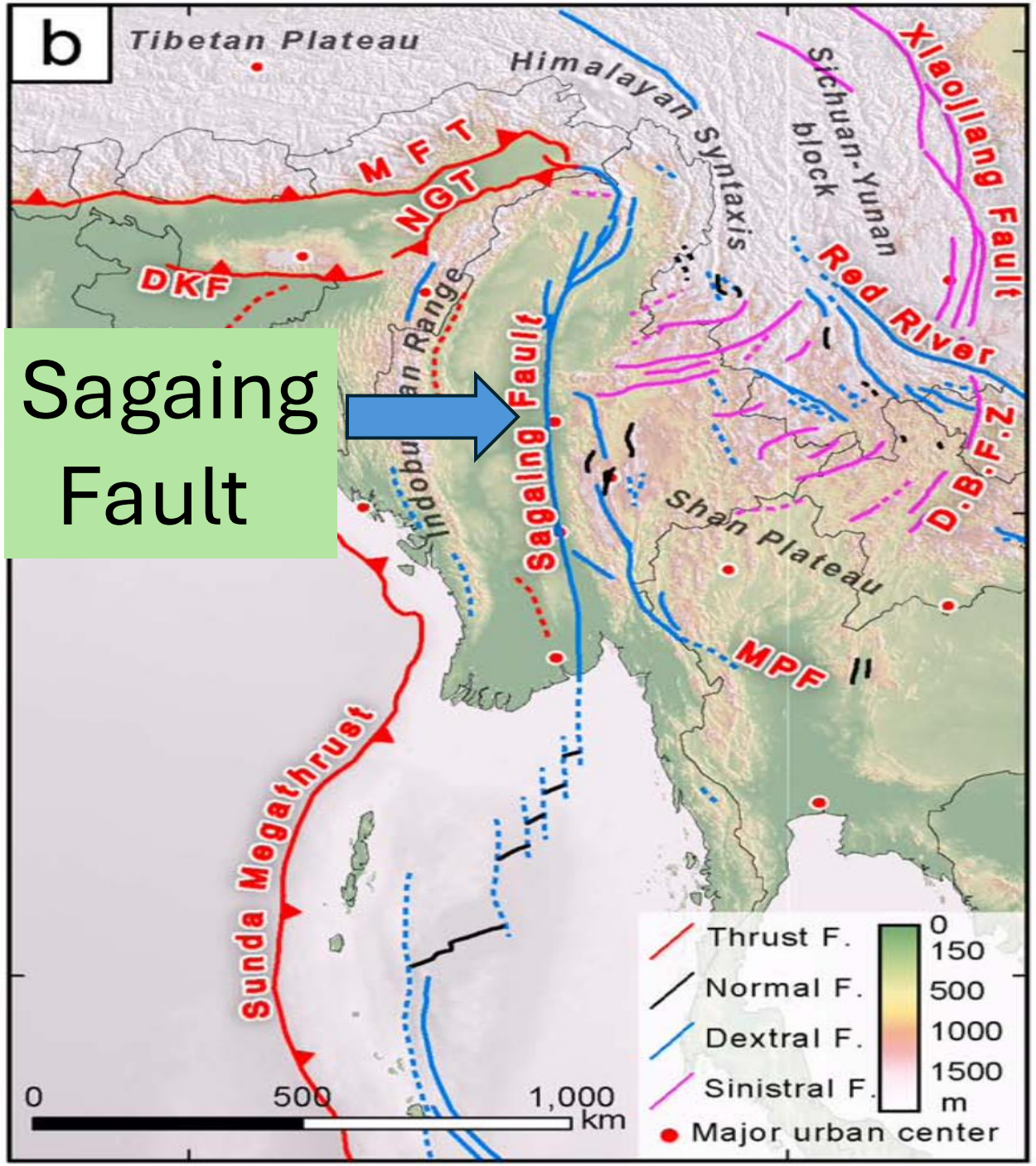


https://earthquake.usgs.gov/earthquakes/eventpage/us7000pn9s/executive

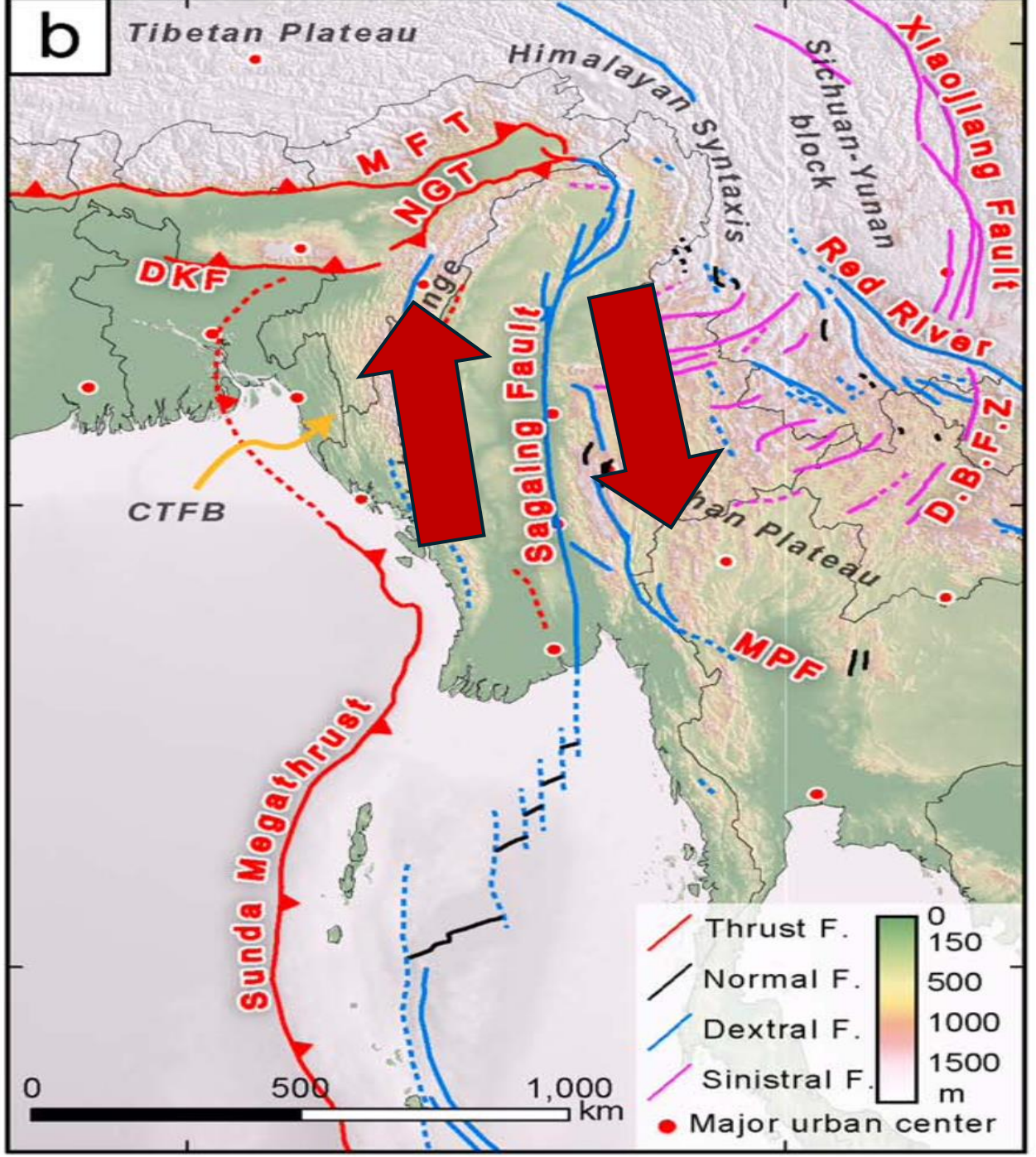
USGS science for a changing world



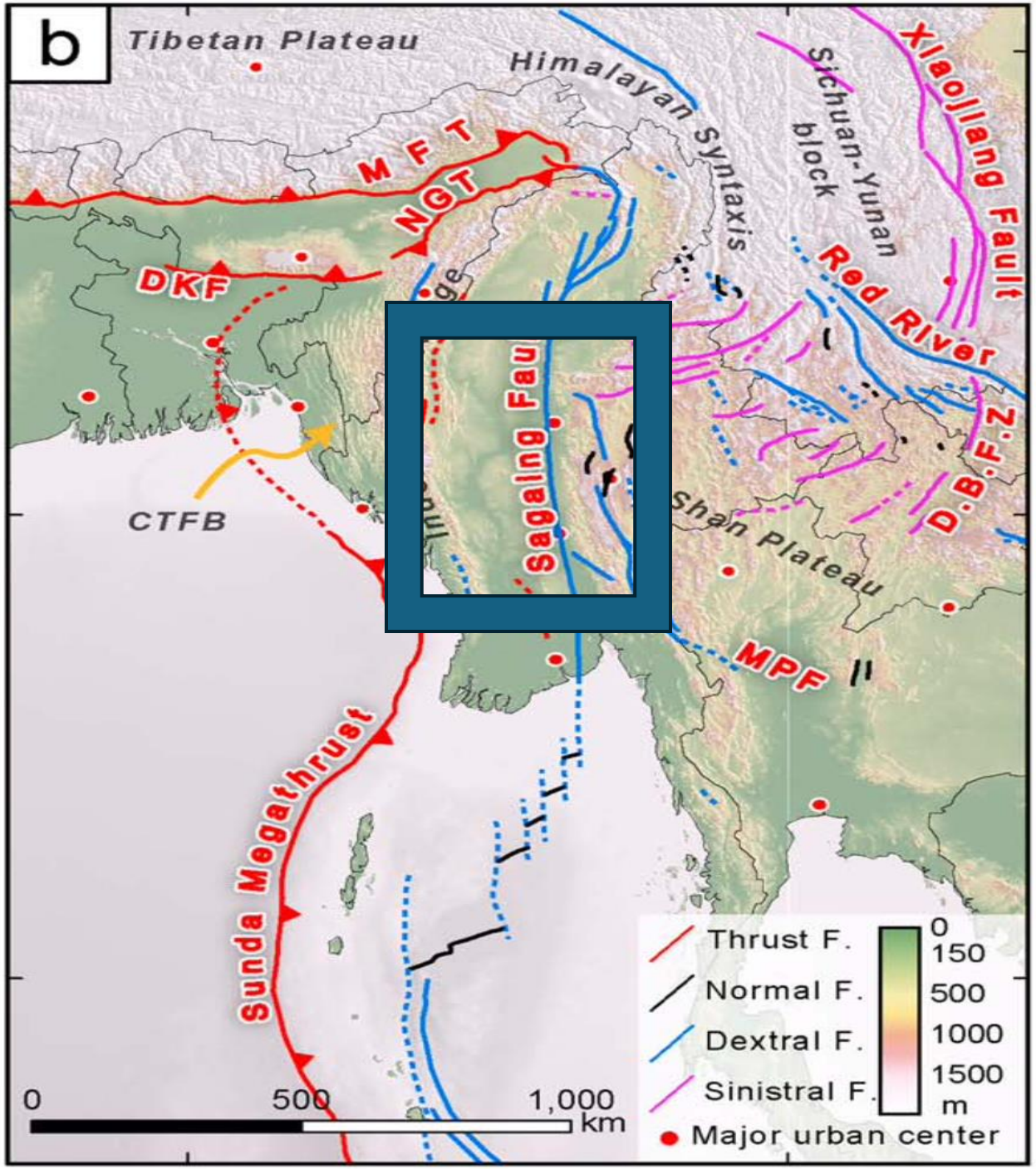
Sagaing Fault

Map:
Wang et al., 2014
Journal of Geophysical Research

Strike-slip (sliding) fault between the Indian plate (west)
and
South Asian plate (east).

