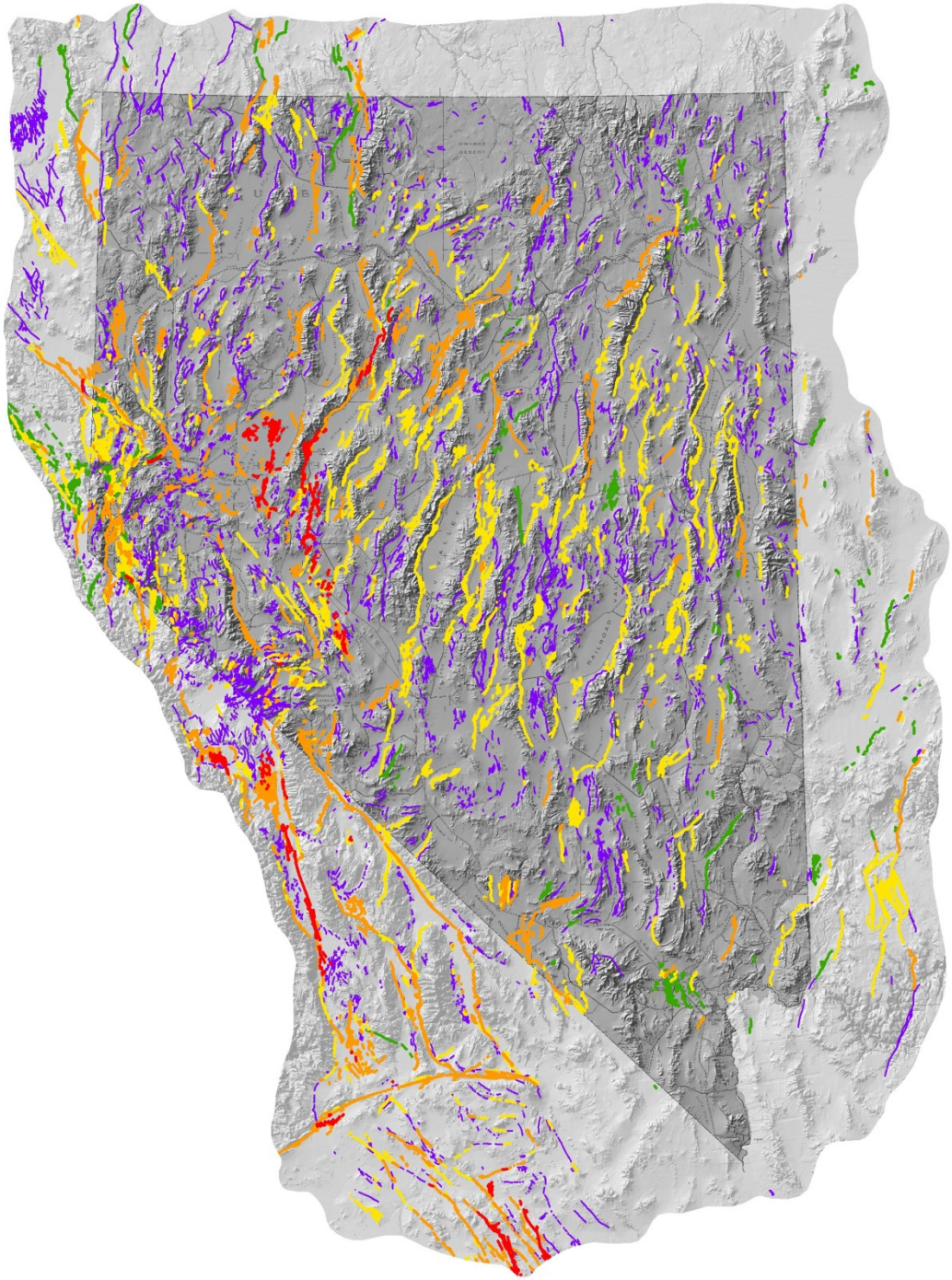
Upgrades from Nevada Research for the National Seismic Hazard Map



