



San Joaquin Geological Society

SPOUSE'S NIGHT

Date: Tuesday, February 11, 2020

**Time: 6:00 PM Social Hour
7:00 PM Dinner
7:30 PM Lecture**

**Place: American Legion Hall
2020 H Street, Bakersfield, CA 93302**

PSAAPG Members
\$30 with reservation
\$35 without reservation

Non PSAAPG Members
\$35 with reservation

Full-time Students with ID:
\$5 with reservation
\$15 without reservation

*** RSVP ***

**By: noon Monday,
February 10, 2020**

Register online:
<http://www.SanJoaquinGeologicalSociety.org/>

Pay online or at the door

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<http://www.SanJoaquinGeologicalSociety.org/>

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RIDGECREST EARTHQUAKE- EXPERIENCING THE 7.1 QUAKE AT THE EPICENTER

Presented by: Brian Olson

Abstract: The Ridgecrest Earthquake Sequence began on July 4, 2019 with a M_w 6.4 earthquake at 10:33 am PDT. The epicenter was located about 18 km east-northeast of the City of Ridgecrest within the Naval Weapons Station China Lake (NWSCL) property. This event was preceded by several small foreshocks a few days prior to the event. The M_w 6.4 event ruptured unilaterally from the epicenter to the southwest, causing 18 km of surface fault rupture, consisting of several strands with en-echelon stepovers, striking northeast-southwest with left-lateral displacement of the ground surface.

Aftershock patterns following the M_w 6.4 event followed the northeast-southwest trend, however a perpendicular northwest-southeast L-shaped pattern developed near the epicenter at the north end of the fault zone. This northwest-southeast aftershock pattern appeared to be weakly coincident with a discontinuous zone of northwest striking, previously mapped Holocene-active faults. The pattern of faulting and seismicity hinted at the possibility of cross-fault triggering, similar to what was observed in other earthquake sequences such as the 1987 Elmore Ranch - Superstition Hills earthquake sequence (Hudnut and others, 1989).

About 34 hours after the M_w 6.4 event and numerous aftershocks, some of which were $M5+$, the M_w 7.1 mainshock event occurred at 8:19pm PDT. The epicenter of this mainshock was located approximately 10 km northwest of the M_w 6.4 epicenter. Surface rupture from this event occurred along a northwest-southeast striking fault zone, roughly coincident with the northwest-southeast seismicity observed north of the M_w 6.4 rupture prior to the mainshock. Displacement was right-lateral and extended bilaterally away from the epicenter over a distance of ~50 km.

Biography: Brian Olson is currently working as an Engineering Geologist at the California Geological Survey, where he has been since 2009. He received his B.S. in Geology from California State University, Fullerton in 1998. He is also a Professional Geologist and Certified Engineering Geologist.

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