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Plates

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This is a section from the 1999 NMGS Fall Field Conference Guidebook.

Annual NMGS Fall Field Conference Guidebooks

Every fall since 1950, the New Mexico Geological Society (NMGS) has held an annual Fall Field Conference that explores some region of New Mexico (or surrounding states). Always well attended, these conferences provide a guidebook to participants. Besides detailed road logs, the guidebooks contain many well written, edited, and peer-reviewed geoscience papers. These books have set the national standard for geologic guidebooks and are an essential geologic reference for anyone working in or around New Mexico.

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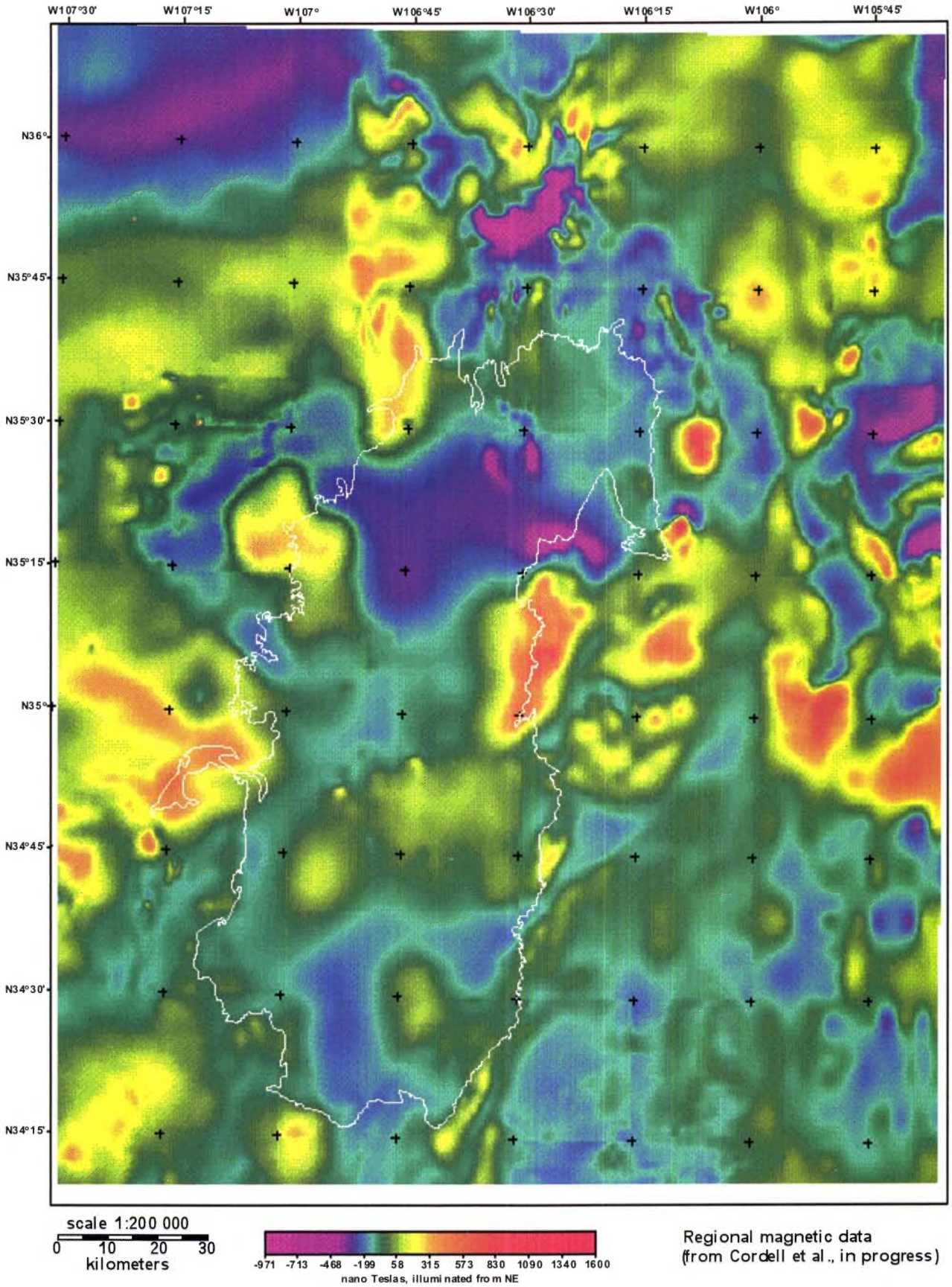
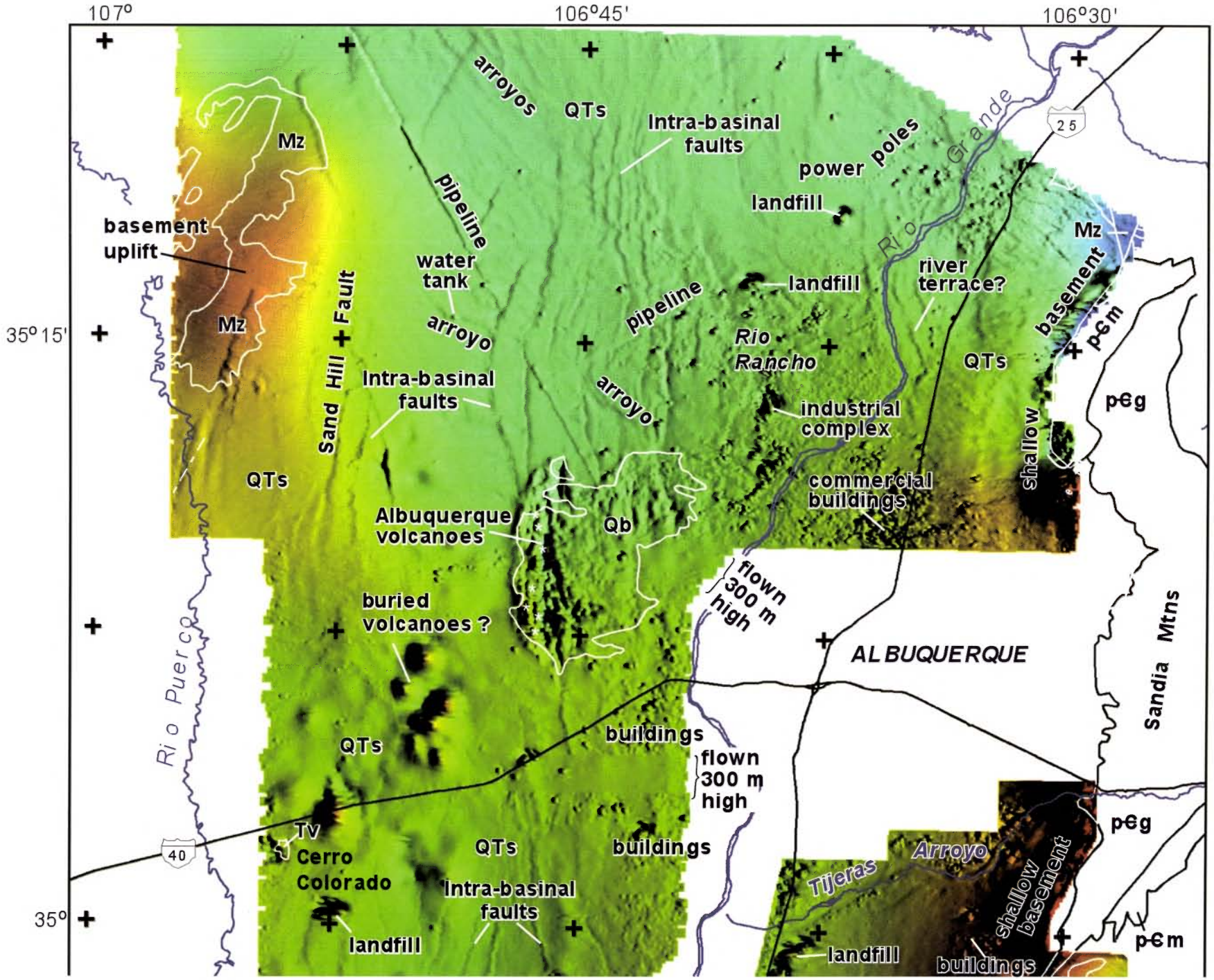


PLATE A. Regional magnetic map of the Albuquerque basin and surrounding areas (modified from Cordell, unpublished data). The Albuquerque basin is outlined in white. Note dextral offset of magnetic lows (purple colors) north of the Albuquerque basin. These offset lows spawned the ongoing discussion regarding the origin of dextral strike-slip tectonics in New Mexico.


