

A map of the southern Philippines, specifically the Autonomous Region in Muslim Mindanao (BARMM), showing seismic activity. The map features a grid of cities and towns, with numerous small orange dots representing earthquake epicenters. A large white circle highlights a cluster of dots in the central part of the region. Several major cities are labeled in white: Cotabato, Kidapawan, Davao, Tacurong, and Digos. A red L-shaped graphic is located in the top left corner.

FEBRUARY 11, 2020

SHAKING BARMM

Exposing Earthquake- and Tsunami-Prone Areas in ARMM

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MIDNIGHT KILLER

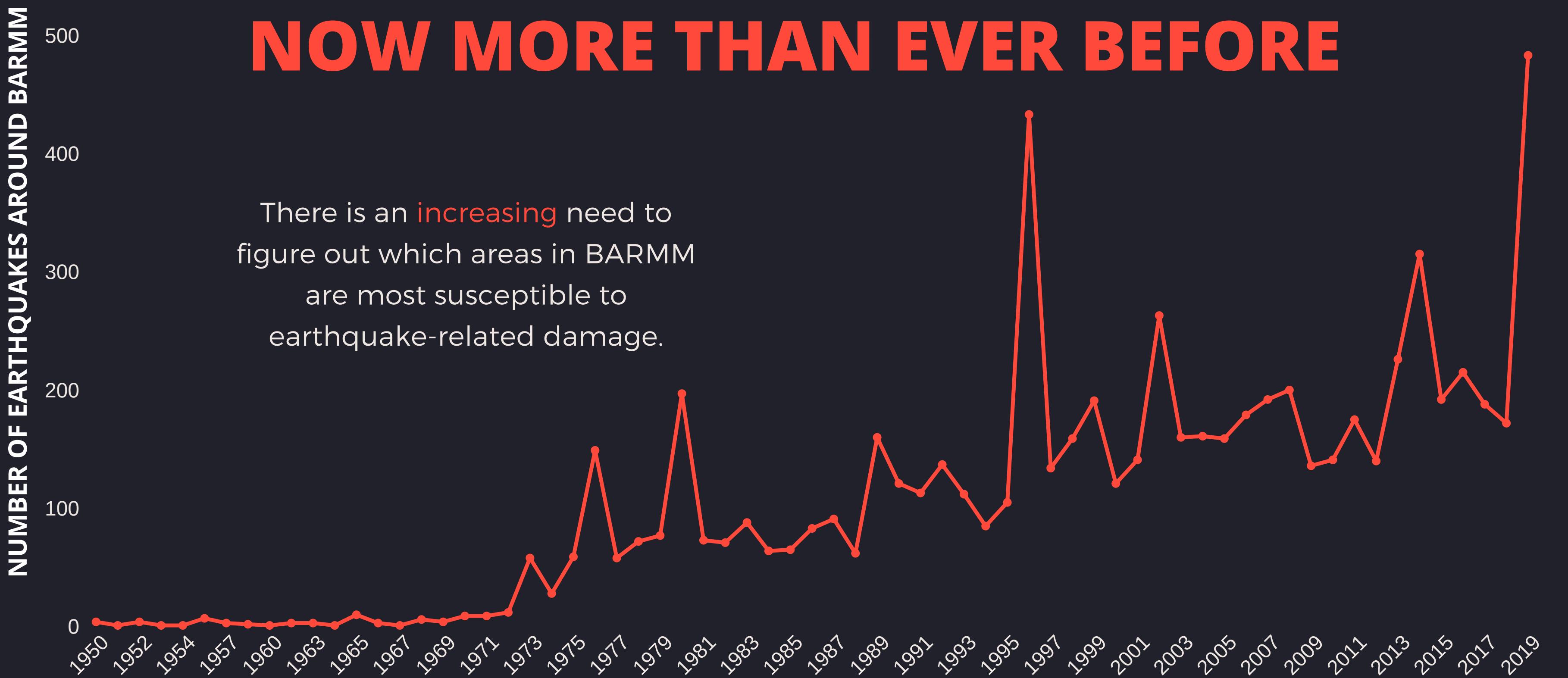
The 1976 Moro Gulf tsunami

Cluster M8 earthquakes hit
Moro Gulf and killed 8000
people.

