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Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the interactive fault map.

Seligman fault (Class A) No. 952

Last Review Date: 1996-10-07

Compiled in cooperation with the Arizona Geological Survey

citation for this record: **Pearthree, P.A., compiler, 1996, Fault number 952, Seligman fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2020 03:14 PM.**

Synopsis	The 10-km-long Seligman fault has substantial Pliocene and Quaternary displacement, and evidently has also had recurrent late Quaternary movement. It forms the northern margin of a small structural horst that is bounded on the southwest by the Big Chino fault [951]. Upper Miocene to Pliocene basalts are displaced at least 60 m, whereas Quaternary alluvium is displaced as much as 20 m. Progressively younger Quaternary alluvial surfaces are displaced by decreasing amounts. The youngest faulting event may have occurred during the latest Pleistocene to early Holocene.
Name comments	Identified by Robert Whitney (oral commun., 1981); later mapped and named by Menges and Pearthree (1983 #2073).

County(s) and State(s)	YAVAPAI COUNTY, ARIZONA
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Mapped on 1:130,000-scale aerial photos, transferred to 1:250,000-scale topographic base map. Fault location is obvious on most large-scale maps because of its substantial displacement.
Geologic setting	The fault is located on the Colorado Plateaus very near their southwestern margin. The fault displaces upper Miocene to Pliocene basalt flows in a down-to-north sense by at least 60 m, but is not associated with an obvious structural basin. The fault is about 5 km north of the western end of the Big Chino fault [951]. The Seligman and Big Chino faults appear to define the north and southwest sides, respectively, of a narrow structural horst that includes Picacho Butte.
Length (km)	16 km.
Average strike	N78°E
Sense of movement	Normal *Comments:* Inferred from regional relations.
Dip Direction	N
Paleoseismology studies	
Geomorphic expression	The fault has formed an approximately 60- to 70-m-high, sharply-defined scarp on upper Miocene to Pliocene basalt. This scarp on basalt becomes lower and less well defined to the east. Alluvial scarps as high as 20 m exist near the western end of fault. Three or four distinct alluvial surfaces are faulted there, with scarp heights decreasing incrementally from 20 m to about 5 m and 2 m on increasingly younger surfaces. Maximum scarp slope angles on the smaller (2 m) scarps are 17? to 19?. The morphometric age estimate (based on 3 scarp profiles) is early to middle Holocene (Pearthree and others, 1983 #2083).

Age of faulted surficial deposits	late Miocene to latest Pleistocene. Basalts dated at 2.5 Ma (late Pliocene) to 9 Ma (late Miocene) (Reynolds and others, 1986 #2151) are clearly offset. Also, lower to upper Pleistocene and uppermost Pleistocene alluvium are offset progressively lesser amounts. Age estimates for alluvium are approximate, based on cursory examination of soils, geomorphic surface characteristics, and regional correlations.
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Limited scarp morphology data and crude surface-age estimates suggest a latest Pleistocene to middle Holocene age of youngest rupture. Upper Holocene terrace alluvium is not faulted.
Recurrence interval	*Comments:* Fault evidently has had recurrent late Quaternary displacements; age estimates for faulted alluvium are not sufficient to estimate recurrence interval.
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred based on 60 m of displacement of basalt flow that is at least 2 Ma and about 15 m of displacement of a middle(?) Pleistocene alluvial fan (200 to 500 k.y., age of which is poorly constrained).
Date and Compiler(s)	1996 Philip A. Pearthree, Arizona Geological Survey
References	#2073 Menges, C.M., and Pearthree, P.A., 1983, Map of neotectonic (latest Pliocene-Quaternary) deformation in Arizona: Arizona Geological Survey Open-File Report 83-22, 48 p., scale 1:500,000. #2083 Pearthree, P.A., Menges, C.M., and Mayer, L., 1983, Distribution, recurrence, and possible tectonic implications of late Quaternary faulting in Arizona: Arizona Geological Survey Open-File Report 83-20, 51 p. #2151 Reynolds, S.J., Florence, F.P., Welty, J.W., Roddy, unpublished M.S. thesis, Currier, D.A., Anderson, A.V., and Keith, S.B., 1986, Compilation of radiometric age determinations

	in Arizona: Arizona Bureau of Geology and Mineral Technology Bulletin 197, 258 p., 2 pls., scale 1:1,000,000.