107°
106°45'
106°30'
35°15'
35°
arroyos
QTs
Intra-basinal faults
power poles
landfill
Rio Grande
25
Mz
basement uplift
pipeline
water tank
arroyo
Sand Hill Fault
Mz
pipeline
landfill
river terrace?
basement
p€m
Rio Rancho
QTs
arroyo
Intra-basinal faults
industrial complex
p€g
shallow
QTs
commercial buildings
Albuquerque volcanoes
Qb
flown 300 m high
buried volcanoes ?
ALBUQUERQUE
Sandia Mtns
Rio Puerco
buildings
QTs
flown 300 m high
TV
Cerro Colorado
40
QTs
buildings
p€g
Arroyo
Tijeras
Intra-basinal faults
landfill
shallow basement
p€m
landfill
buildings

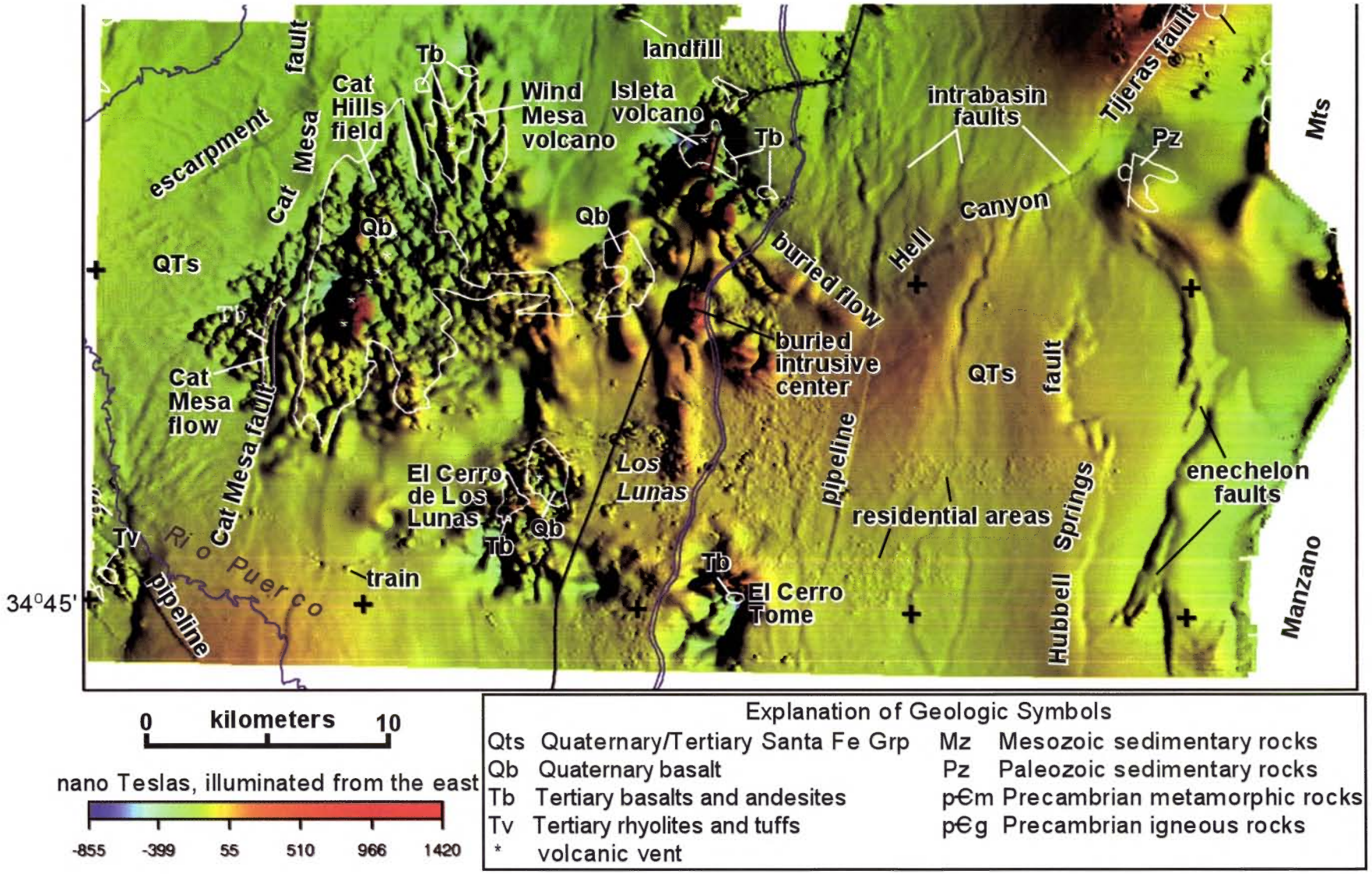


PLATE B. Color shaded-relief image of merged, high-resolution aeromagnetic data, showing generalized geology, geologic names, and identifications of selected magnetic features. Color shaded-relief images combine color contouring with a shadowing technique treats the data as though they were values of topographic relief illuminated by the sun. The colors enhance the broad variations of the data, whereas the shading enhances details. This image is illuminated from the east, which emphasizes northerly trends. Geology generalized from Green and Jones (1997) and Kelley (1977). Some artifacts resulting from the filtering of data before merging appear as rings around small anomalies, such as one beside the Tijeras fault (east-central part of area). Two areas of the Albuquerque West survey (B, Fig. 1) were flown at 300-m height instead of the nominal 150 m. Resolution of detailed features in these areas is not recoverable (refer to Grauch, this volume, for references).

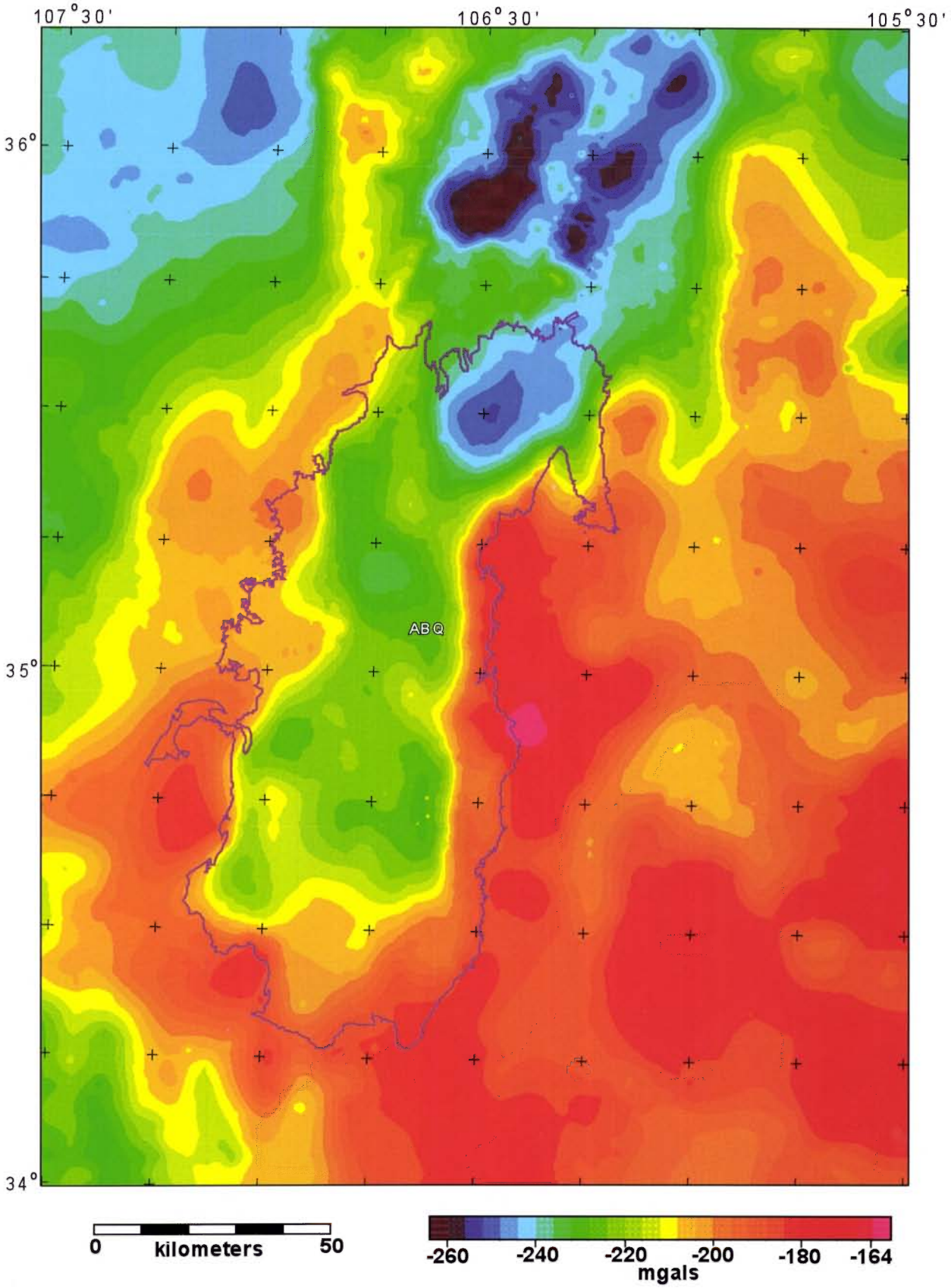


PLATE C. Bouguer gravity map of the Albuquerque basin area processed from the new data compilation (Simpson et al., 1986; Heywood, 1992; Grauch et al, this volume). ABQ = Albuquerque. The Albuquerque basin is outlined in purple for reference.