BARMM IS GETTING HIT BY EARTHQUAKES

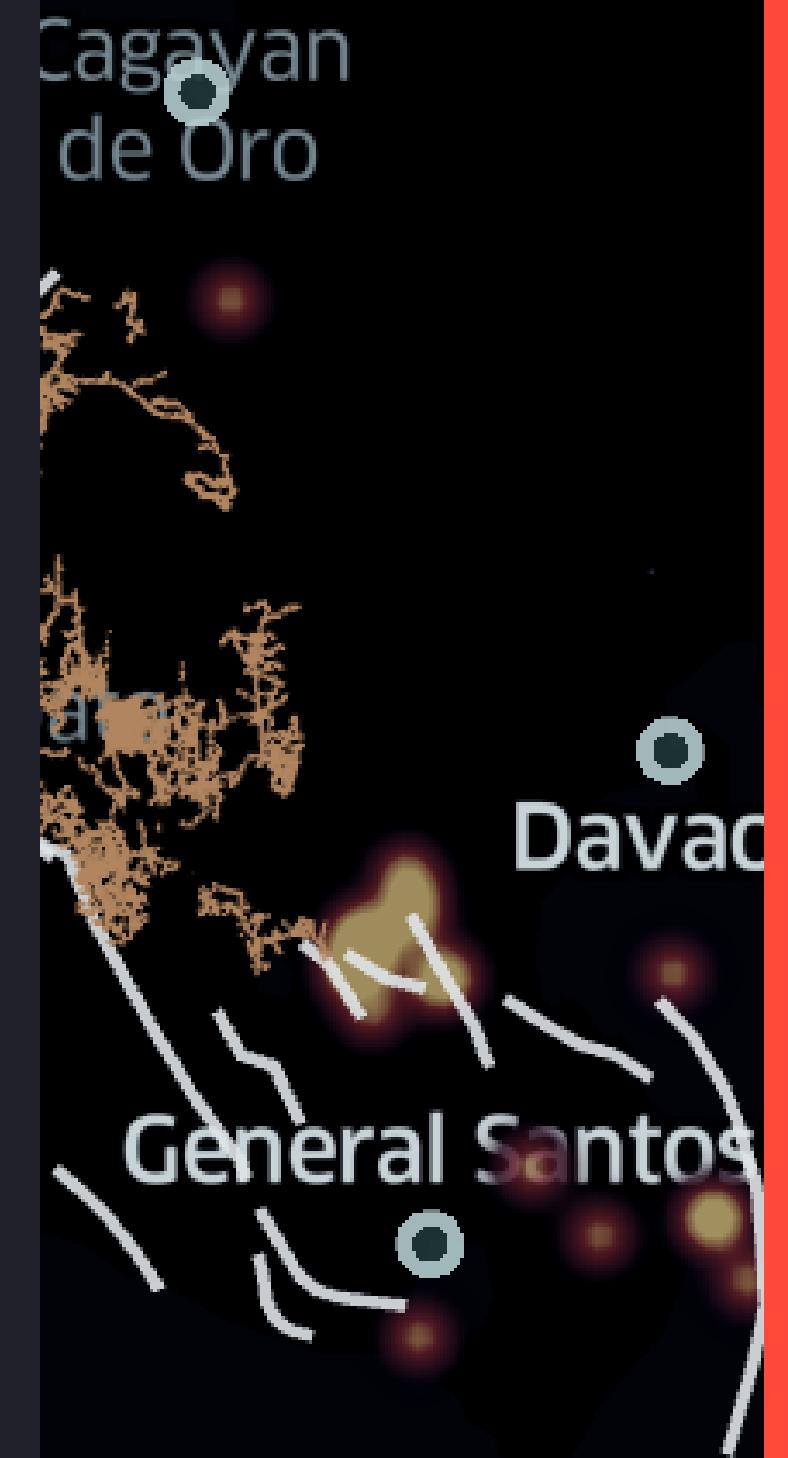
NOW MORE THAN EVER BEFORE

There is an **increasing** need to figure out which areas in BARMM are most susceptible to earthquake-related damage.



Expose potential
**locations of highest
damage from
earthquakes and
tsunamis.**

OBJECTIVE



HOW DO WE DO IT?