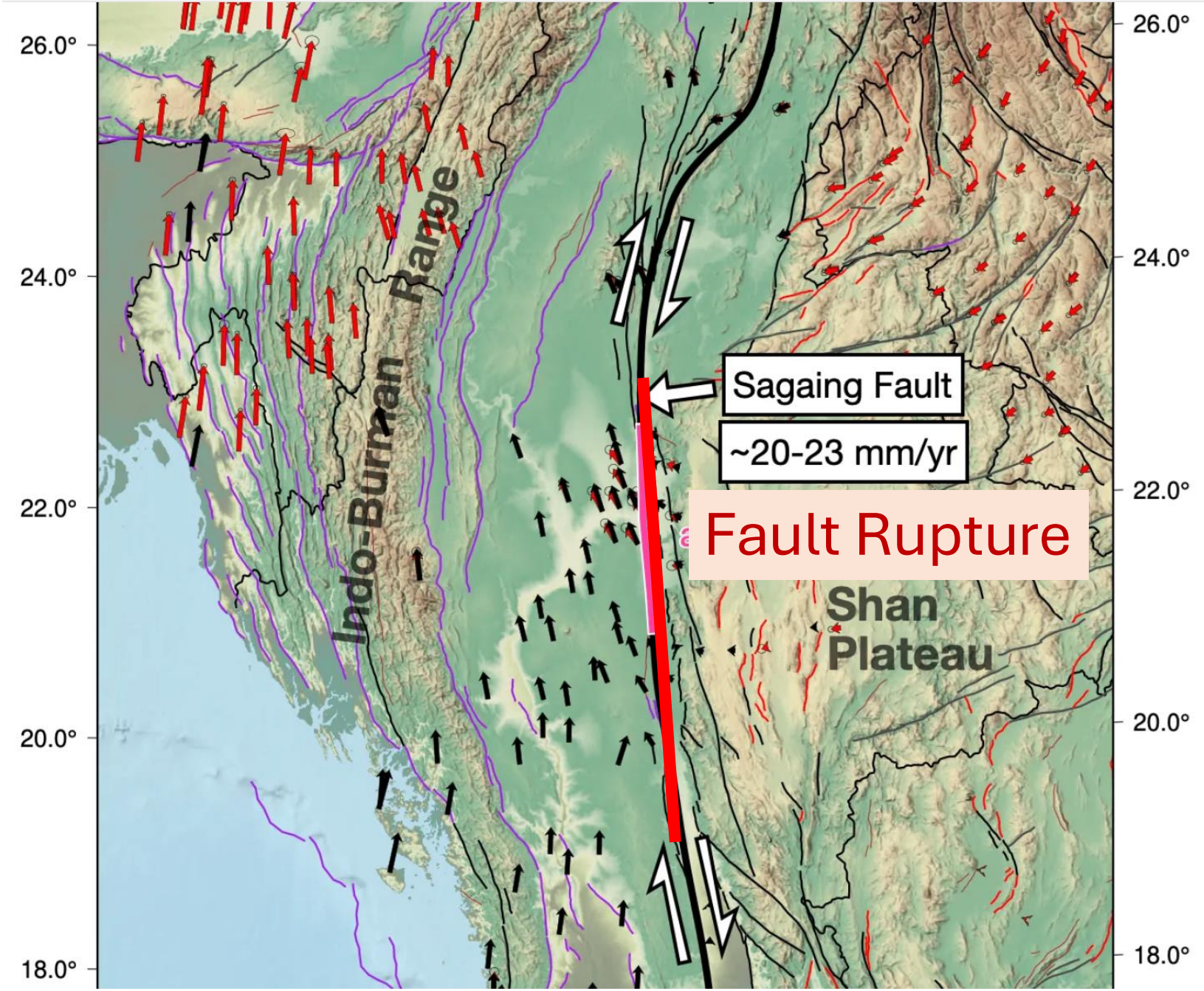


Map:
Wang et al., 2014
Journal of Geophysical Research



Map:
Wang et al., 2014
Journal of Geophysical Research

Earthquake Insights

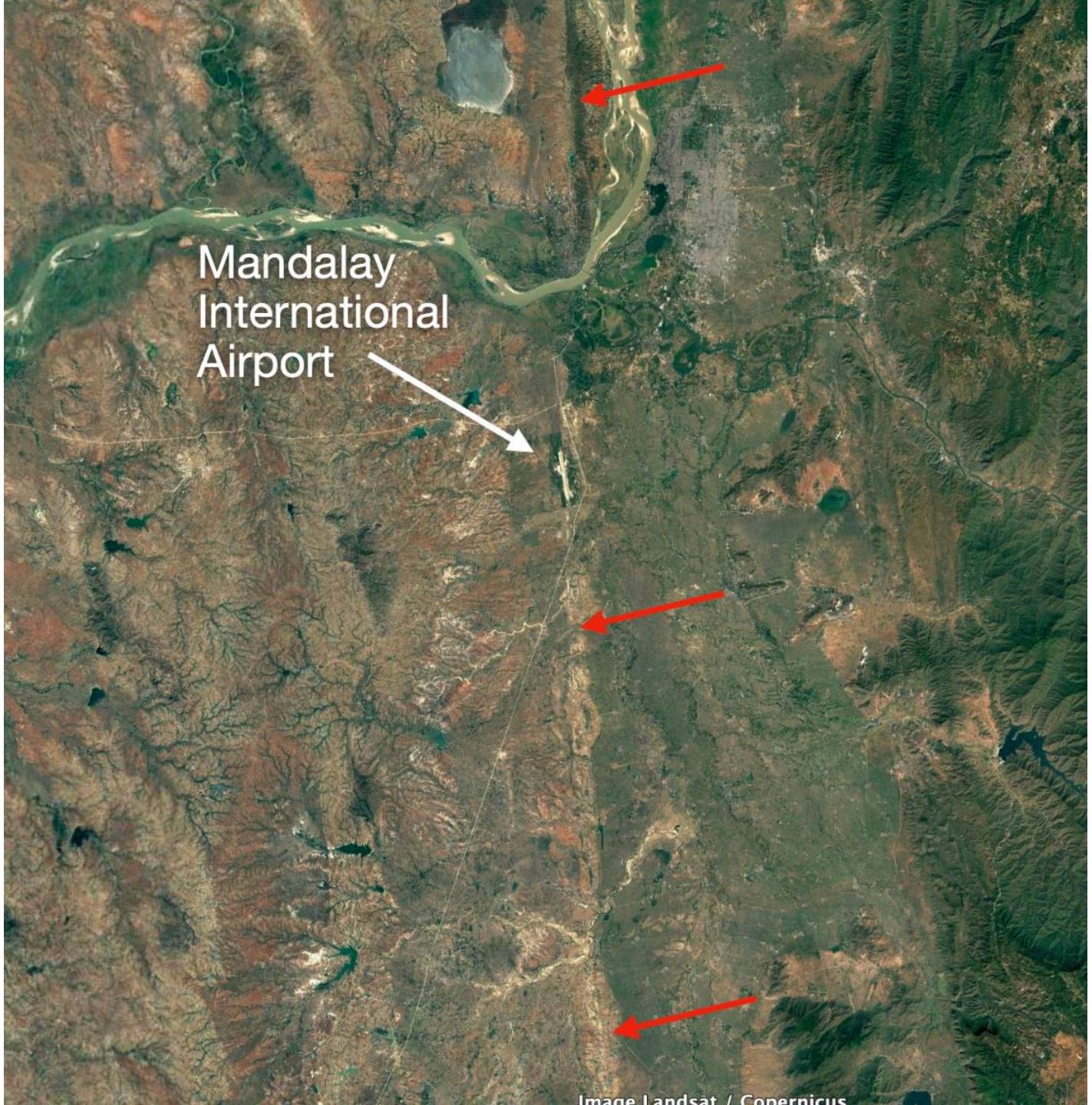


Conclusion #1

The steady buildup of strain on the Sagaing Fault is about 2 cm/year.

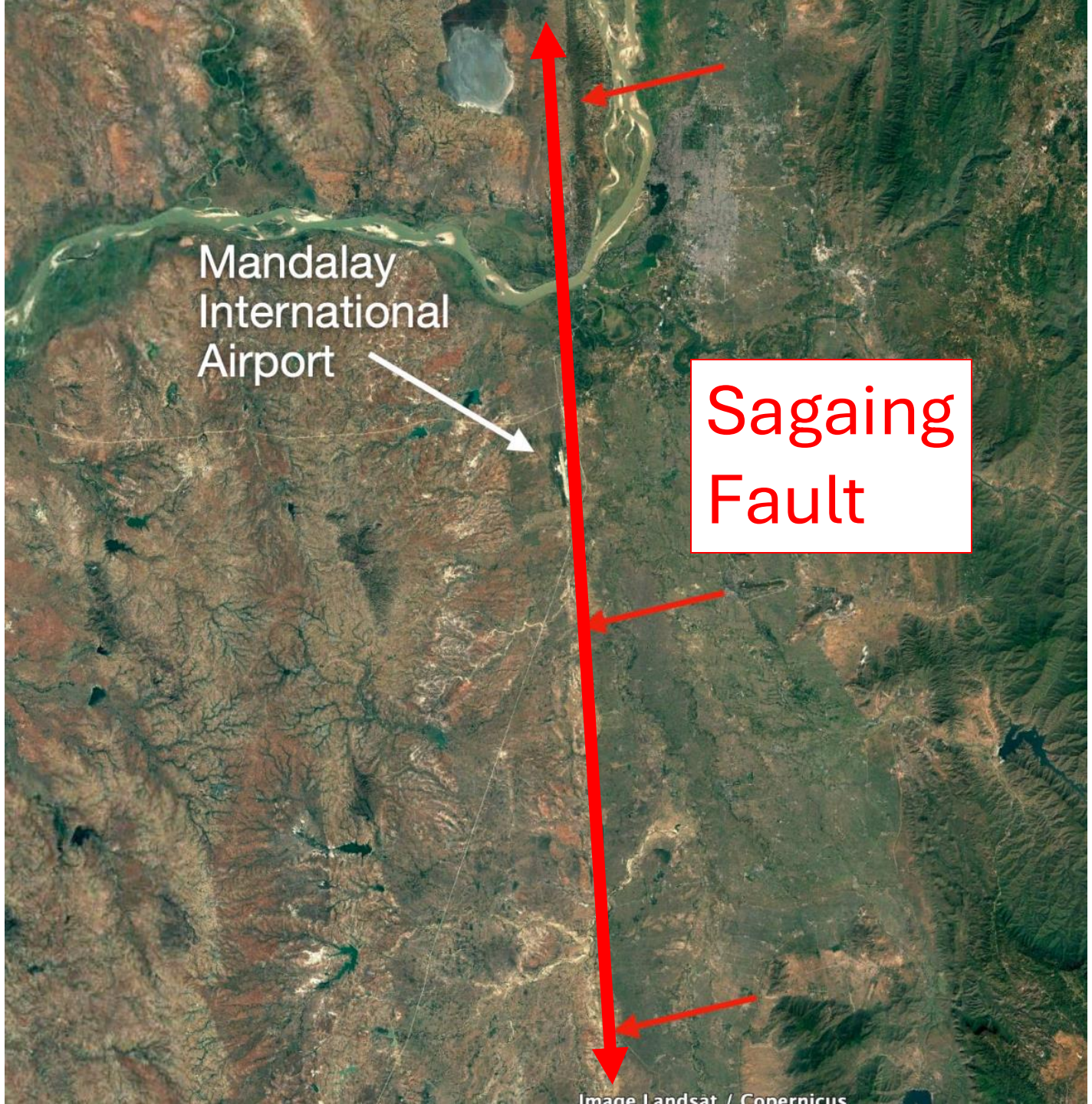
2 cm X 200 years = 400 cm = 4 m

Enough for M 7.7 earthquake.