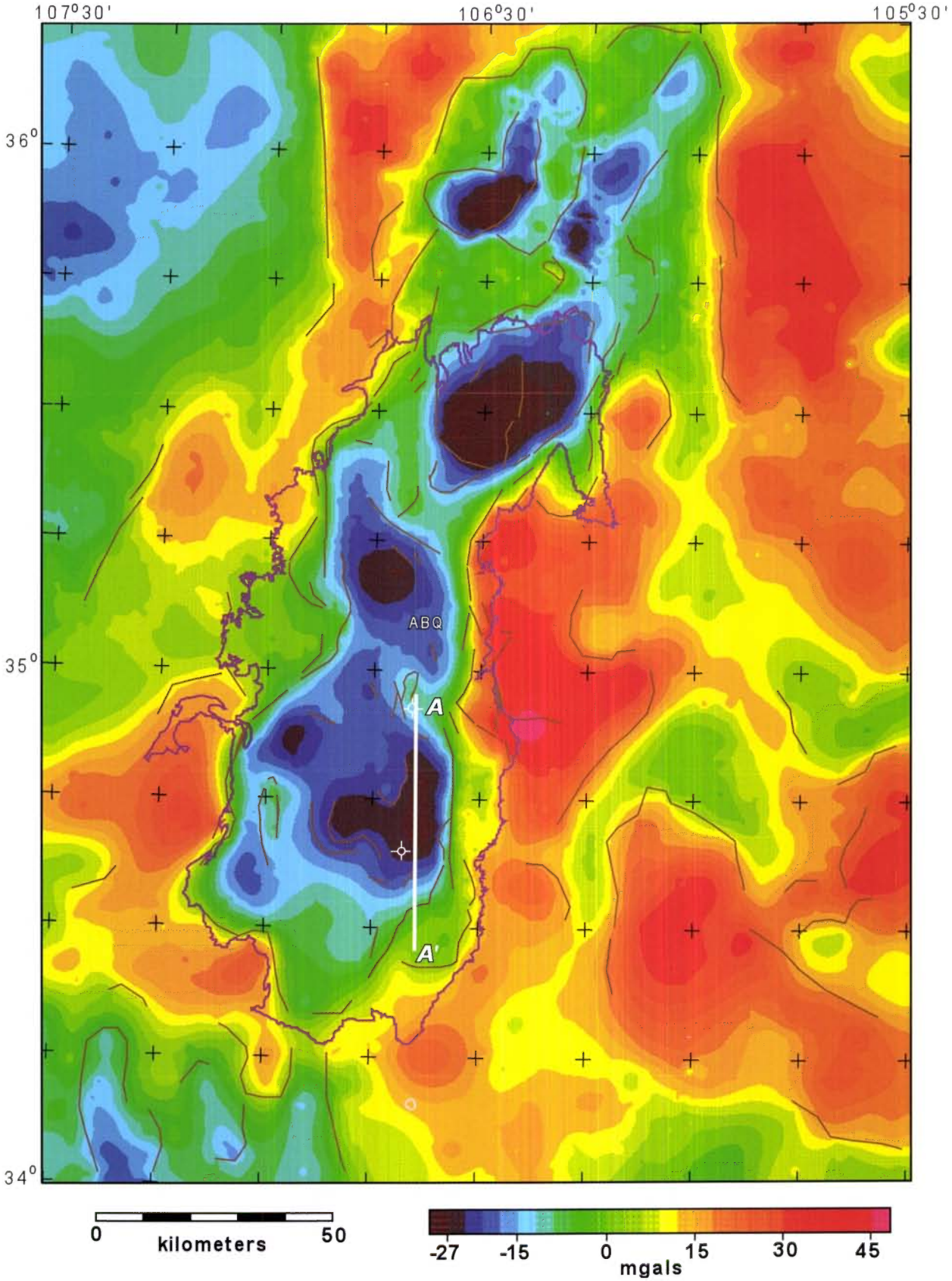


PLATE D. Isostatic residual gravity map constructed by removal of an isostatic regional field from the new Bouguer gravity data (Simpson et al., 1986; Heywood, 1992; Grauch et al, this volume). The gray lines are where the gravity gradients are the steepest, following the horizontal-gradient method of Cordell (1979) to locate steeply dipping faults. The profile A–A' refers to Figure 5. The northern and southern oil exploration wells (circles with spikes) are the Transocean Isleta #1 and Grober-Fuqua #1 wells, respectively. ABQ = Albuquerque. The Albuquerque basin is outlined in purple for reference (refer to Grauch et al., this volume, for references).