DATA SOURCES

OpenBangsamoro
PHIVOLCS
USGS
PSA

DATA PREPARATION

Google Colab
geopandas

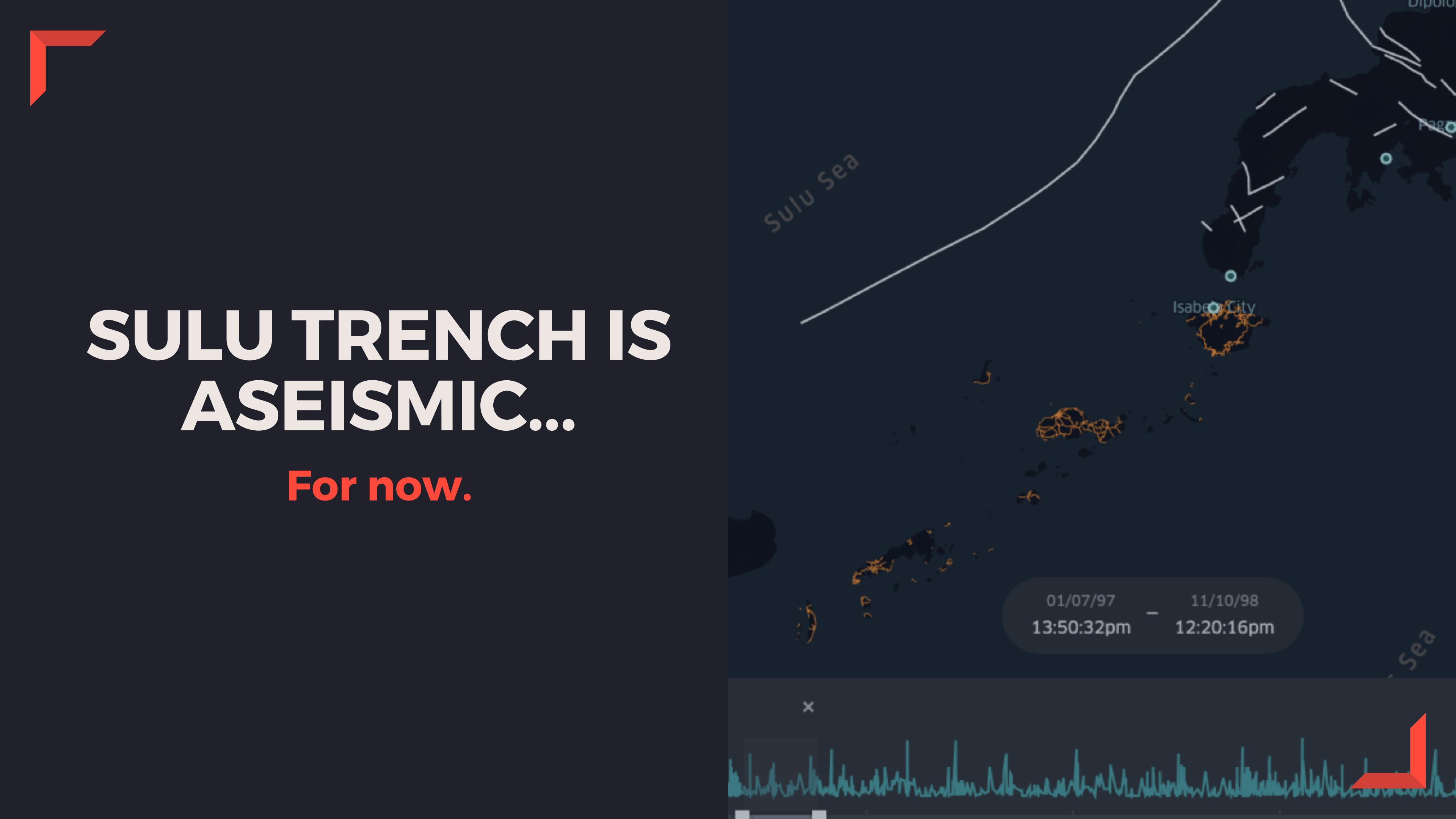