Earthquake Insights

Source: Landsat Satellite, USA



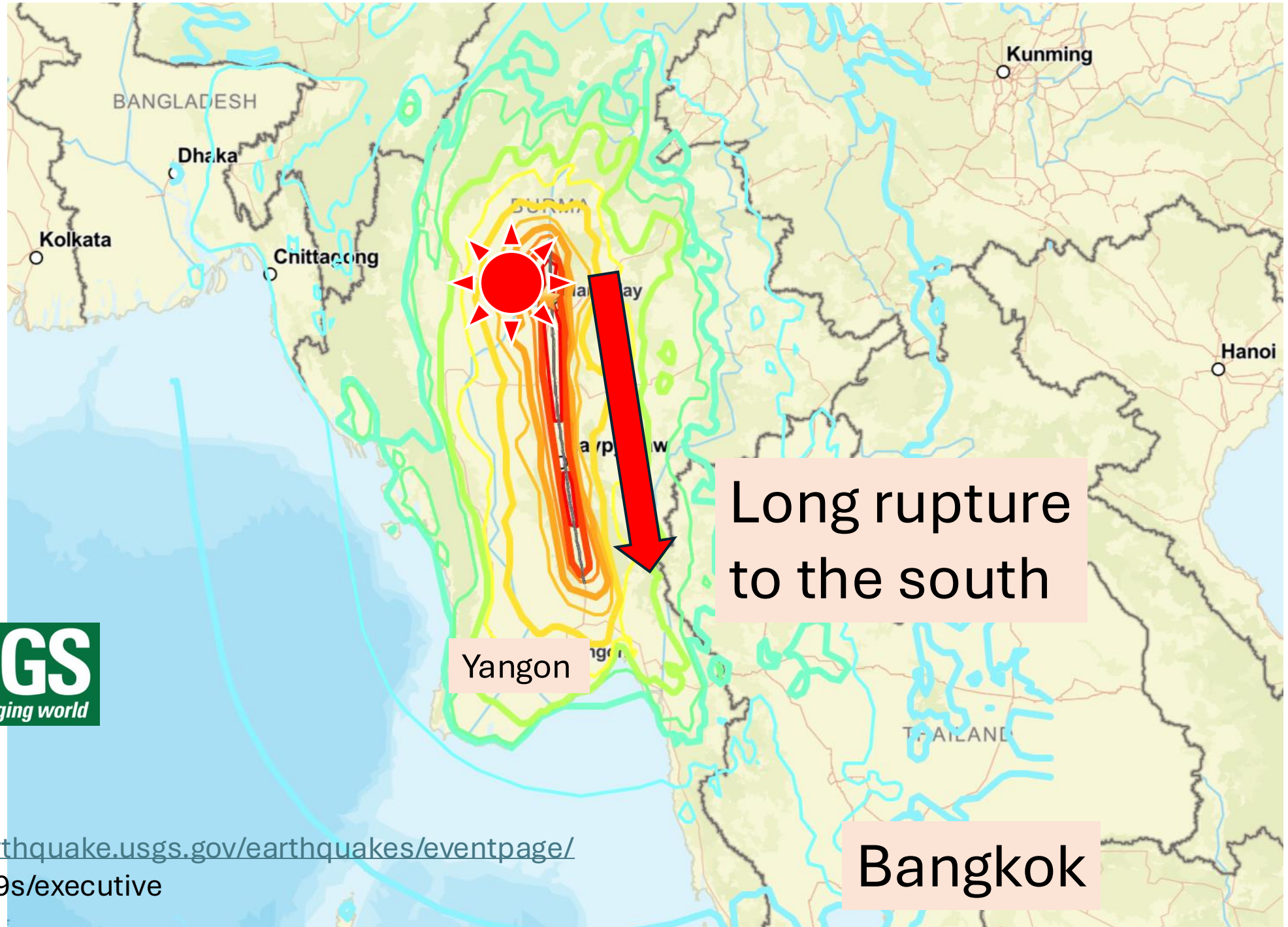
Earthquake Insights

Source: Landsat Satellite (USA)

Conclusion #2

The cause of this earthquake
is well understood.

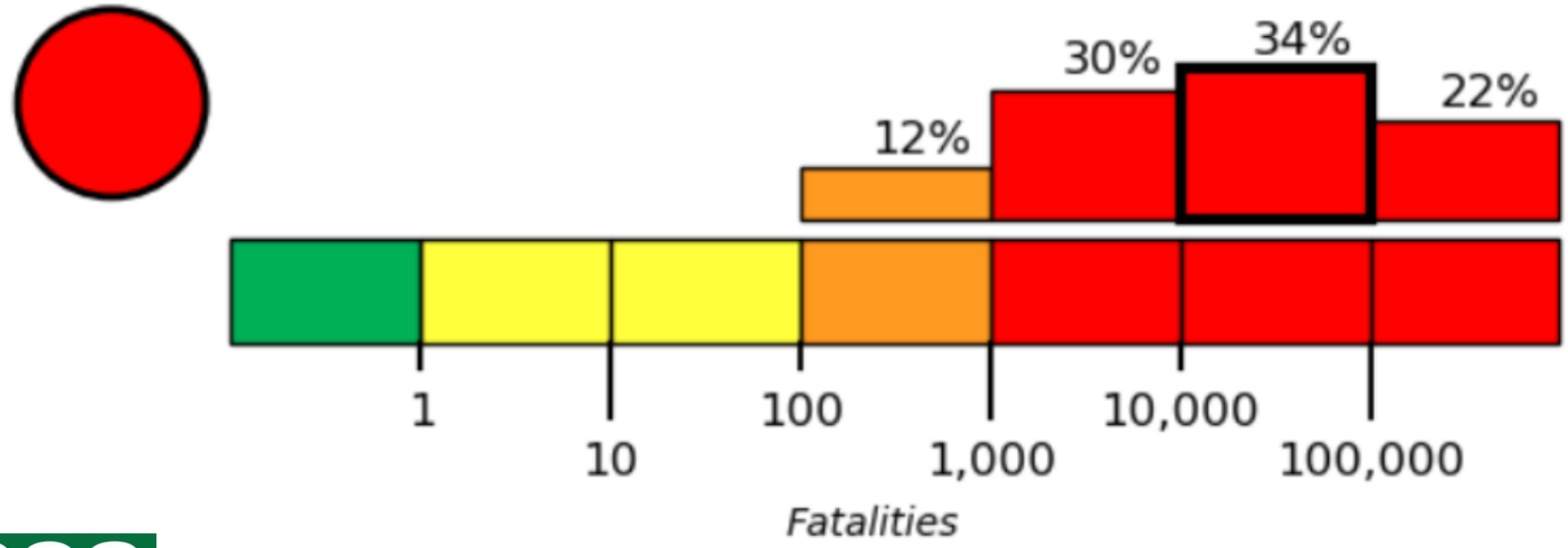
The hazard posed by the
central Sagaing fault
has long been known to
Earth Scientists and was widely reported.



https://earthquake.usgs.gov/earthquakes/eventpage/us7000pn9s/executive

Source:
Euro-Mediterranean
Seismological Centre

Estimated Fatalities



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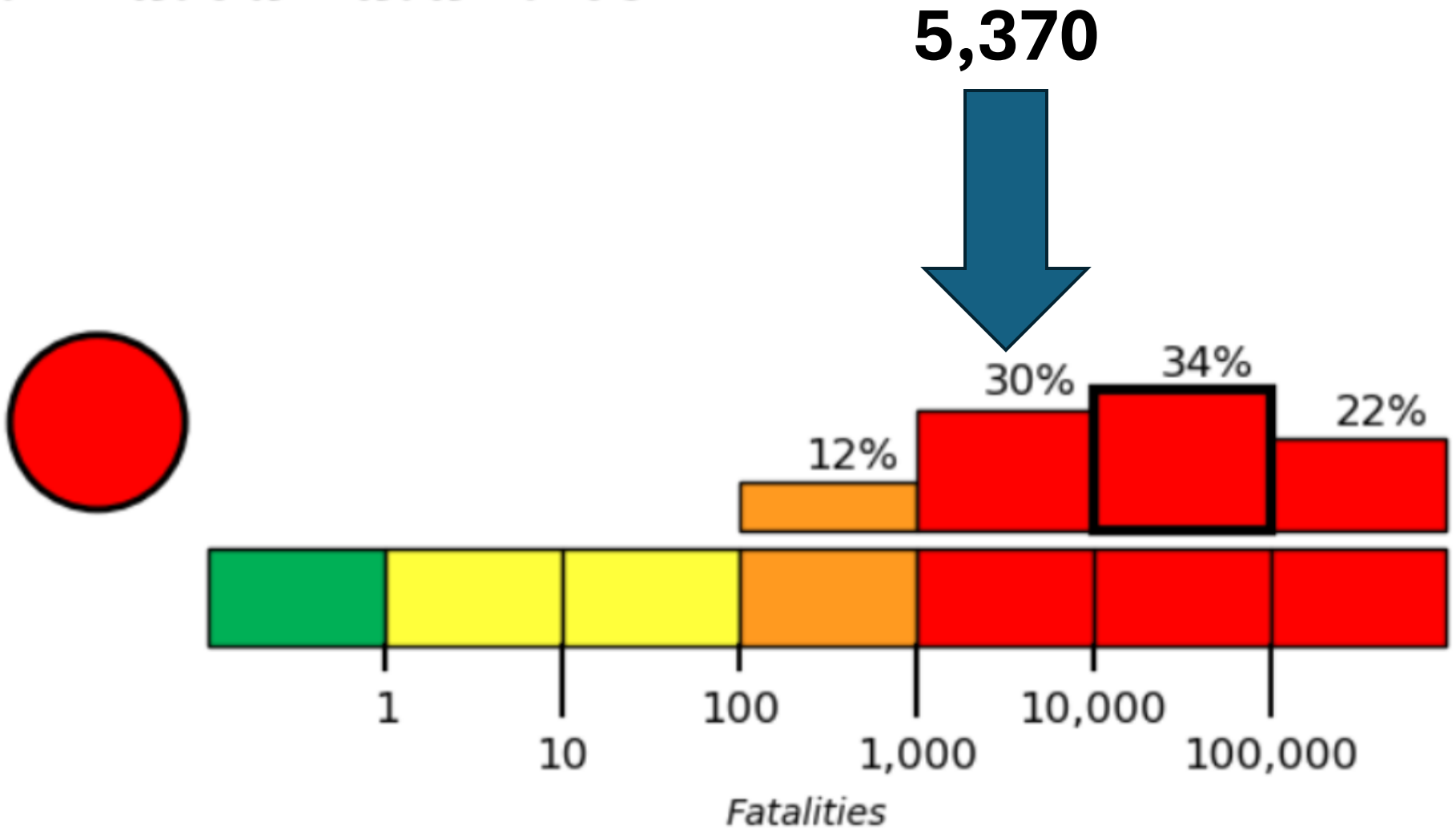
Estimated Fatalities