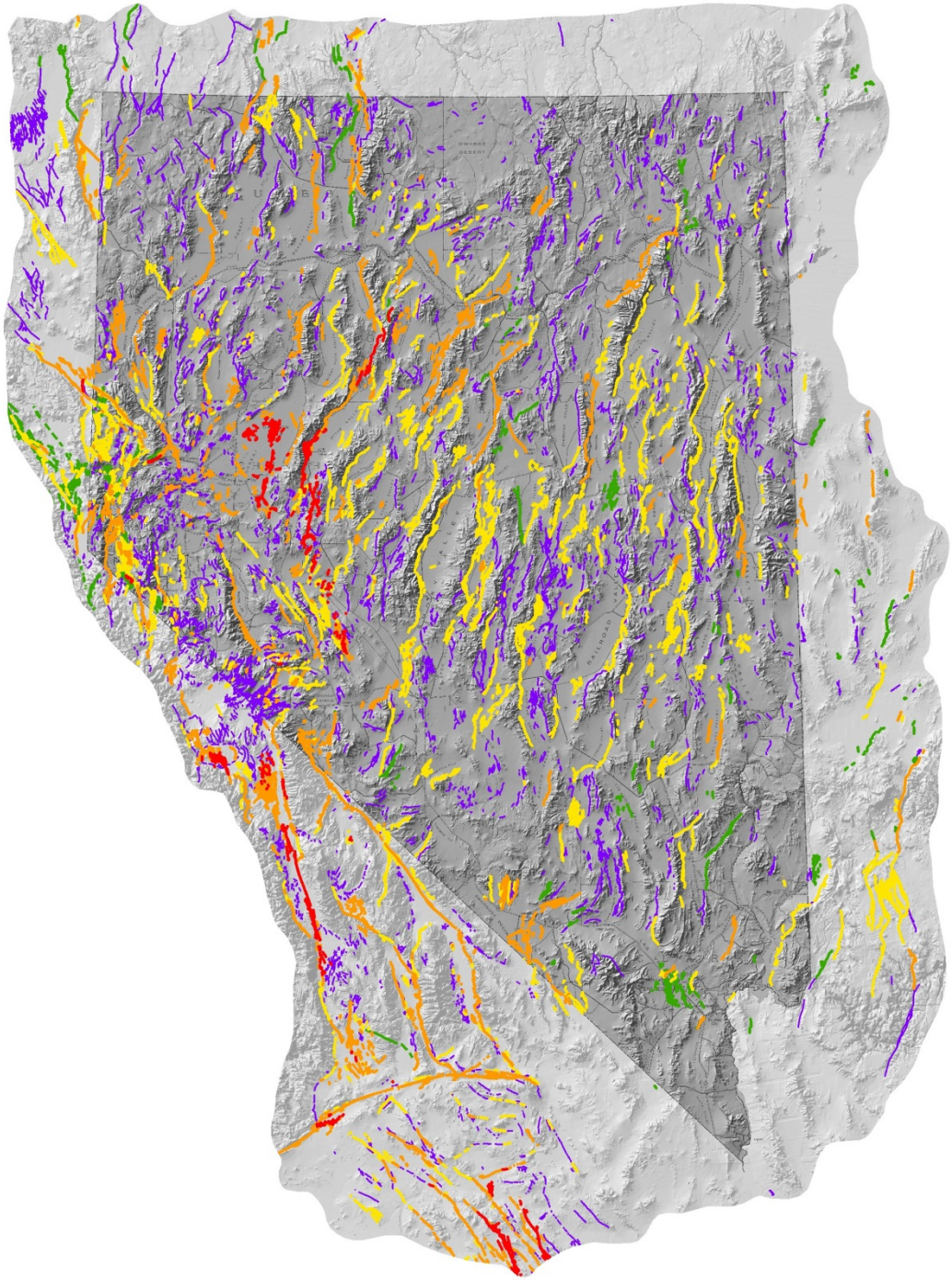
Removal of Fault

- **East Tahoe fault (0.3 m/ky)**
  - Subaqueous data do not show a fault
  - Possible size of fault keeps shrinking

  Recommend removing fault from the database.

New Published Fault Slip Rates

Normal Faults



Lone Mountain fault (0.13 m/ky)

- Hoeft and Frankel (Geosphere, 2010)
- **>0.12 – 0.36 m/ky**

  - >0.12 m/ky (>17 m over 137 ky)
  - 0.36 m/ky (6 m over 16.5 ky)

  Fault scarp modeling and ^{10}BE dating of alluvial fan surfaces.