DATA VISUALIZATION

matplotlib
geopandas

DEPLOYMENT

Kepler

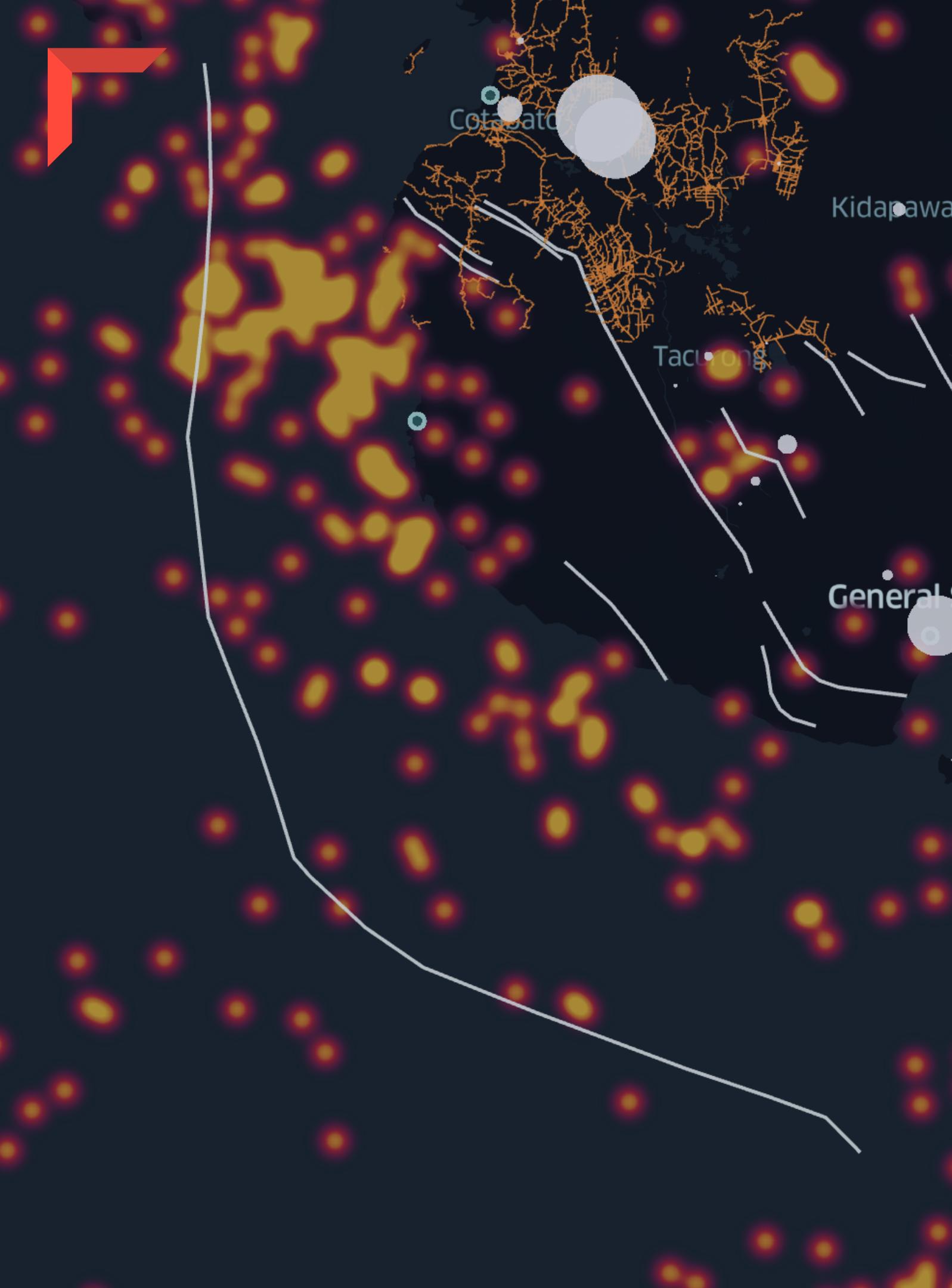




SULU TRENCH IS ASEISMIC...