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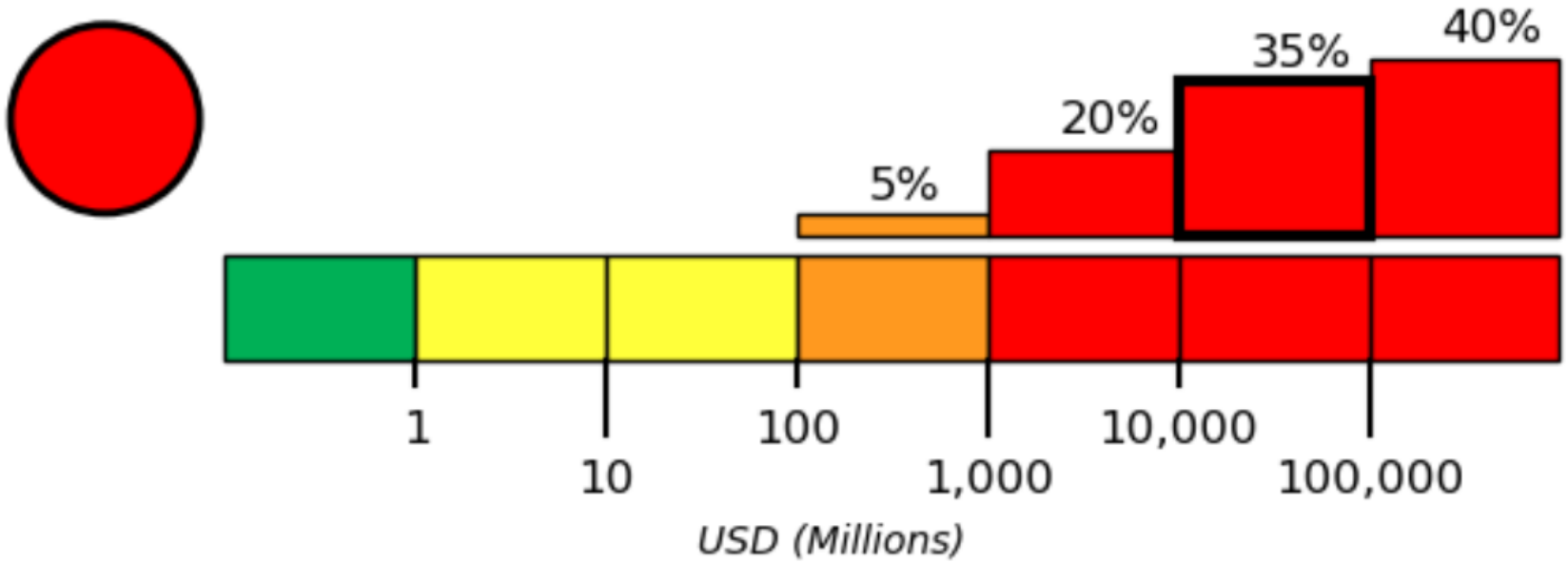
Estimated Economic Losses

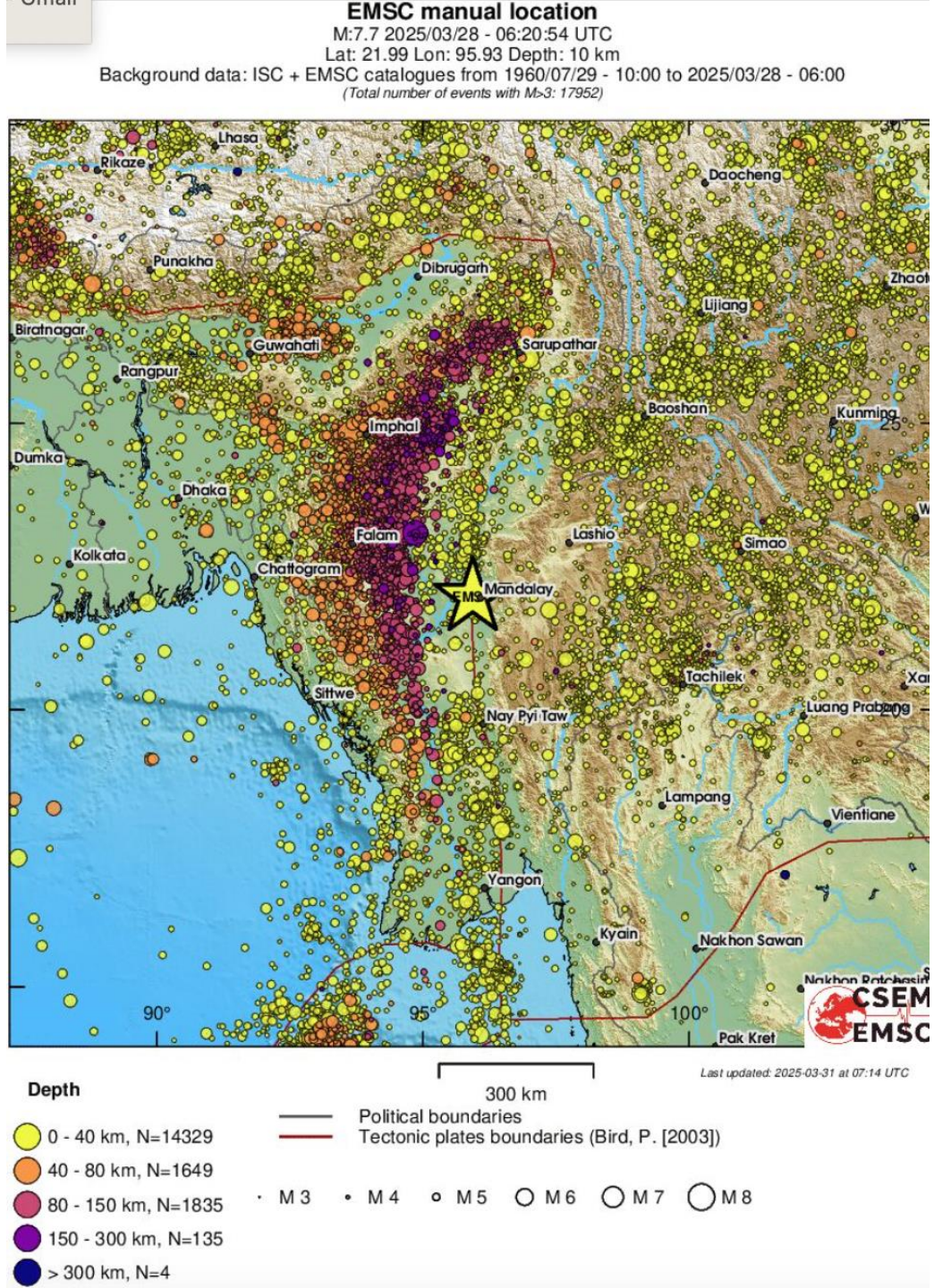


https://earthquake.usgs.gov/earthquakes/eventpage/us7000pn9s/executive

Conclusion #3

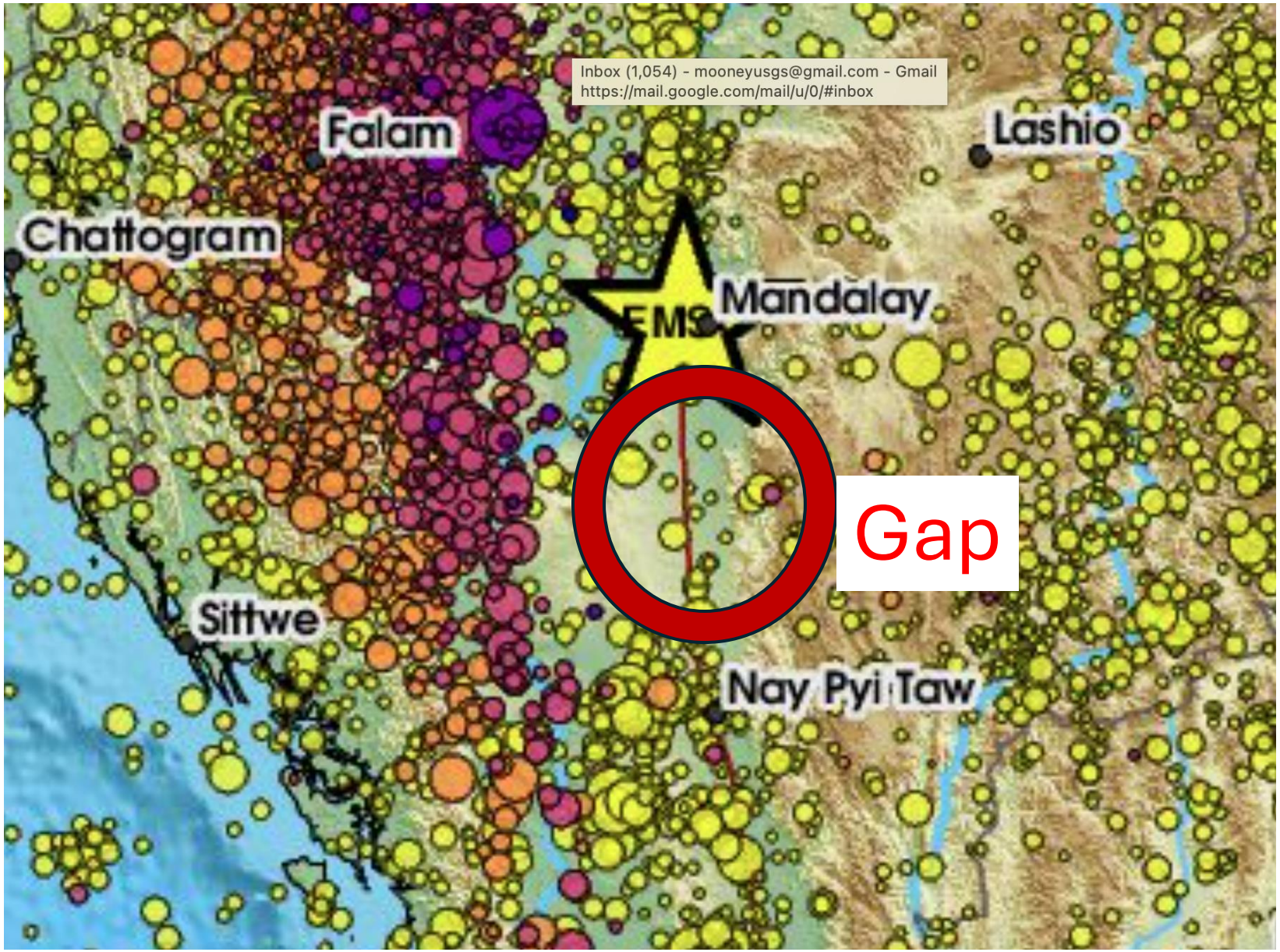
Estimated fatalities (5,370) and economic losses ($10,000 million) may be revised upward in the future.