Smith Valley fault (0.38 m/ky)

- Wesnousky and Caffee (BSSA, 2011)
- **0.125–0.33 m/ky** late Pleistocene rate
  - 0.125 m/ky (~10 m Qi surface; 80 ky lacustrine seds. below Qo surface)
  - 0.33 m/ky (~20 m Qo surface; ~60 ky oldest cosmogenic date on Qo surface)

Fault scarp modeling and ^{10}Be dating

Antelope Valley fault (0.8 m/ky)

- Sarmiento and others (BSSA, 2011)
- **0.7 m/ky** interseismic rate
  - 3.6 m offset
  - ~5 ky (interseismic age of penultimate colluvial wedge – RC dates from bottom and the top)

Wassuk Range fault zone (0.55 m/ky)

- Bormann and others (in press)
  - Holocene uplift rate **0.6–0.8 m/ky**

    Trenching 5.5–7 m vertical separation; <~9400±95 cal yr B.P.
  - Late Pleistocene vertical uplift rate **0.3–0.4 m/ky**

    ~40 m vertical uplift of abandoned alluvial fan surface

    ^{10}Be and ^{26}Al cosmogenic dating of boulders – mean age of cluster of ages – 112.9 ±12.5 ka

Southern Steens fault zone

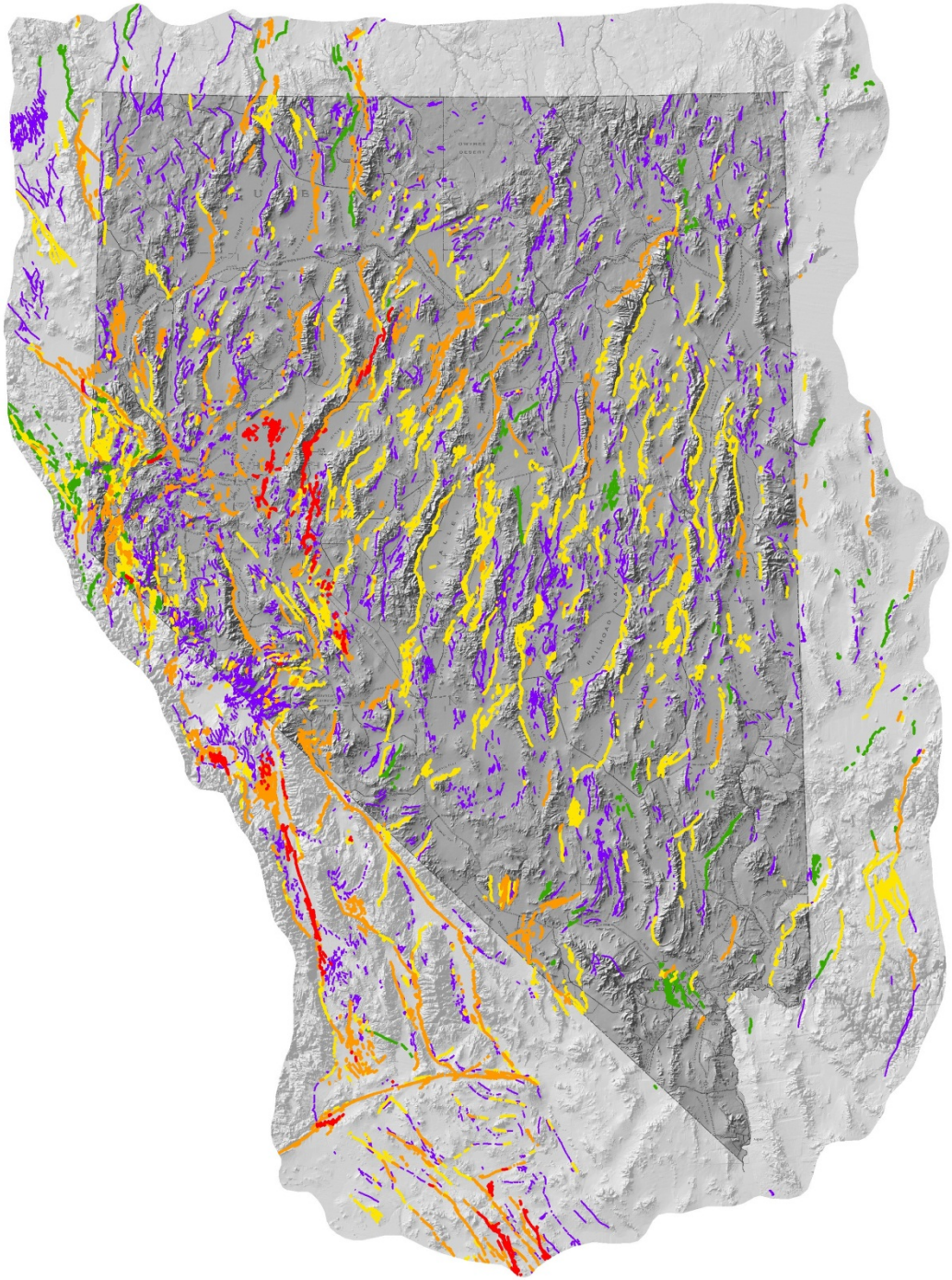
- Personius and others (BSSA, 2007)
- **0.24 ±0.06 m/ky** latest Pleistocene
  - 4.4 ±0.2 m vert. sep in trench over 18 ±2.2 ka (luminescence date)
- **0.24–0.48 m/ky** vertical slip rates ("probably best characterized by our average and multiple interval vertical slip rate" – using RC and luminescennce dates)