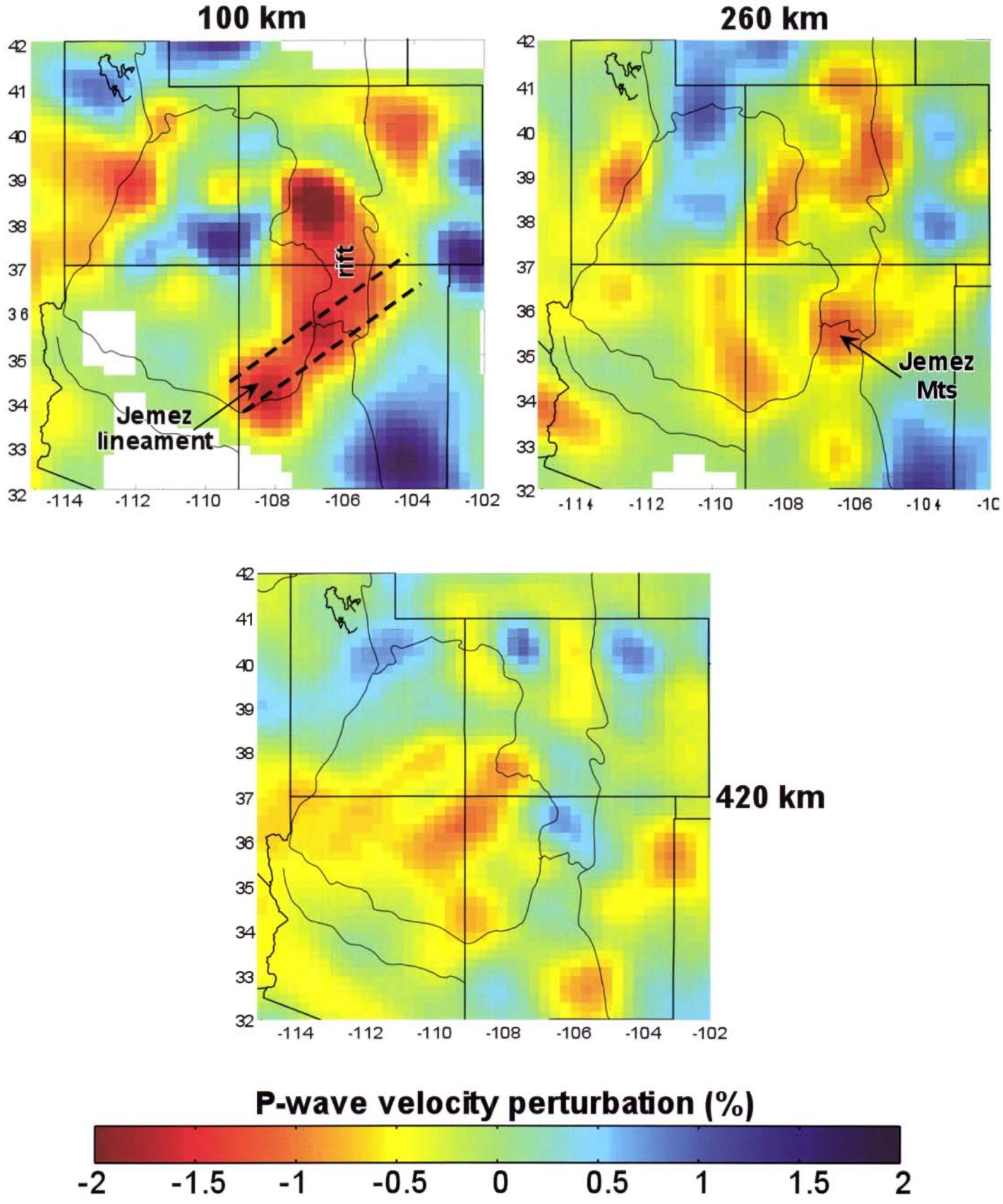
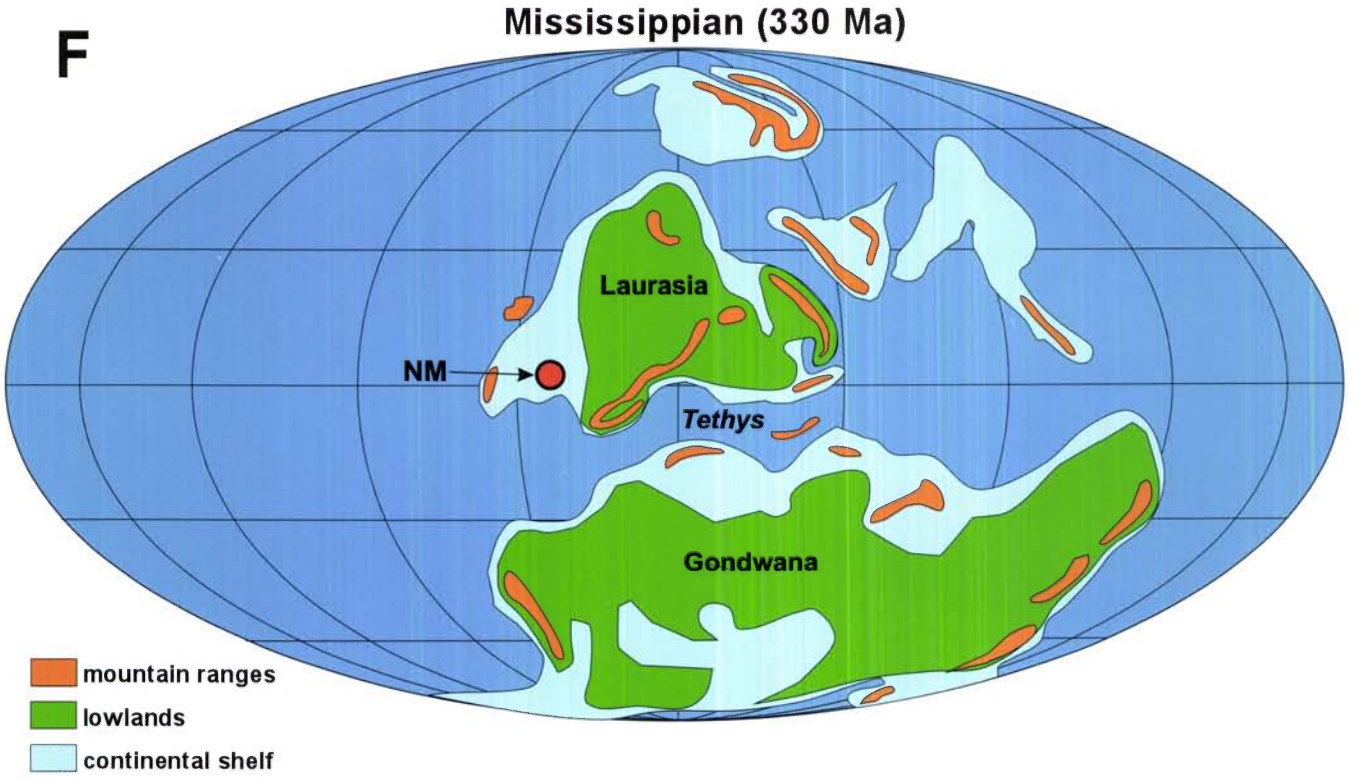
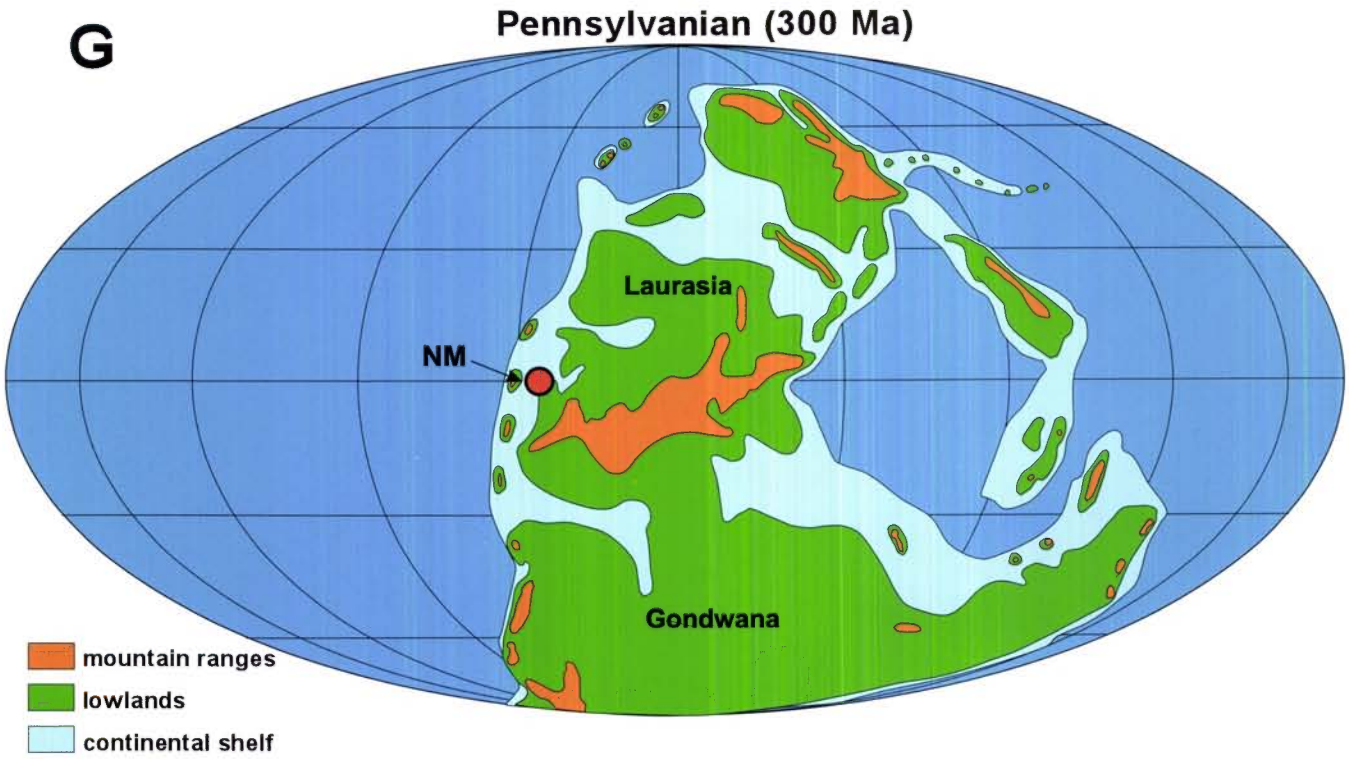
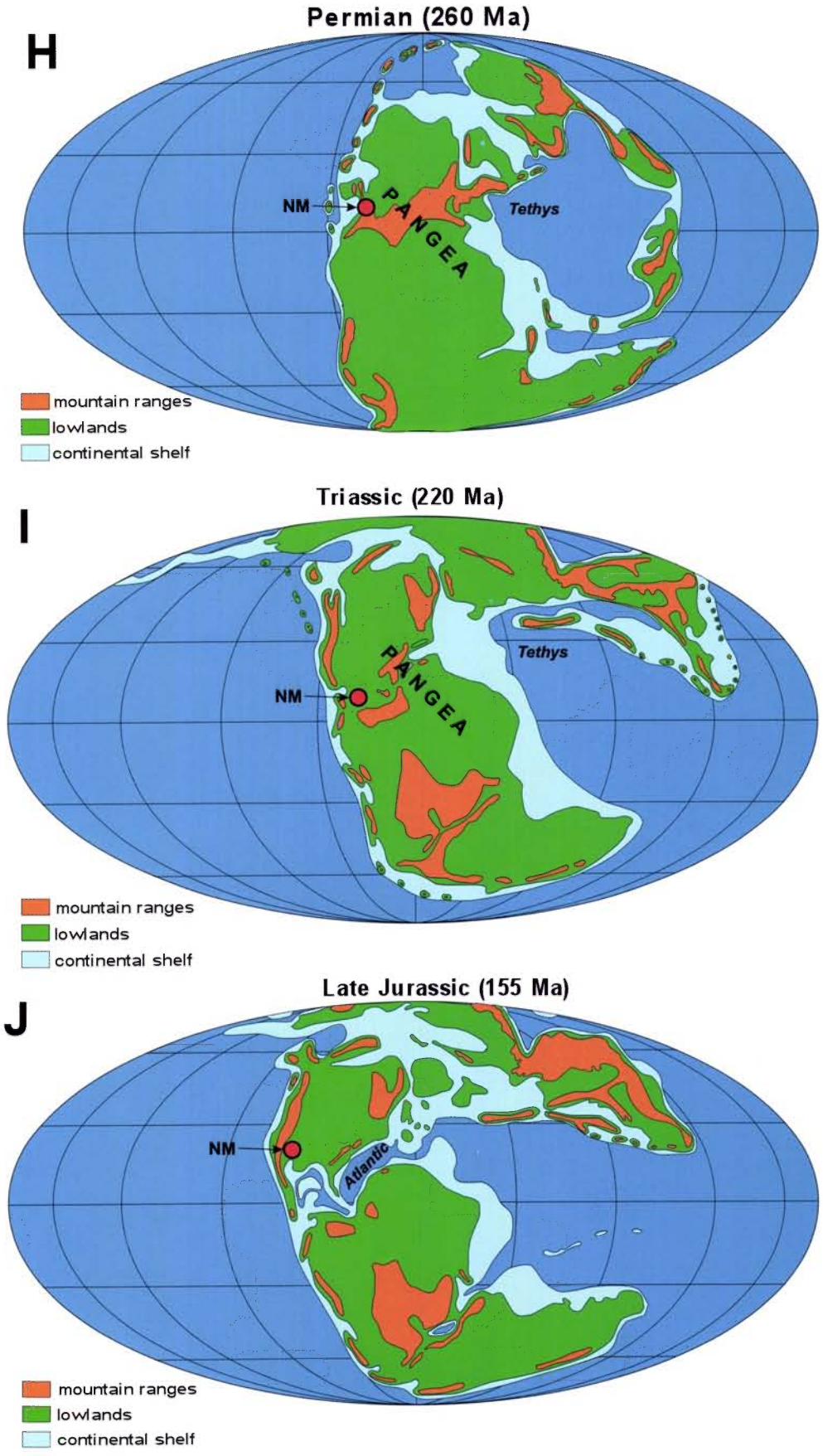


PLATE E. P-wave velocity structure of the upper mantle (modified and used with permission from Dueker, in preparation). Note anomalously slow P-wave velocities in the mantle (= warm mantle?) beneath the Jemez lineament at shallow levels.