** Estimates April 29, 2025; Myanmar News

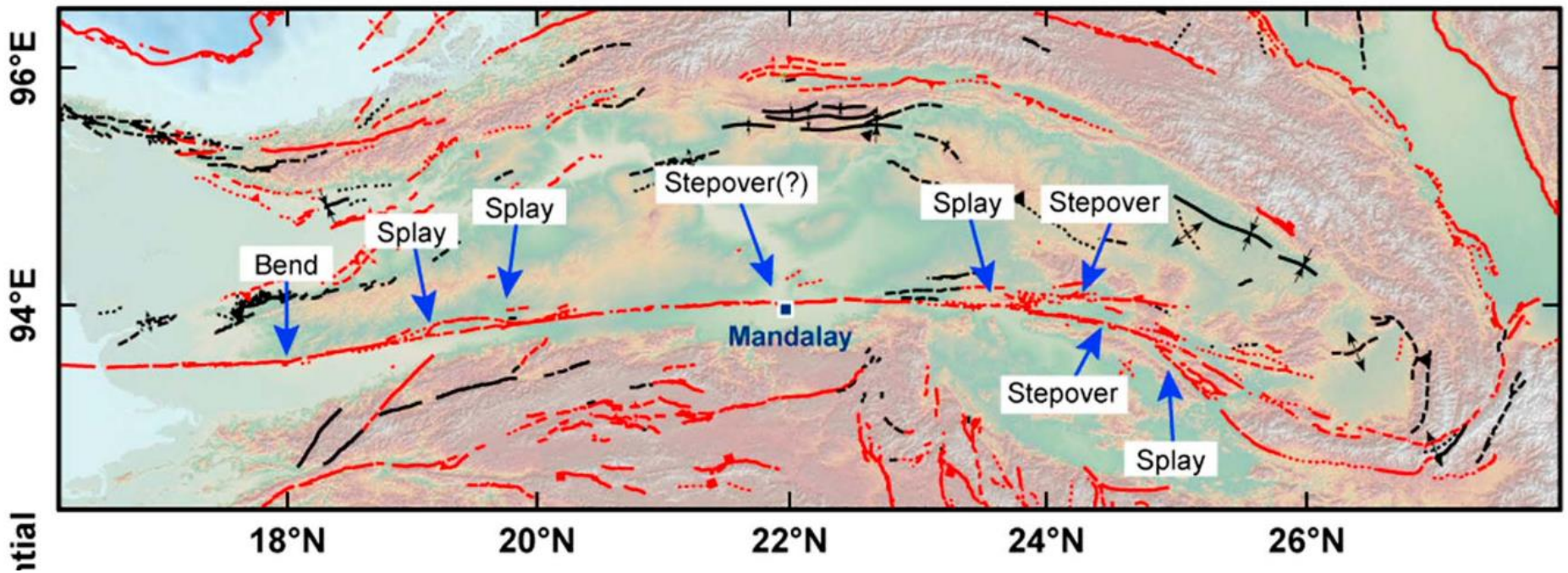


Euro-Meditteranean
Seismological Centre

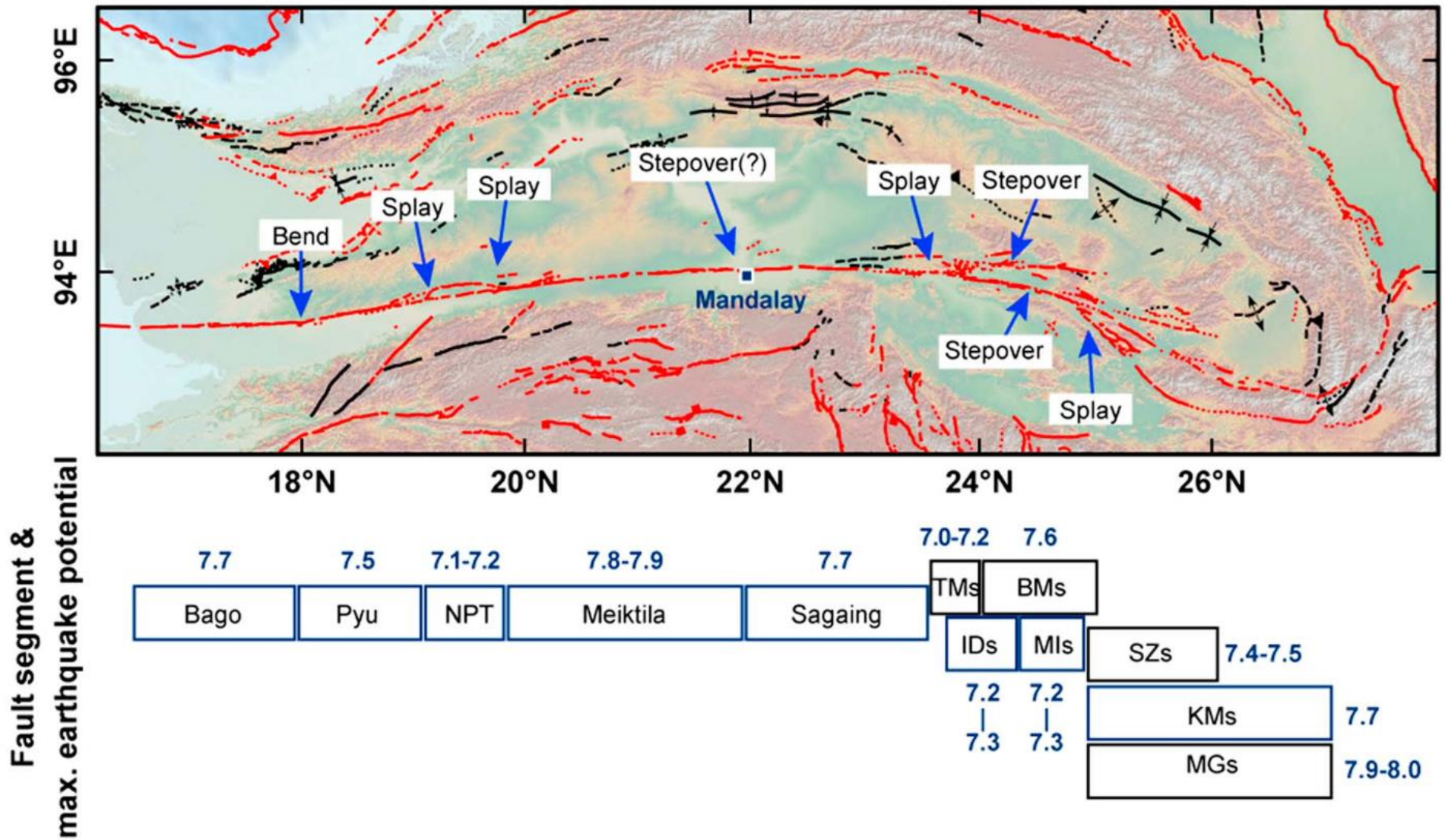
Fault stress
Buildup:
Few earthquakes
On central
Sagaign fault
prior to
28 March 2025



Source:
Euro-Mediterranean
Seismological Centre



Wang et al., 2014 Journal of Geophysical Research



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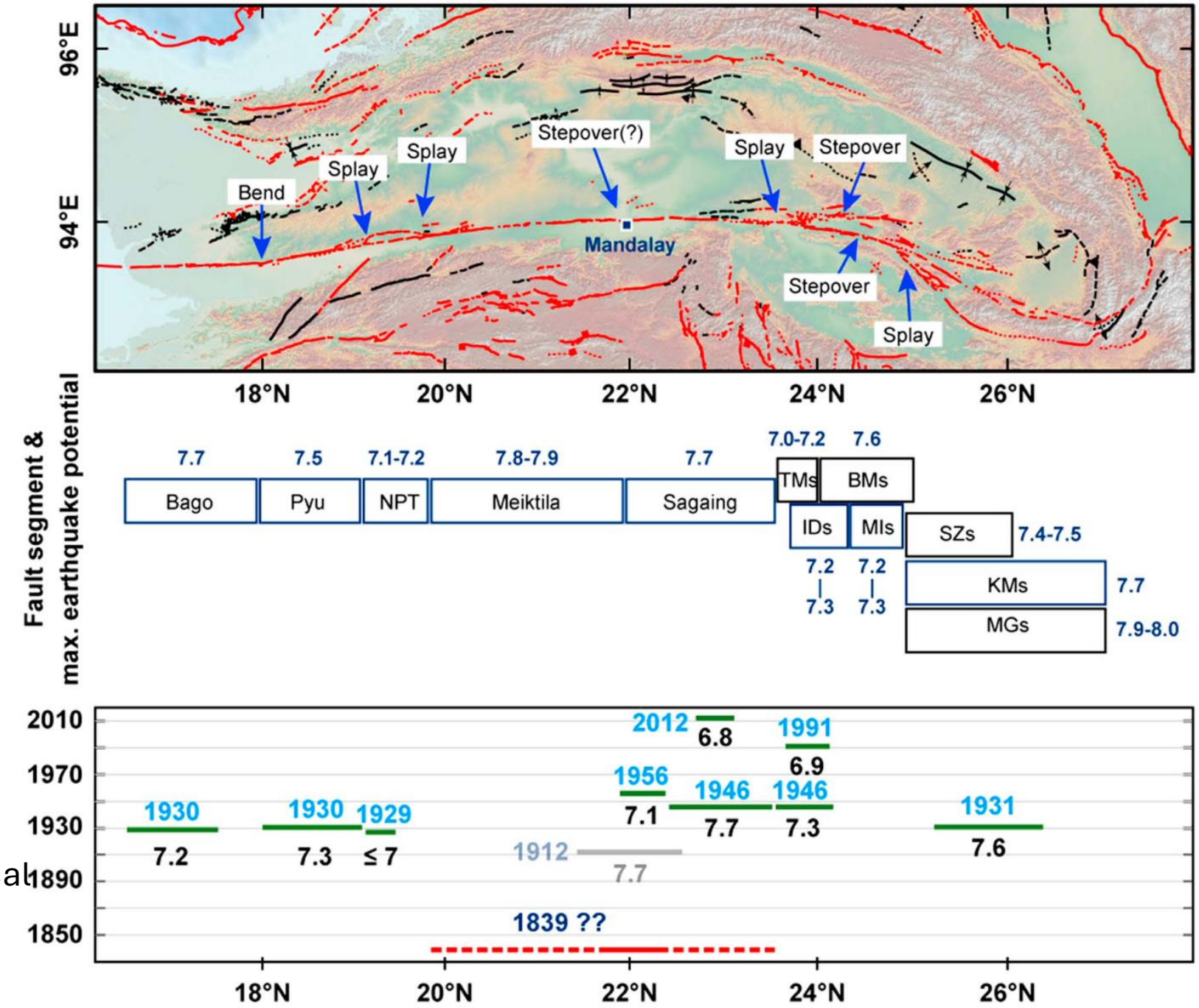