Santa Rosa fault

- Personius and Mahan (BSSA, 2005)
- **0.01–0.16 m/ky**
  - 0.01–0.05 m/ky (most reported rates)
  - 0.16 m/ky (max. rate on an interseismic interval)

  Examples: 14.6 ±3 m offset from scarps over 403 ±30 ky gives 0.03–0.05 m/ky and interval between PE2 and PE4 (109–144 ky) and offset 2.4–4.8 yield 0.02–0.04 m/ky (luminescent dating).

Normal-Oblique faults



Fairview fault zone (0.1 m/ky)

- Bell and others (BSSA, 2004)
- **0.09–0.22 ±0.03 m/ky** normal-oblique
  - 7.9 m RNO
  - 35.4 to ~100 ka age range for the penultimate event (35.4 Wilson Ck. Bed 19 tephra & est age of Qfo deposits – soil development Bt & 1-m-thick III-IV Bk and Bqkm)

Sand Springs Range fault (0.1 m/ky)

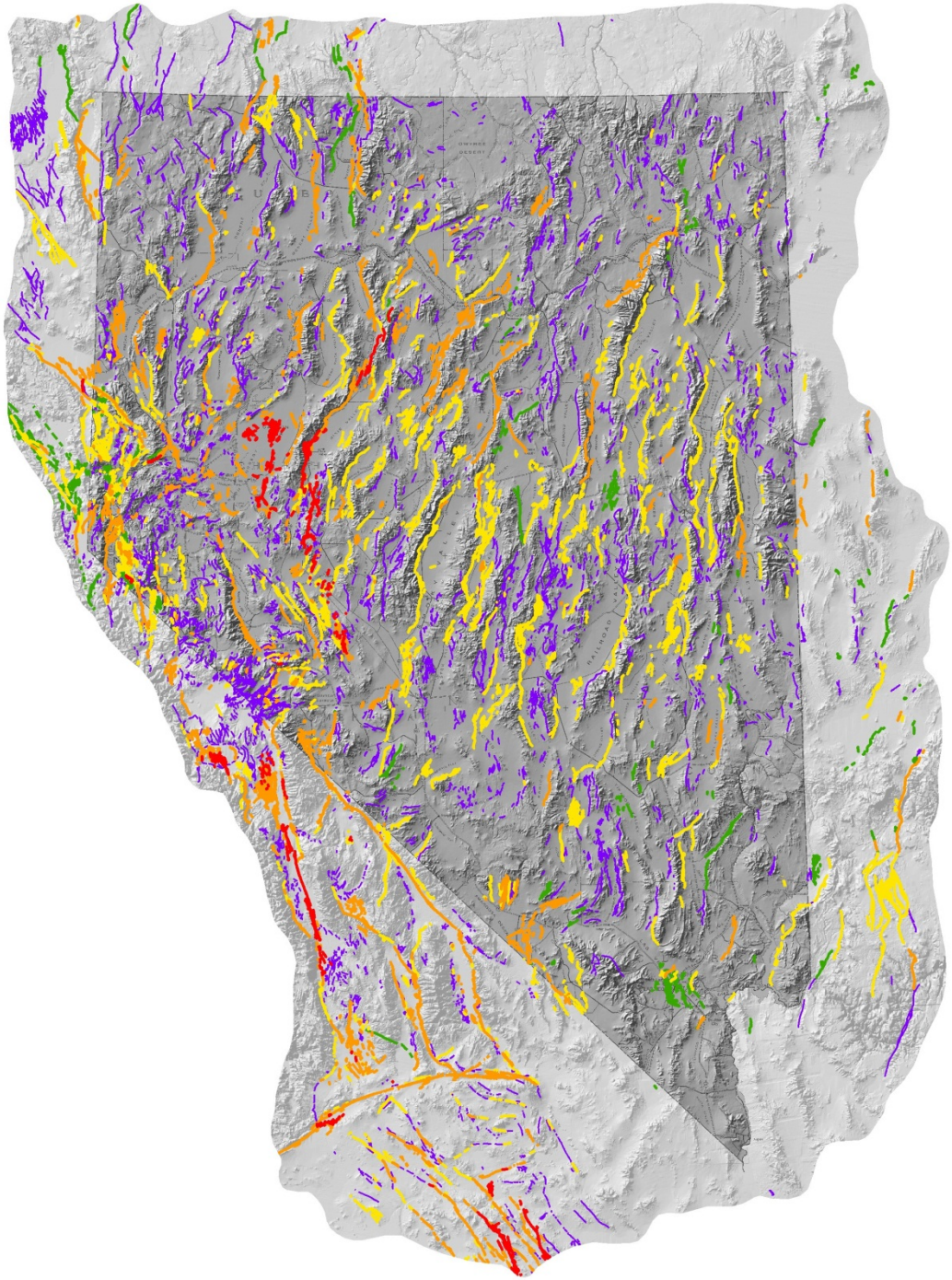
- Bell and others (BSSA, 2004)
- **0.5 ±0.01 m/ky** normal oblique
  - 6.6 ±0.1 m over 13.3 ±2 ka (RC date) trenching study