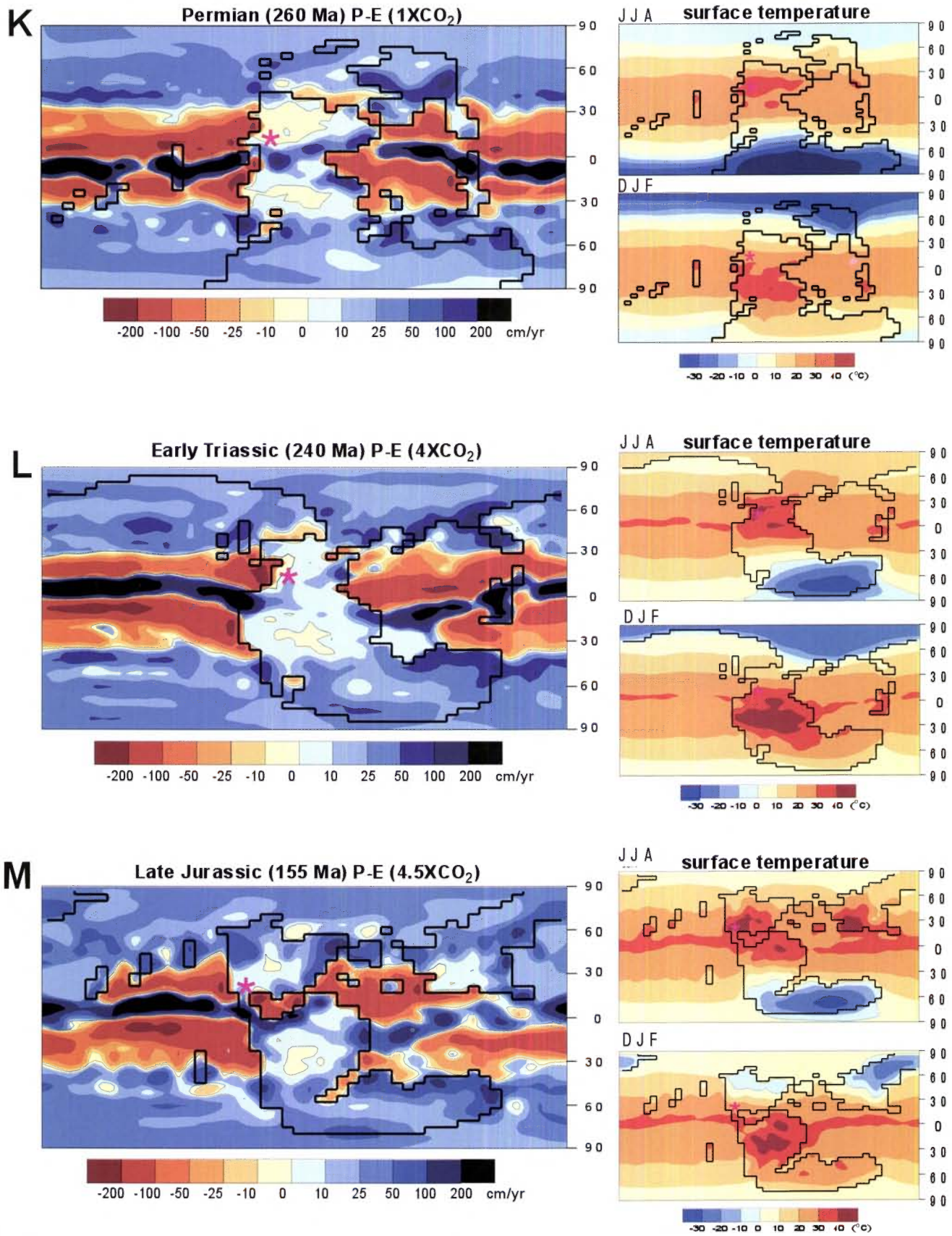




PLATES F and G. Global paleogeography during the **F,** Mississippian and **G,** Pennsylvanian showing the location of New Mexico (both modified from Bambach et al., 1980).



PLATES H, I, and J. Global paleogeography during the **H,** Permian (modified from Bambach et al., 1980), **I,** Triassic, and **J,** Jurassic (both modified from Golonka et al., 1994) showing the location of New Mexico.



PLATES K, L, and M. Global climate reconstructions for the **K,** Permian, **L,** Triassic, and **M,** Jurassic showing the location of New Mexico as a magenta star. Each plate includes a precipitation less evaporation map P - E, which is a good proxy for annual effective moisture, as well as summer (JJA) and winter (DJF) average surface temperature maps. Reconstructions are based on the GENESIS 2 global circulation model (modified and used with permission from Fawcett et al., in preparation).