Wang et al., 2014
Journal of Geophysical Research

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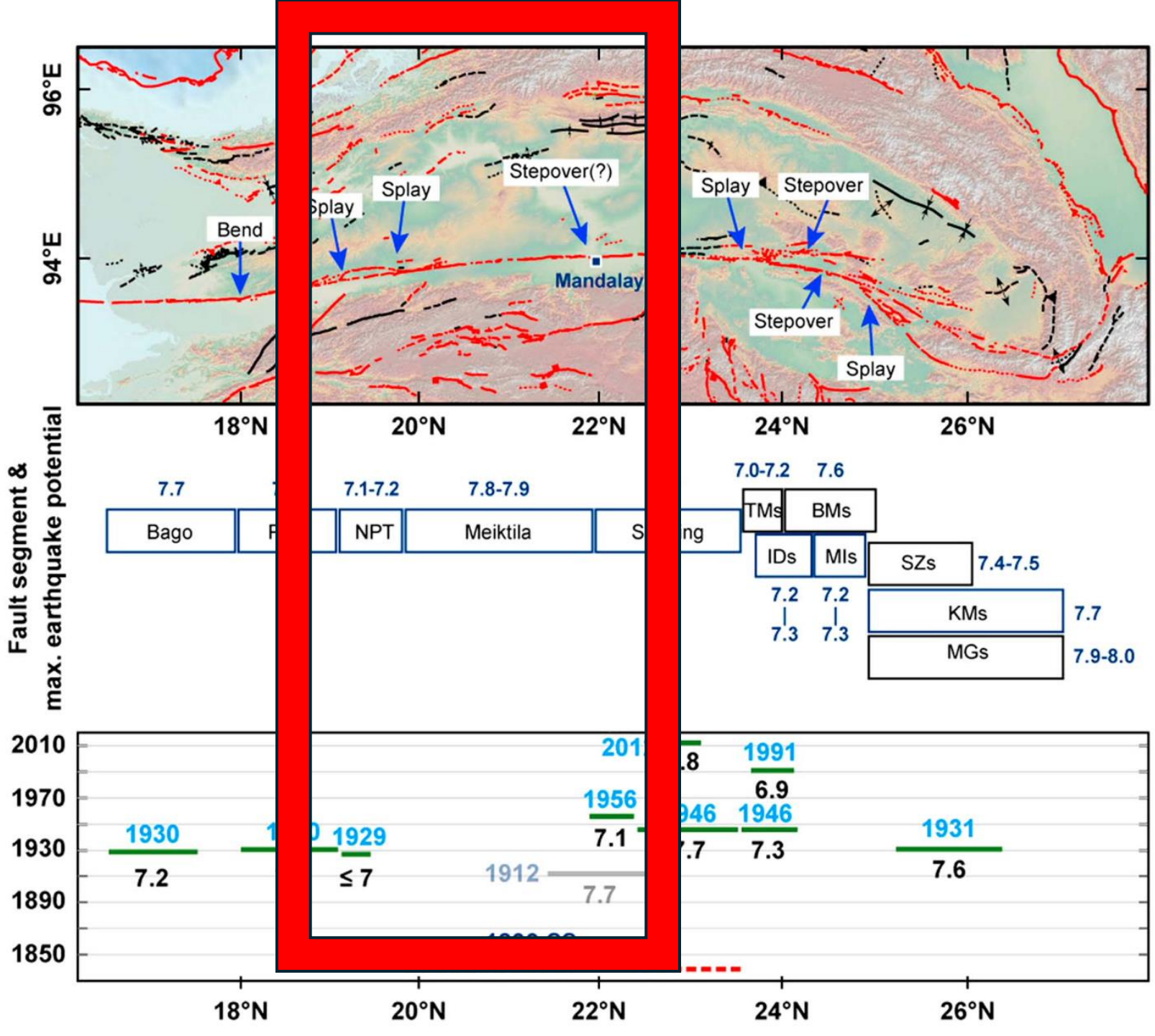
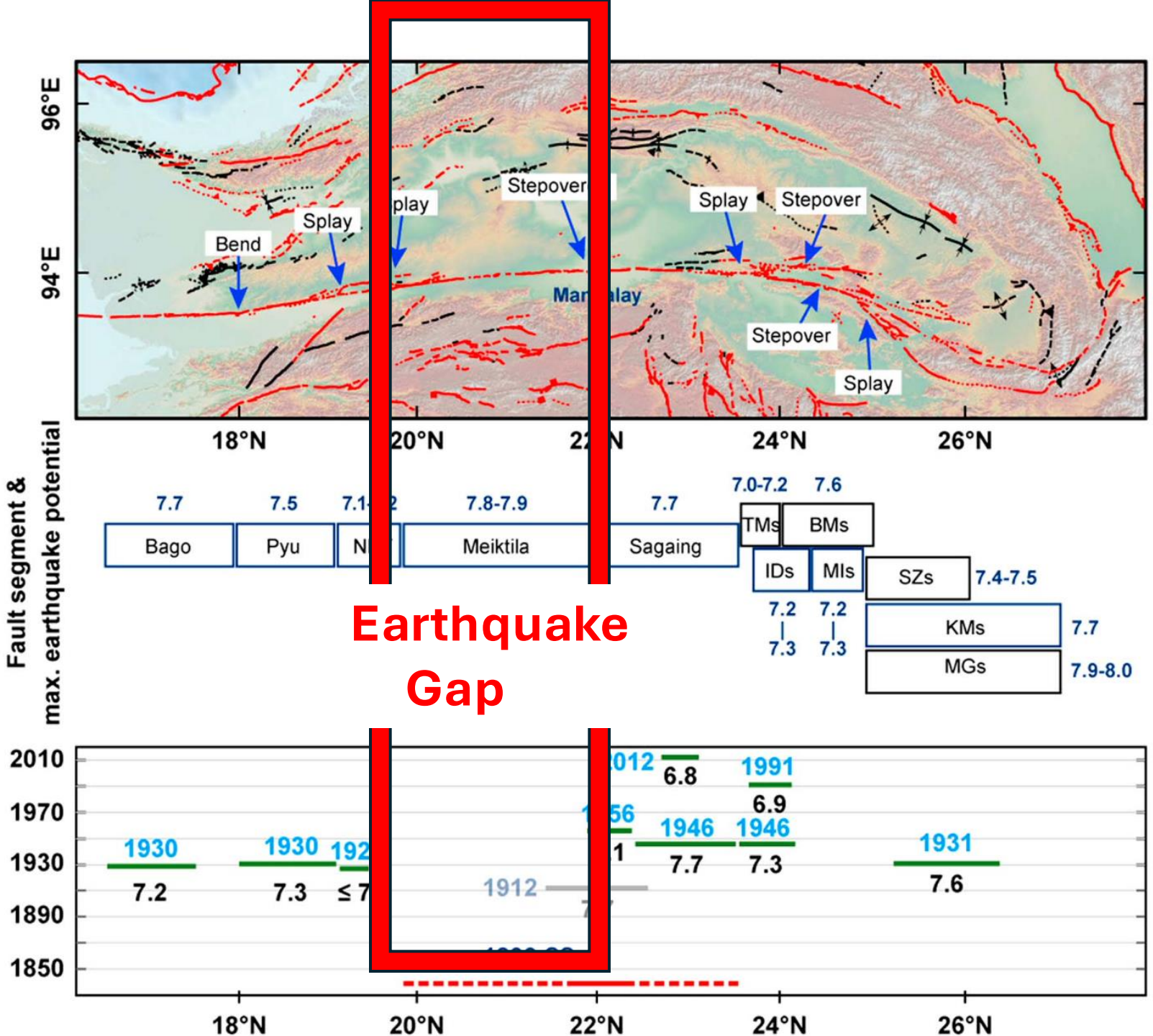




Wang et al., 2014
Journal of Geophysical Research

Conclusion #4

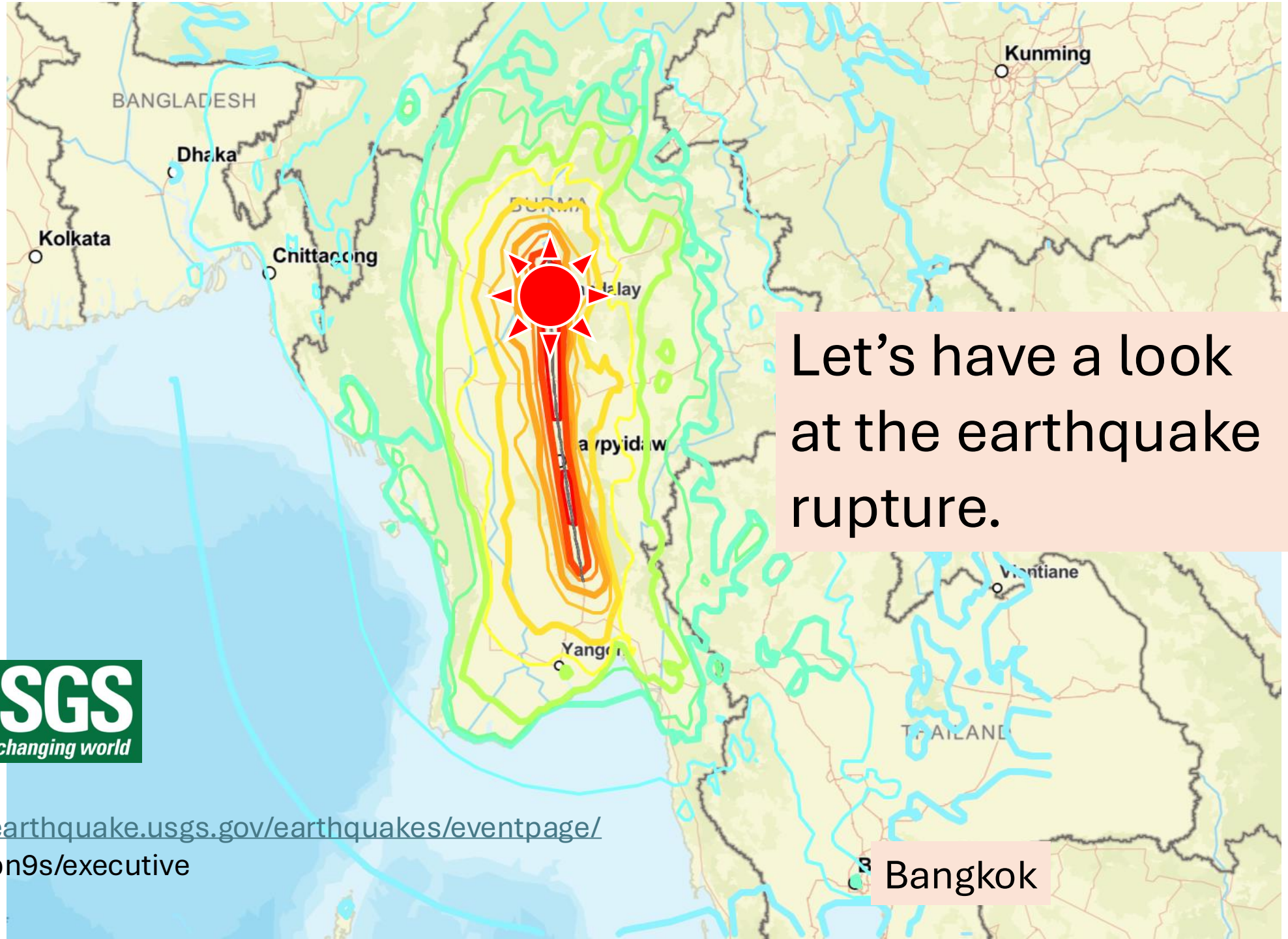
Earthquakes cannot be predicted.