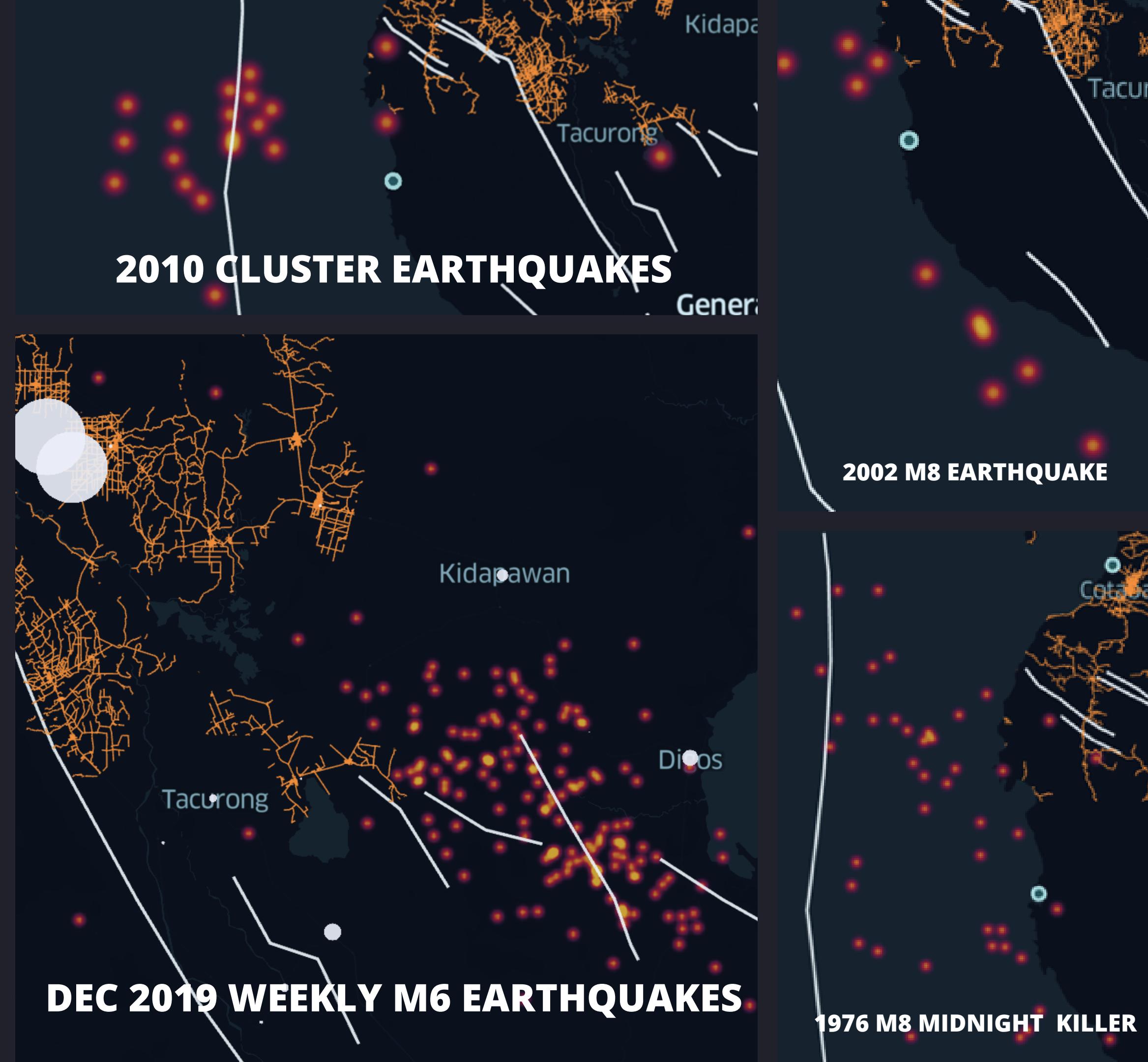
For now.