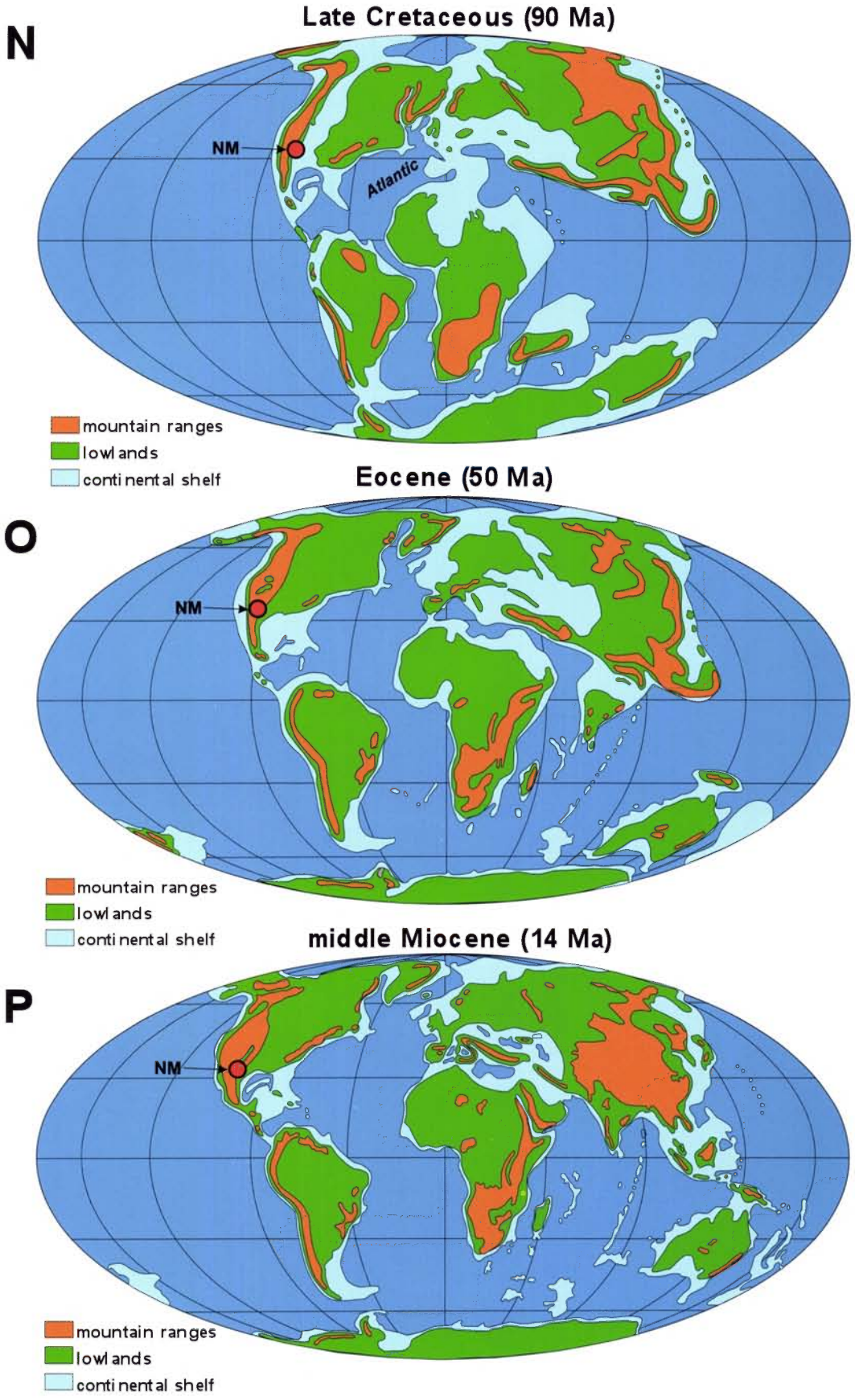
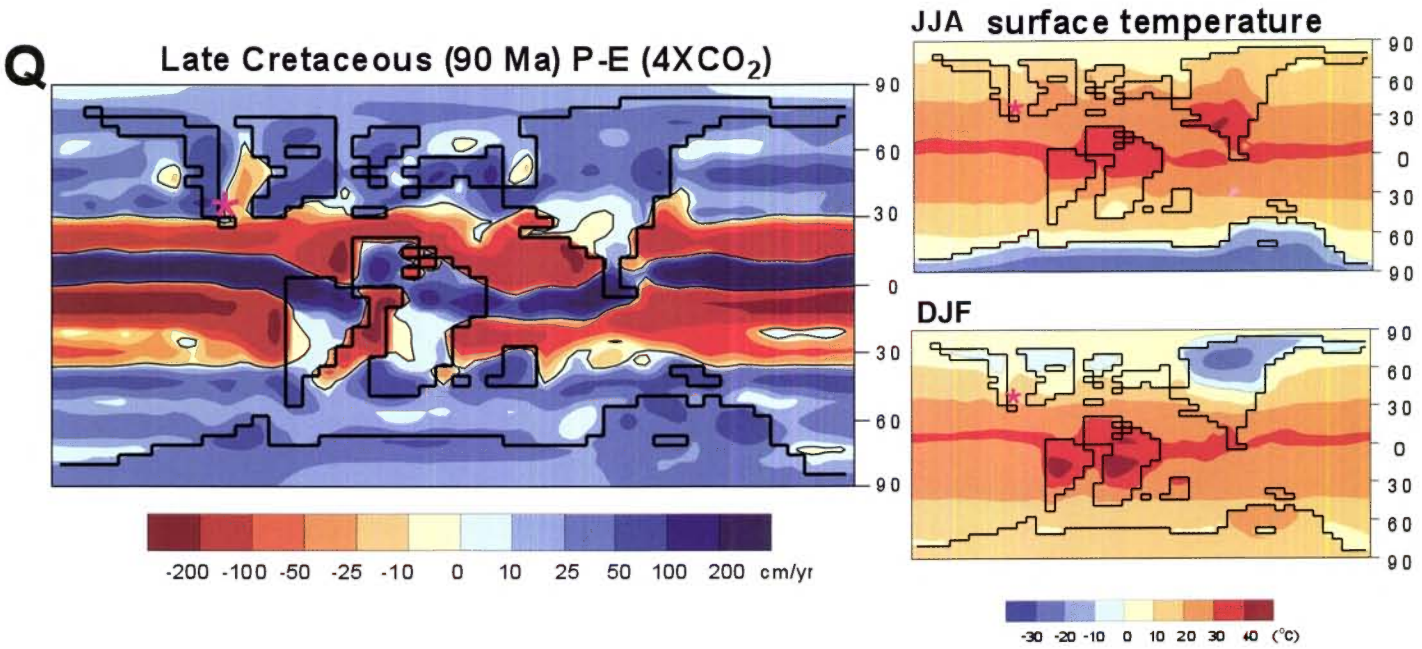
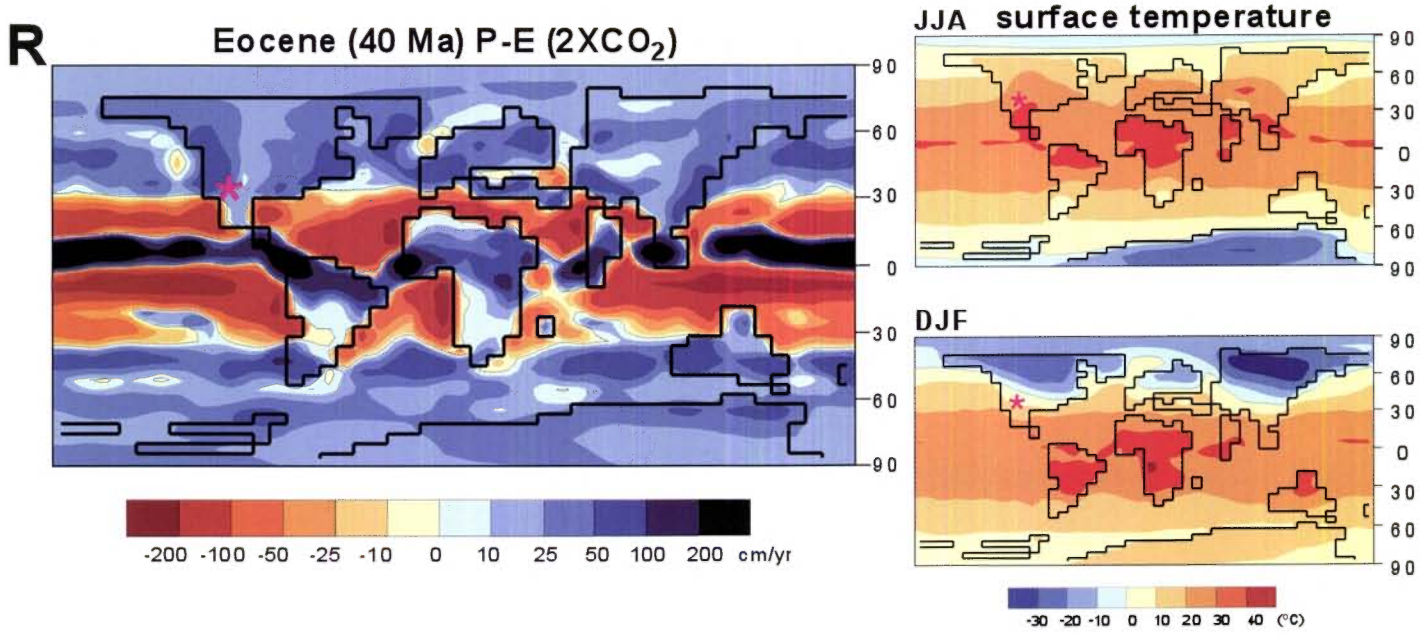


PLATE N, O, and P. Global paleogeography during the **N,** Cretaceous, **O,** Eocene (both modified from Golonka et al., 1994), and **P,** Miocene (modified from Bambach et al., 1980) showing the location of New Mexico.





PLATES Q and R. Global climate reconstructions for the **Q,** Cretaceous and **R,** Eocene showing the location of New Mexico as a magenta star. Each plate includes a precipitation less evaporation map P - E, which is a good proxy for annual effective moisture, as well as summer (JJA) and winter (DJF) average surface temperature maps. Reconstructions are based on the GENESIS 2 global circulation model (modified and used with permission from Fawcett et al., in preparation).

Generalized geologic map of the Placitas and eastern portion of the Bernalillo 7.5-minute quadrangles. Compiled by S.D. Connell & A.S. Read (1999).