However, earthquake probabilities can calculated from scientific data.

Conclusion #5

Wang et al (2014) correctly forecast the long-term probability of a future magnitude 7.8-7.9 on the central Sagaing fault.

Wang, Yu, Seih, K., et al, (2014), Journal of Geophysical Research, V 119, doi:10.1002/2013JB010762



https://earthquake.usgs.gov/earthquakes/eventpage/us7000pn9s/executive

Looking into the Earth, like a slice of cake

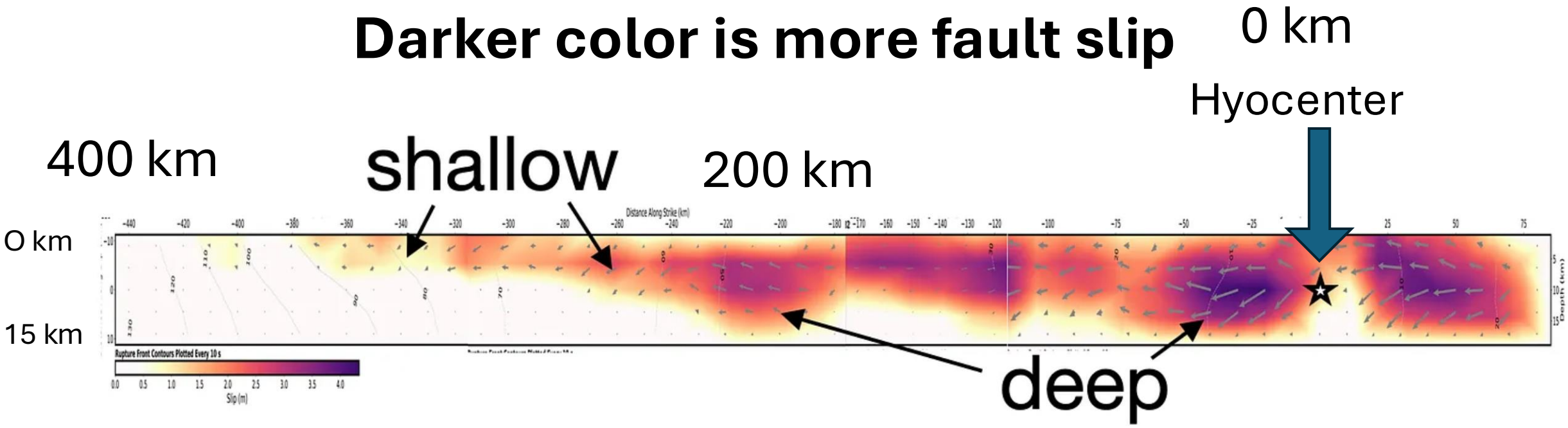
Looking into the Earth, like a slice of cake

The surface of the fault that moved during the earthquake.

This is a picture of the fault surface,

Like a slice of cake.

Darker color is more fault slip



maximum 4.5 meters

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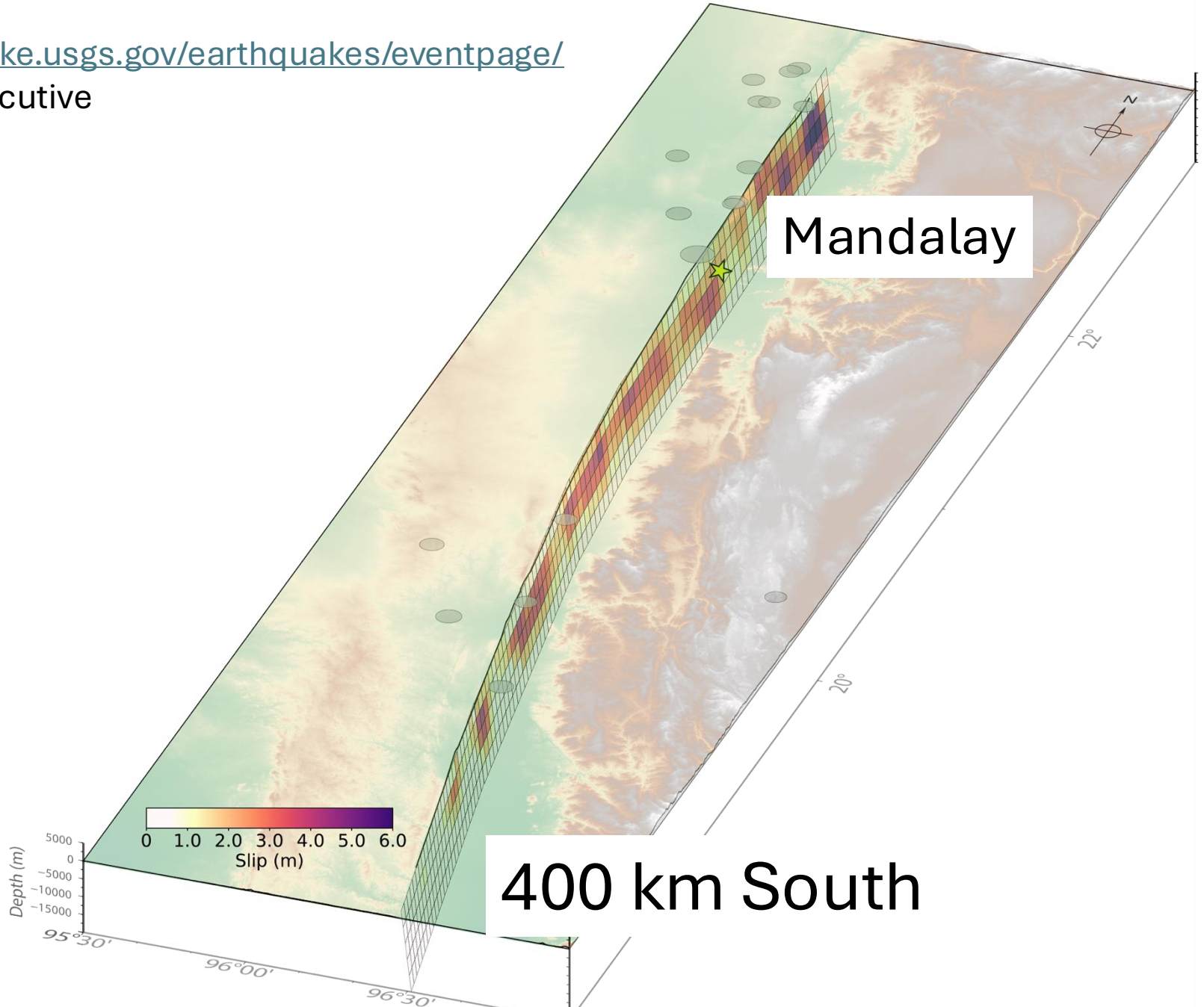