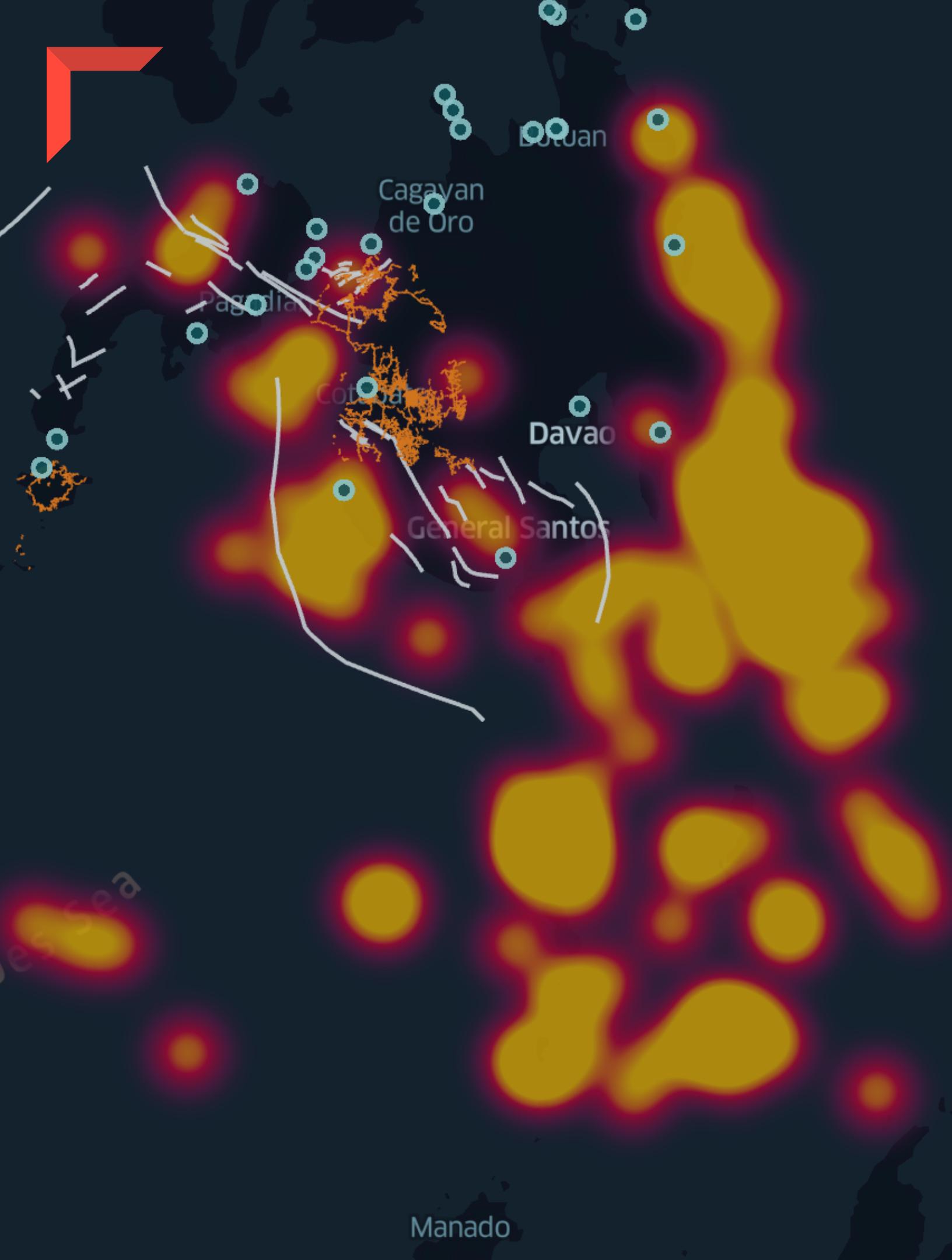
01/07/97 - 11/10/98
13:50:32pm - 12:20:16pm



COTABATO TRENCH IS
EXTREMELY ACTIVE

NOTABLE HISTORICAL EARTHQUAKES IN BARMM





QUICK INSIGHTS

COTABATO ROAD NETWORKS

Most susceptible to damage, disabling relief efforts all throughout BARMM.

SEAPORT KALAMNSIG, SULTAN KUDARAT

Right in the middle of the most active fault line in BARMM.

BIG ONE

We are long overdue for a big one.

RECOMMENDATIONS



FORTIFY COTABATO

Build quake-resistant infrastructure in the most dense area hit by most number of earthquakes and tsunamis.



TRACE DISASTER RELIEF ROUTES

Using road networks in the web application to create guides for post-earthquake support.



RELOCATE KALAMANSIG SEAPORT

Putting a seaport along one of the most active faults isn't ideal.



EVACUATE TSUNAMI-PRONE AREAS

Relocate residents with apparent susceptibility to tsunamis.