Rainbow Mountain fault (0.15 m/ky)

- Caskey and others (BSSA, 2004)
- **0.2–0.25 m/ky** normal-oblique
  - 3.5 ±0.1 m RNO offset
  - 14.5 ±2.0 to 17.8 ±2.0 ky (RC dates)

Trench relationships

Strike-Slip faults



Benton Springs fault, southern section (0.26 m/ky)

- Wesnousky (Tectonics, 2005)
- **~1 m/ky** (minimum right-lateral rate)
  - ~35 m right lateral offset of terrace riser Qf2b
  - <36 ka age estimate using soil development (identified as Qf2b by Bell (1995) characterized by a 15- to 25-cm-thick loamy clay Bt horizon; Bt development on the offset surface is less that Bell's chronosequence soil thus the <)
  - Only for section with well-developed geomorphology

Bettles Well – Petrified Springs fault (0.1 m/ky)

- **1.1 to 1.65 m/ky** (minimum late Pleistocene)
  - 90 m right-lateral offset of Qi surface
  - <60 to 90 ka age for surface based on soil development and pavement development (15-20 cm thick Bt with a stage II+ carbonate Bk below correlated to Bell (1995) chronosequence Qi1 soil)

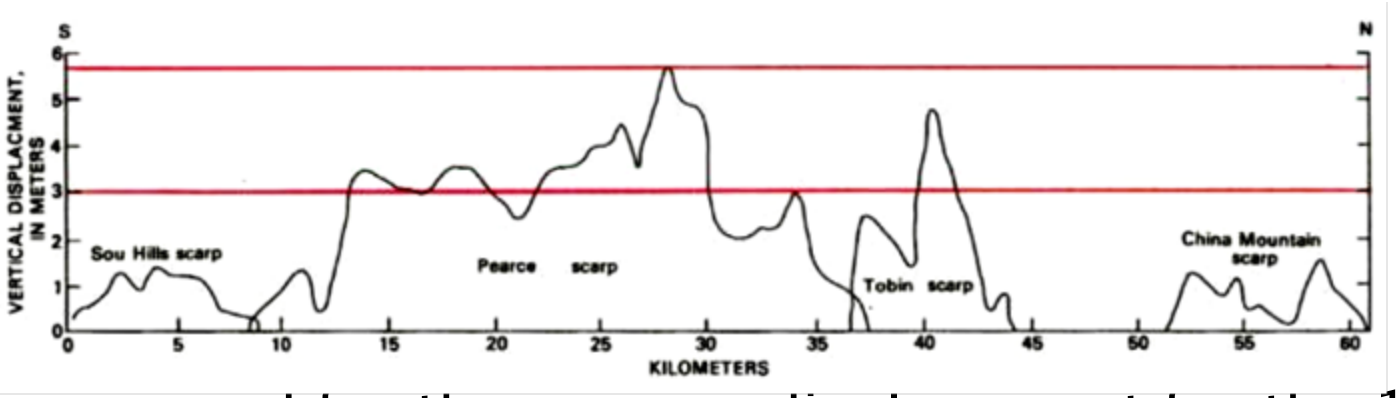
Warm Springs Valley fault system (0.5 m/ky)

- Gold and others (BSSA, in press)
- **1.8–2.4 m/ky** post late Pleistocene fan offset
  - 98 ±42.5 m fan crest offset (LiDAR)
  - 41.5 – 55.7 ka (^{10}Be & ^{36}Cl dating)

- **≤0.2 m/ky** post 15.8 ka shoreline

New Historical Earthquake Magnitudes

- 1915 Pleasant Valley M_w7.3



A 3 m was used for the average displacement for the 1915 event, which yielded a seismic moment of 9.56 x 10^{26} dyne-cm and corresponded to a moment magnitude of 7.3 (7.29 rounded off) using Hanks and Kanamori's (1979) relationship.