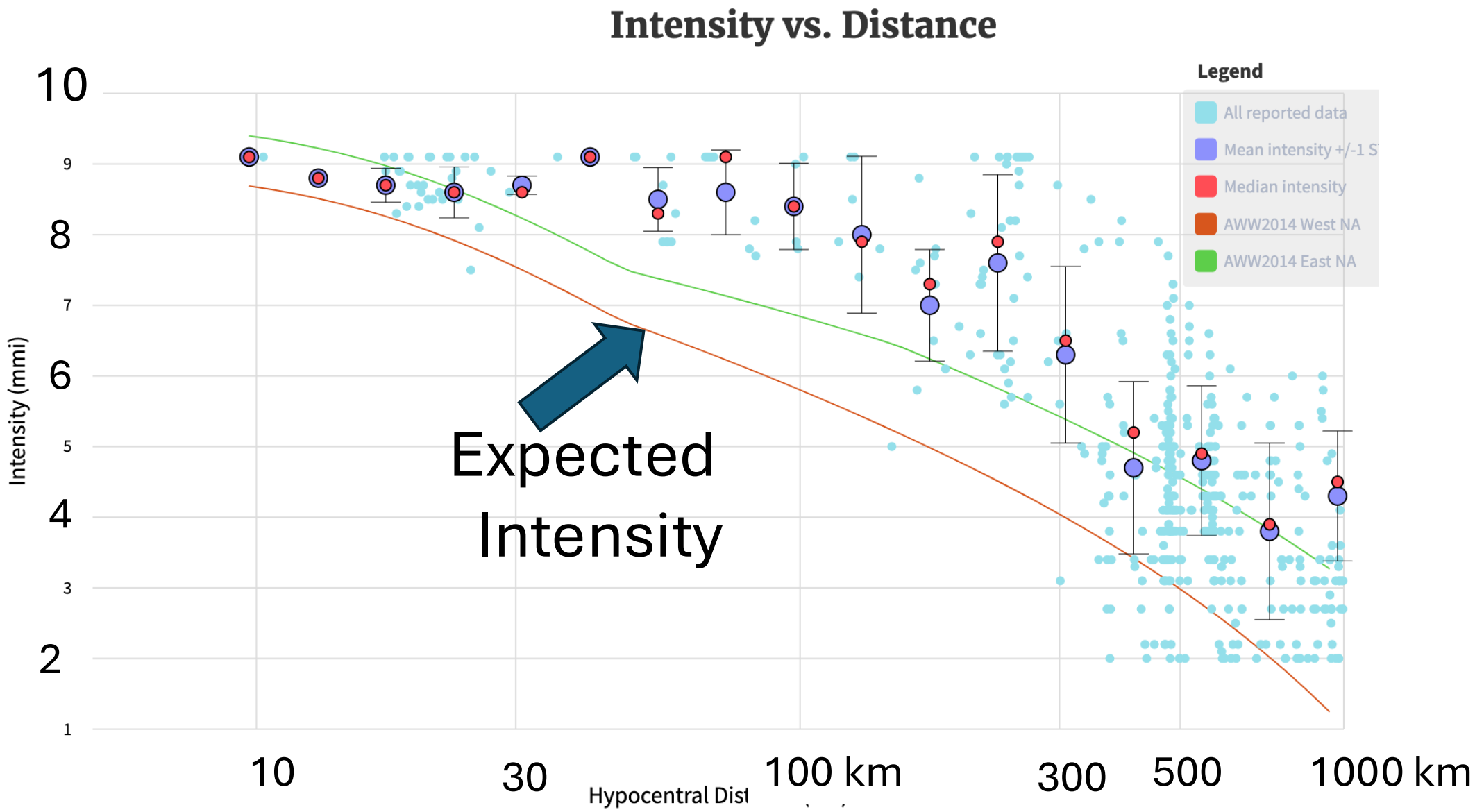

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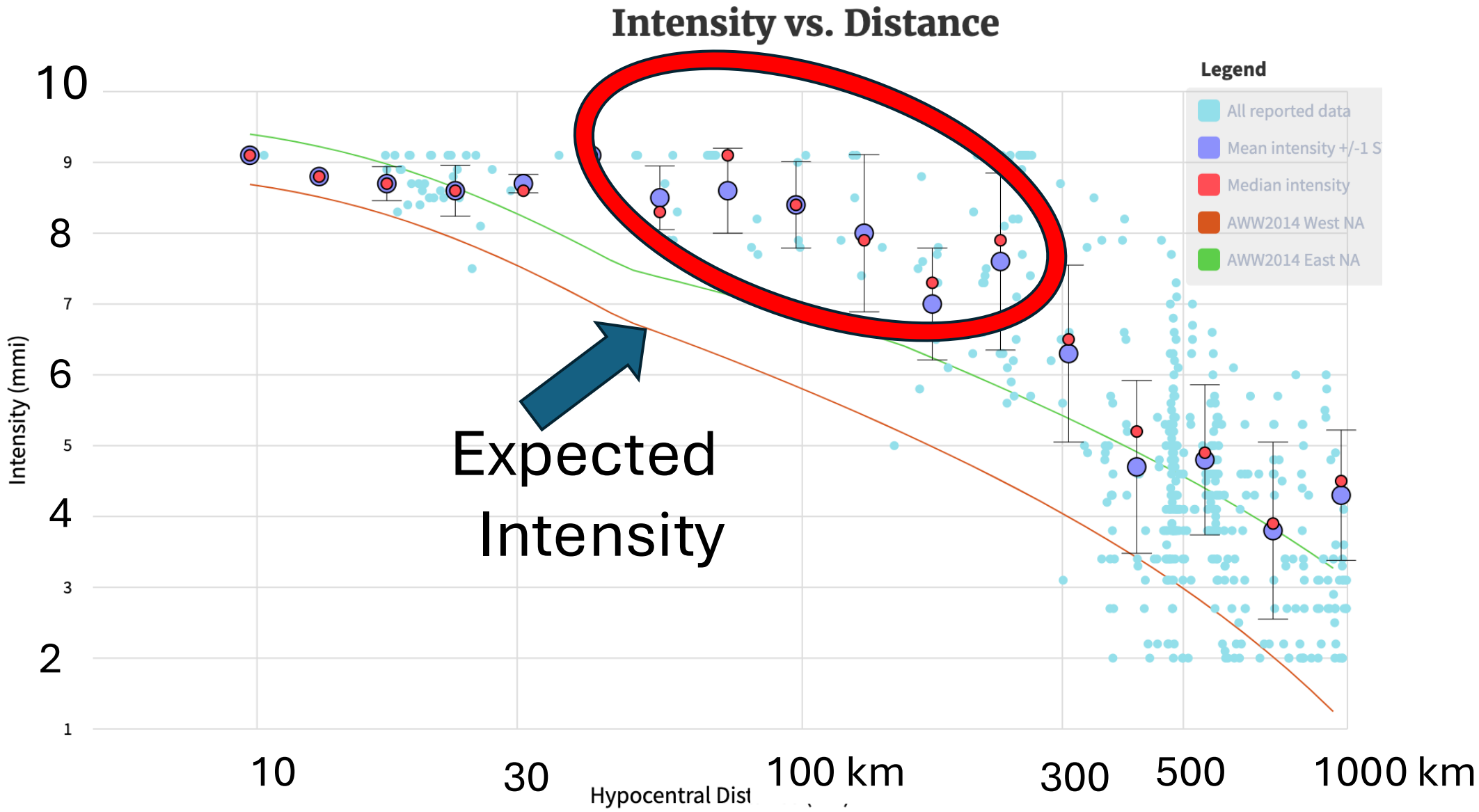

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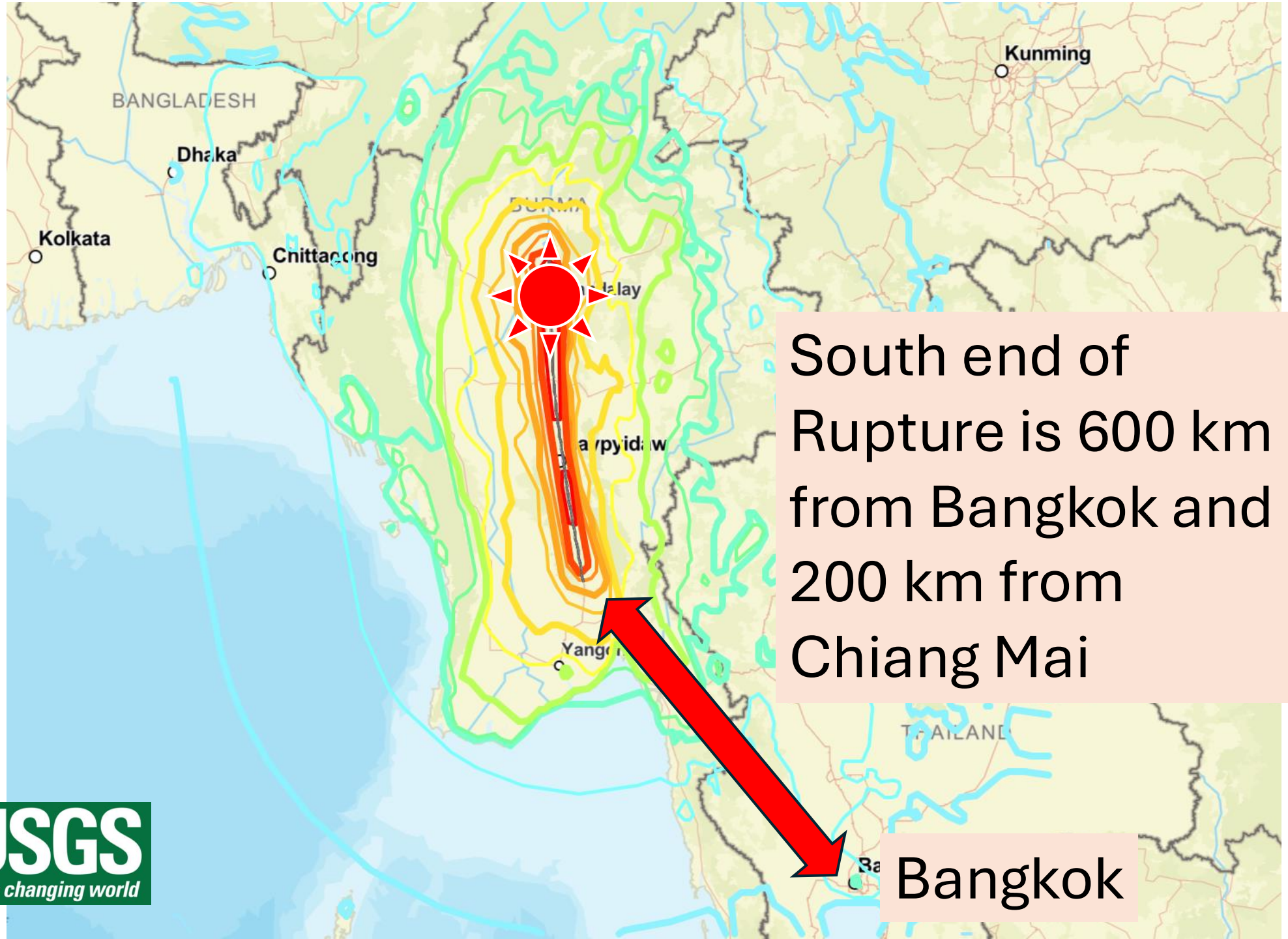
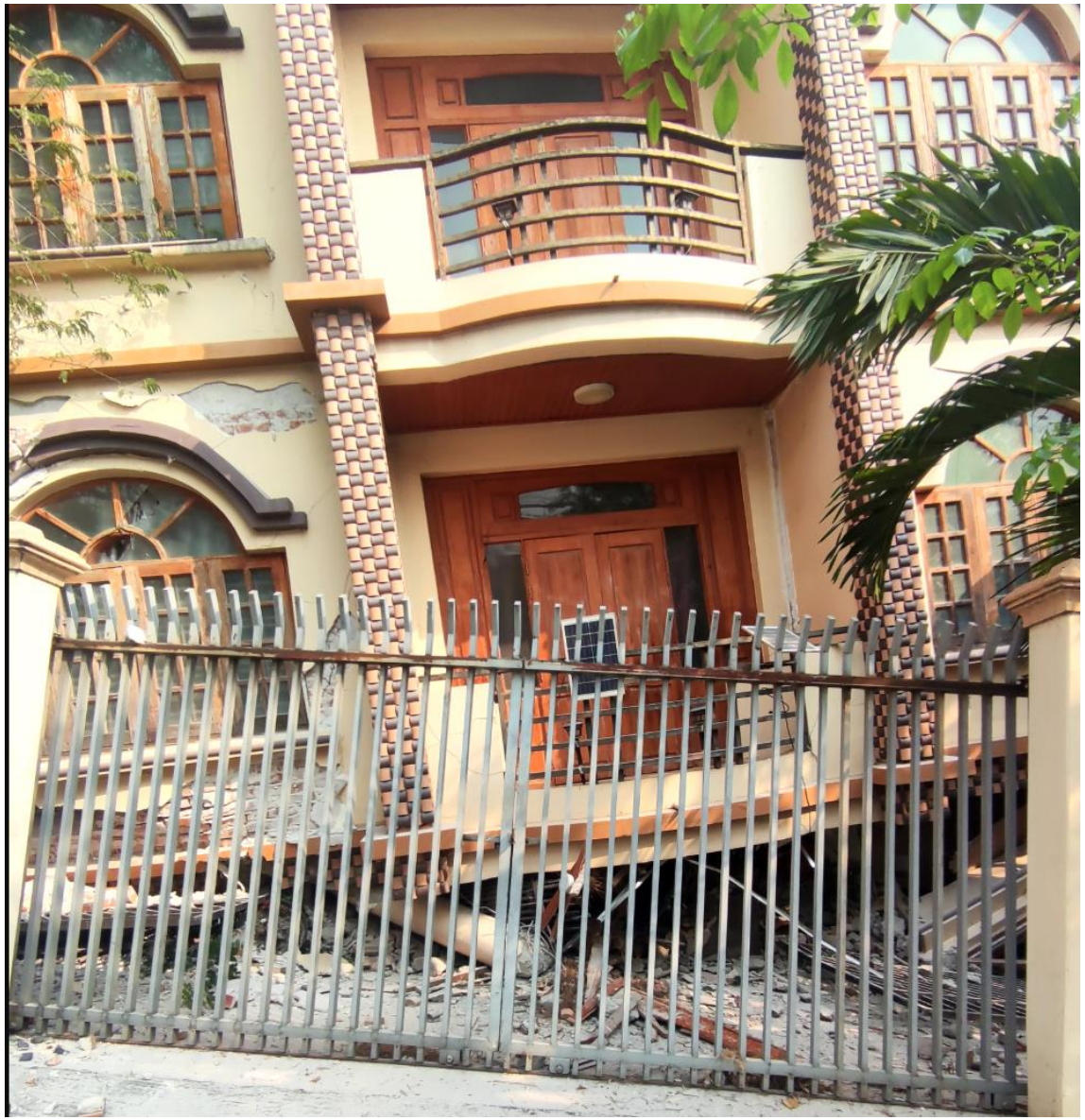

BANGLADESH
Dhaka
Kolkata
Chittagong
Kunming
South end of Rupture is 600 km from Bangkok and 200 km from Chiang Mai
Bangkok

Source:
Euro-Mediterranean
Seismological Centre



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Euro-Mediterranean
Seismological Centre

The End. Questions?

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