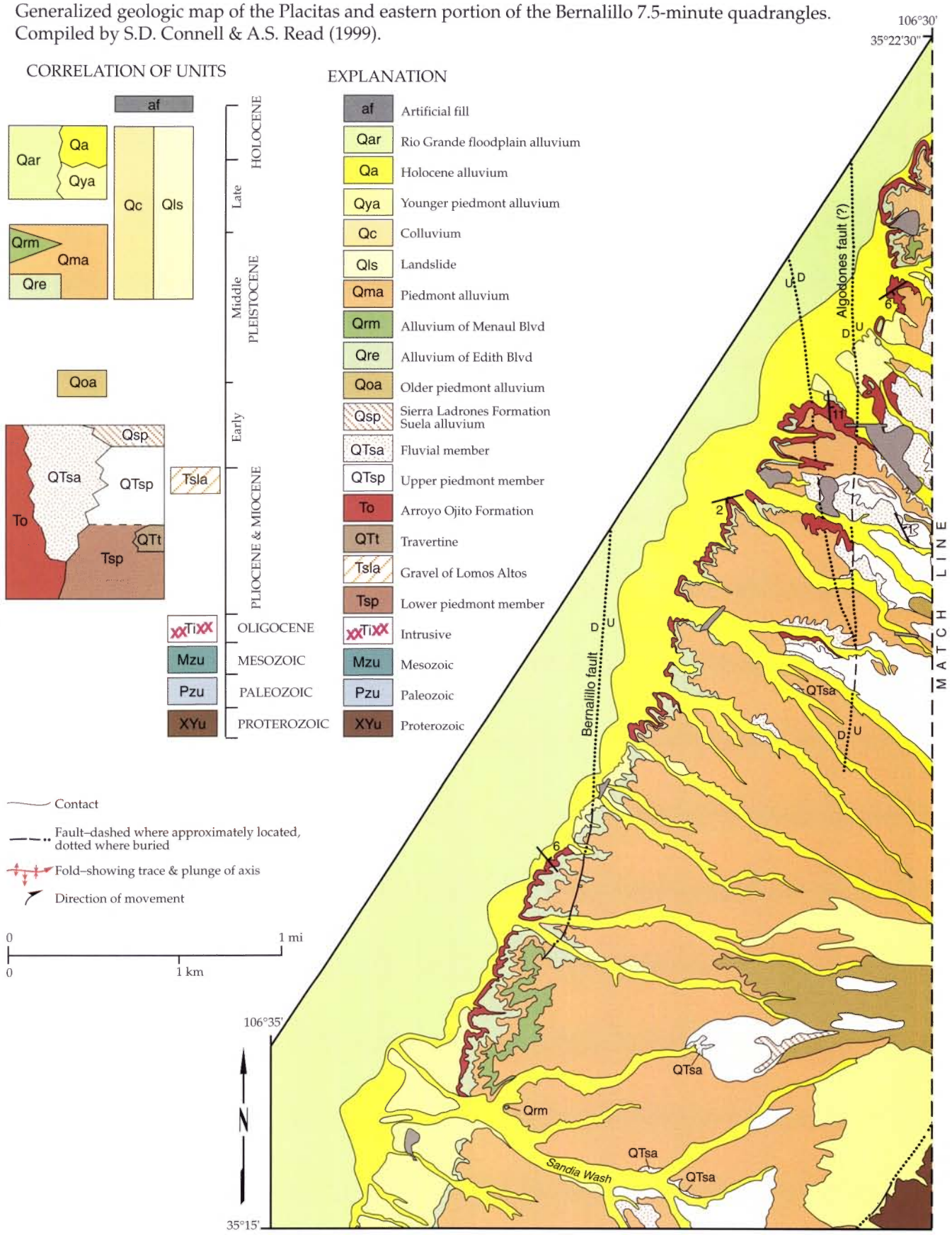
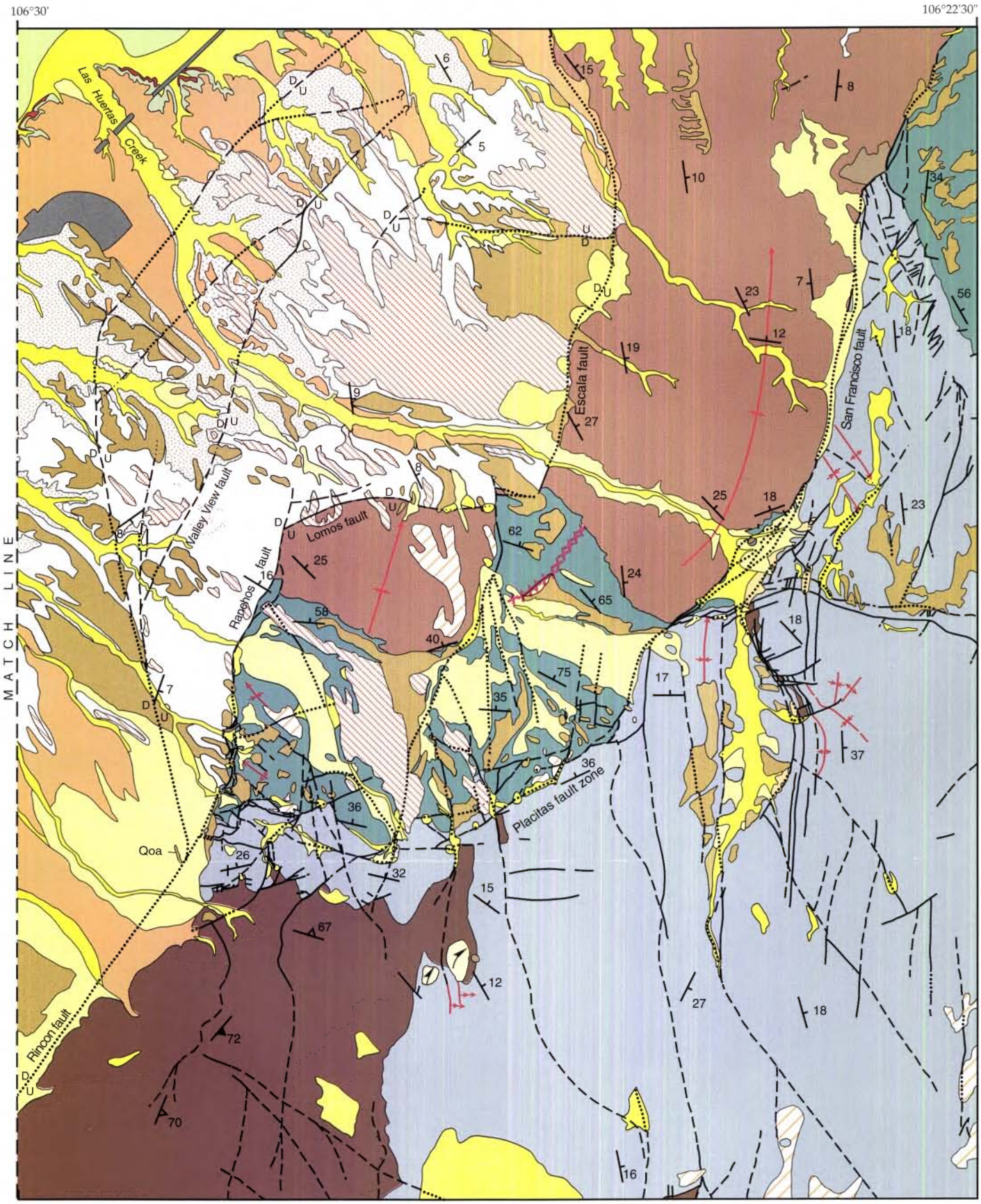


PLATE S. Simplified geologic map of the Placitas area (left and right pages), compiled from the Placitas and Bernalillo 7.5-minute geologic maps (Connell et al., 1995; Connell, 1998). Refer to Figure 4 in Connell and Wells (this volume) for explanation of unit abbreviations (refer to Connell and Wells, this volume for references).


106°30'
106°22'30"
MATCH LINE
Las Huertas Creek
Valley View fault
Rapchos fault
Lomos fault
Escala fault
San Francisco fault
Placitas fault zone
Rincon fault
Qoa

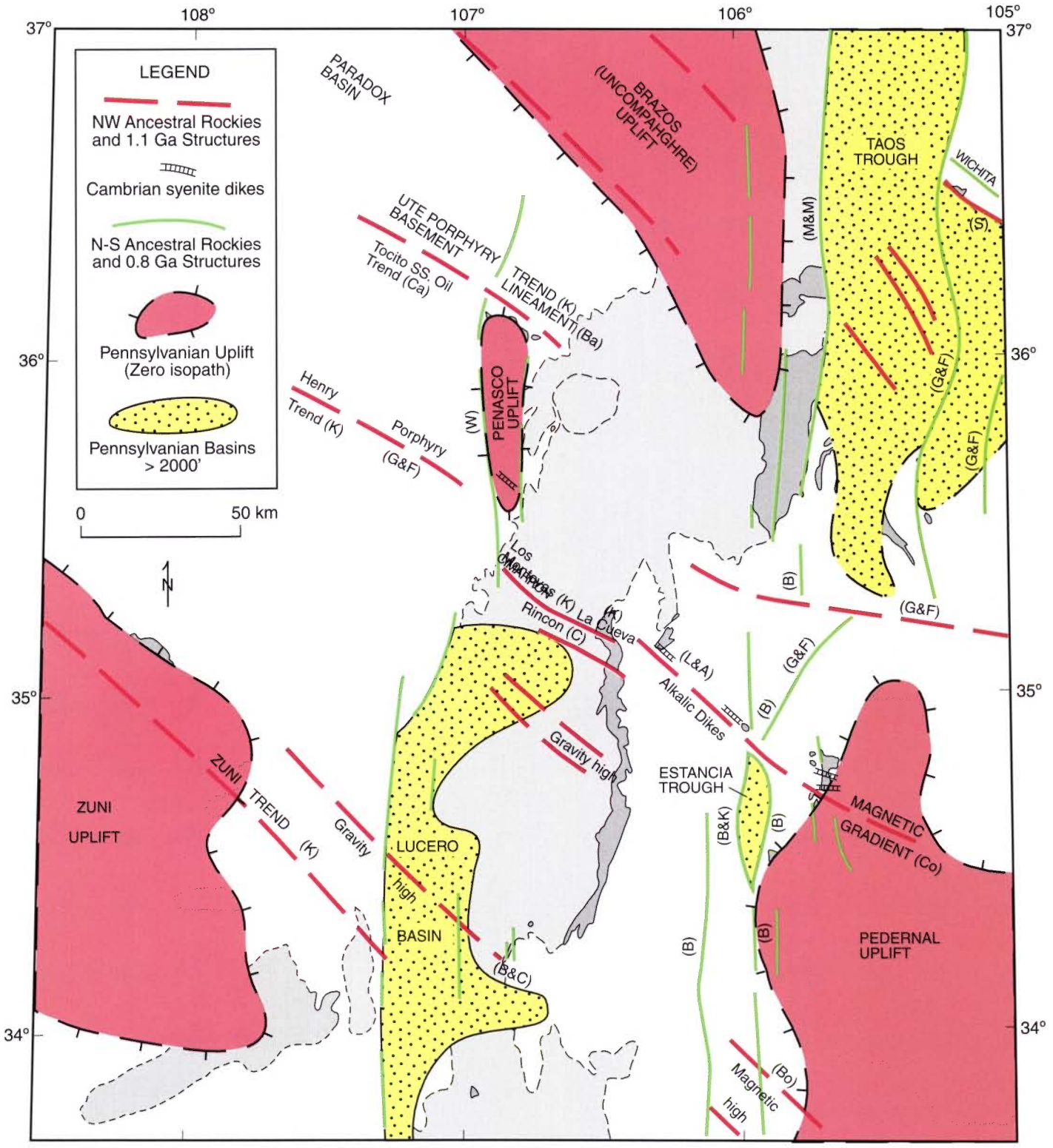


PLATE T. Ancestral Rockies (and older) structures in the Sandia Mountain region. Structures that were important as Pennsylvanian features are inferred to be reactivated structures and hence pre-Pennsylvanian in age. NW-trending structures are inferred to be 1.1 Ga. N–S-trending structures are inferred to be 800 Ma. Lineaments are based on: (B) = Broadhead, 1997; (B&C) = Beck and Chapin, 1994; (B&K) = Barrow and Keller, 1994; (Ba) = Baars, 1982; (Bo) = Bowsher, 1994; (C) = Connell et al., in preparation; (Ca) = Cather, in press; (Co) = Cordell, 1984; (G&F) = Grant and Foster, 1989; (K) = Kelley, 1955; (L&A) = Loring and Armstrong, 1980; (M&M) = Miller et al., 1963; (S) = Soegaard, 1990; (W) = Woodward, 1996; refer to the paper by Karlstrom et al, this volume, for references.

