California Quaternary Fault Database Update
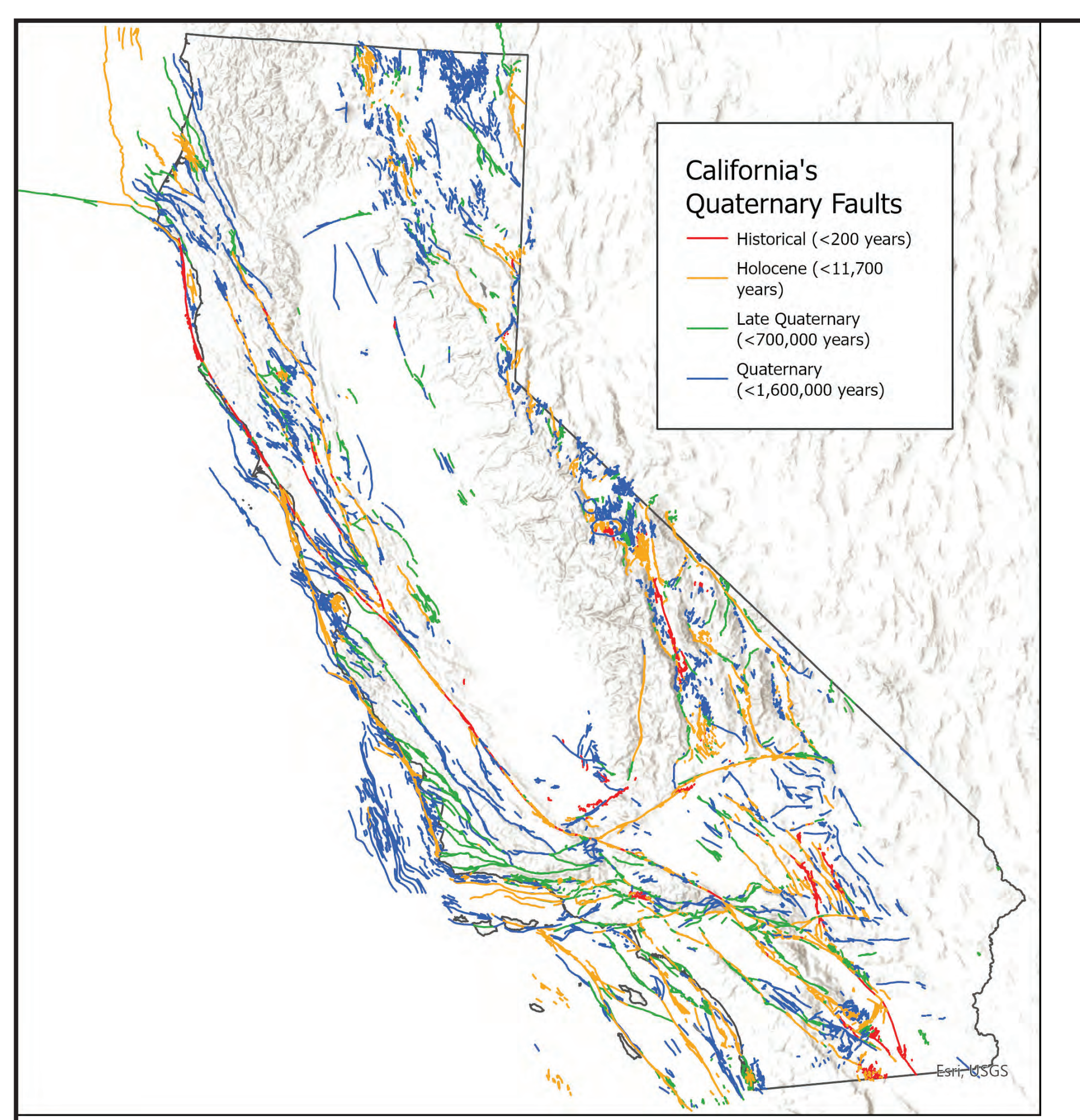
Judith Zachariasen, Meerea Kang, Rob Wurgler
California Geological Survey

California Department of Conservation — California Geological Survey

ABSTRACT

The California Geological Survey (CGS) is updating the California Quaternary Fault Database (CQFD), revising it from the most current 2017 version. A broad range of end users in the academic, government, and consulting sectors use this database for a variety of purposes, and maintaining it is important to ensuring that derivative products reflect current understanding of faults in the state. To ensure that the database reflects the interests of end users, we are soliciting feedback from end users in two areas. First, we are interested in learning what elements of the existing database users value, and if there are additional elements that people would like to see included to provide added value to the product. Second, we would like to encourage people to provide their mapping to contribute to improvement of the database and keeping it current. To this end, we have created a new upload portal, which allows individual researchers to proactively upload new Quaternary fault mapping for consideration for inclusion in the CQFD (https://forms.office.com/g/XsC3WTLCtP). The portal provides a mechanism for people to upload GIS files of mapping along with basic metadata, as well as documentation explaining and supporting the mapping. By use of the portal, we hope to facilitate more frequent updates of the database as well as ensure that we are aware of relevant new mapping. Please help us make the California Quaternary Fault Database a valuable and current database for future fault-related investigations.

California's Quaternary Faults
- Historical (<200 years)
- Holocene (<11,700 years)
- Late Quaternary (<700,000 years)
- Quaternary (<1,600,000 years)

WHO DOESN'T LOVE QFAULTS!

WHAT WE'RE DOING

CGS is updating and revising the Qfault database for inclusion in the national database and for end users in California. Revisions include new and revised mapped faults, new attribute fields, a repository of supseded mapping, and annual updates.

Most important, **CGS will be hosting the database on its website** for easy access to the the most current version. Look for it soon at the CGS Information Warehouse.
https://maps.conservation.ca.gov/cgs/informationwarehouse/

CGS Information Warehouse

COMING SOON

Quaternary Fault Database — Web Application

Earthquake Zones of Required Investigation Maps and Reports formerly known as "Regulatory Maps" — Web Application

Alquist-Priolo Site Investigation Reports — Web Application

WHY WE'RE DOING IT: END USERS AND END USES

The Quaternary fault database and map is used by multiple end users to inform a variety of projects. Maintaining a current and comprehensive Quaternary fault database supports these uses.
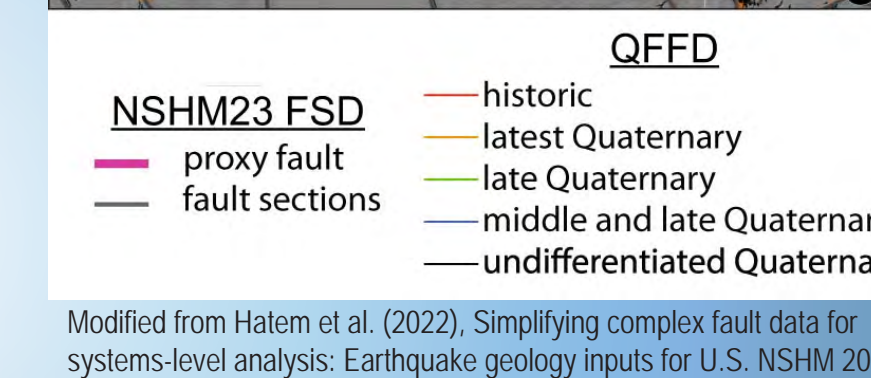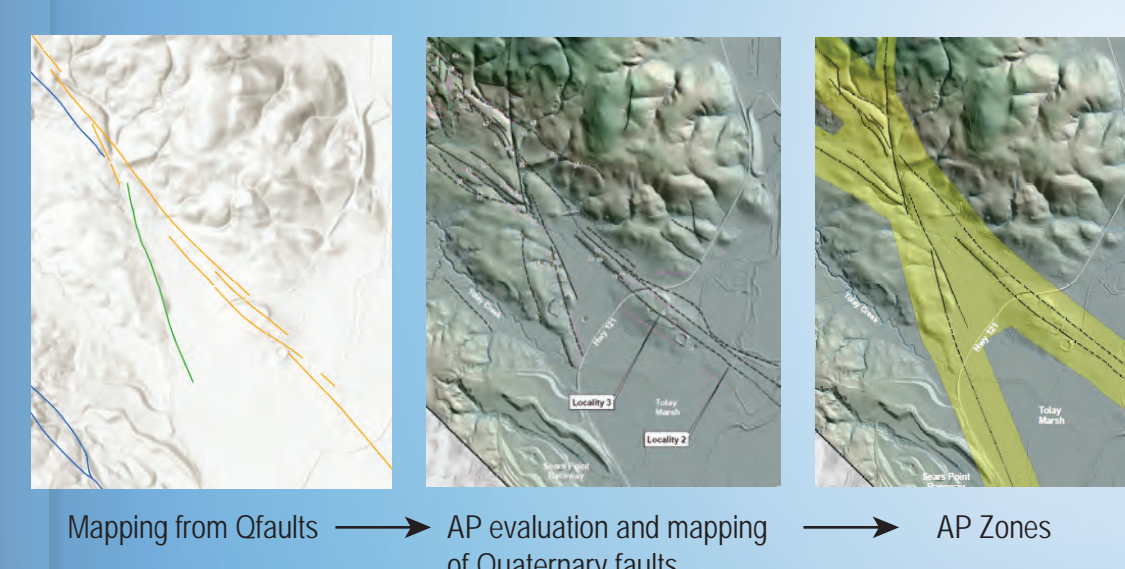
Modelers - National Seismic Hazard Maps
  Community Fault Model
  Fault Displacement Hazard

Researchers - Fault Mapping
  Paleoseismology

Government - Zoning
  State Maps
  State Infrastructure

Consultants - Fault Investigations
  Geohazard Reports

Oregon
California / Nevada
Big Valley
Pondosa
Susanville-Eagle Lake
0   50 km

NSHM23 FSD
— proxy fault
  fault sections

QFFD
— historic
— latest Quaternary
— late Quaternary
— middle and late Quaternary
— undifferentiated Quaternary

Modified from Hatem et al. (2022). Simplifying complex fault data for systems-level analysis: Earthquake geology inputs for U.S. NSHM 2023.

Mapping from Qfaults → AP evaluation and mapping of Quaternary faults → AP Zones

HELP US HELP YOU

Would you like to see YOUR fault mapping included in Qfaults? The Quaternary fault database is a map compilation. To update and improve it, we need updated and improved fault mapping. This mapping comes from the community, and we would like to receive yours. To facilitate this, we have created an upload portal on the CGS website where researchers and practitioners who would like their mapping considered for inclusion in the database can provide it directly to CGS.
~https://forms.office.com/g/XsC3WTLCtP

The portal is designed to accept GIS files as well as supporting documentation. Note that mapping should have undergone some level of peer review. The upload must include:
- GIS files (shapefile, geodatabase, GeoJSON, kmz) – no pdf scans
- Supporting documentation
- Ages of mapped faults. CGS uses Historical, Holocene, Late Quaternary, and Quaternary
- Scale of Mapping
- Contact Information

Note that uploading mapping does not guarantee that it will be included in the database, but it will be evaluated and considered for inclusion. To increase the likelihood of acceptance, include all the information requested in the portal upload process.

The QR code below will take you to the upload portal.

NOW AVAILABLE
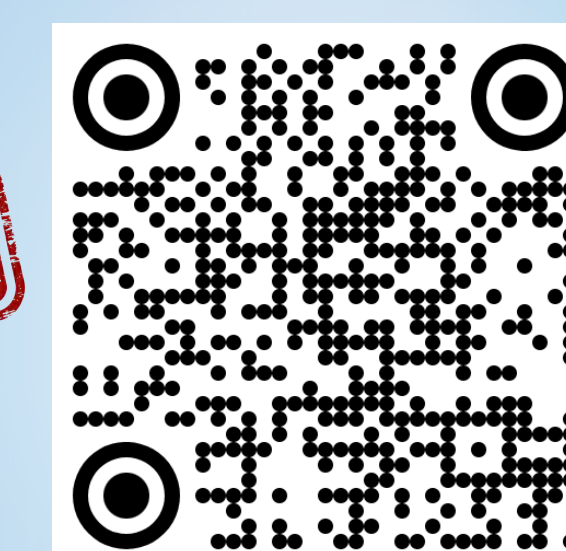
If you have suggestions for the database update, elements you'd like to see, please contact Judy Zacharaien at judith.zacharaisen@conservation.ca.gov