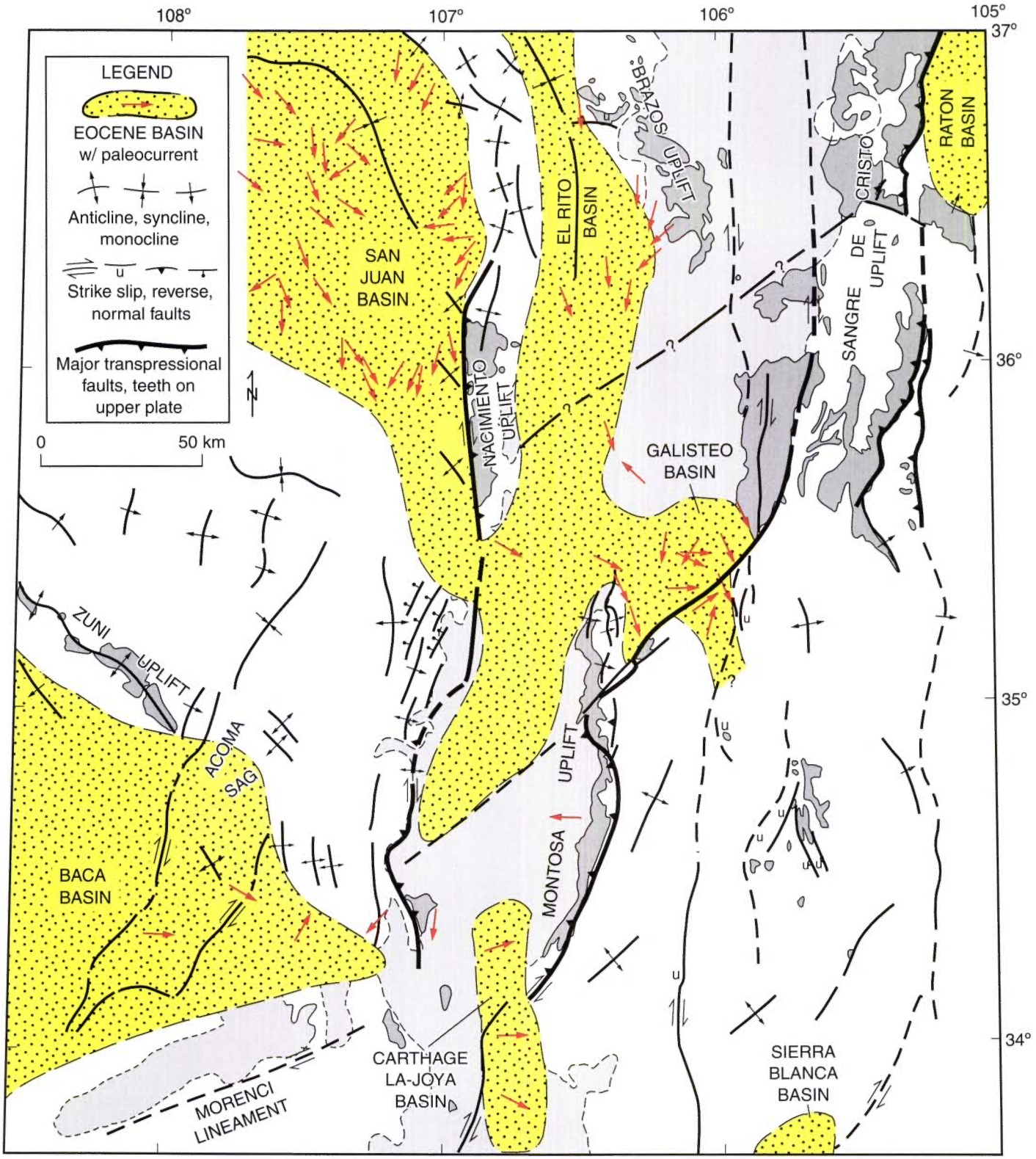


PLATE U. Laramide basins, faults, and folds of northern and central New Mexico (modified from Cather, in press; refer to the paper by Karlstrom et al, this volume, for references).

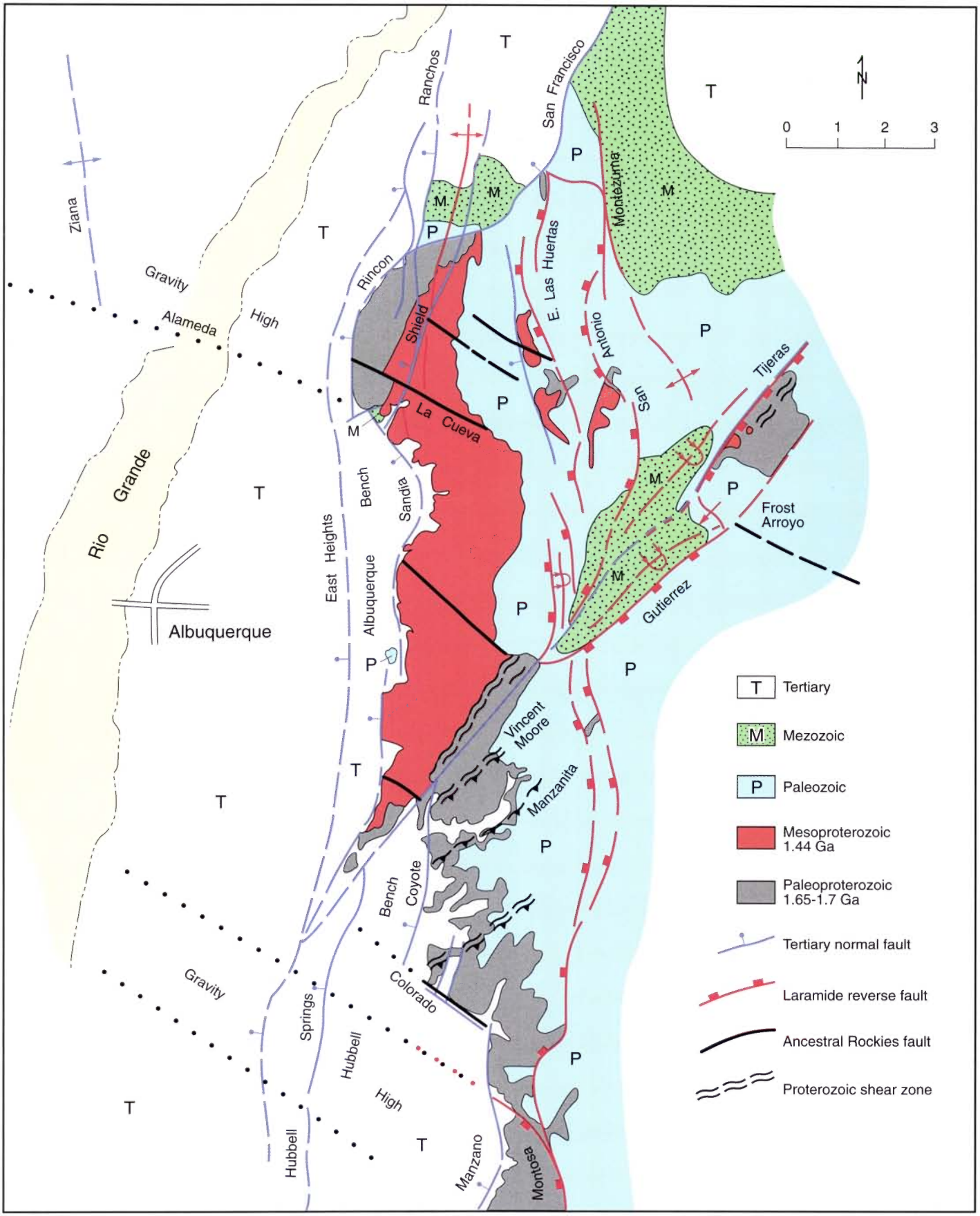


PLATE V. Geology of the Sandia Mountains region, showing the positions of Laramide features (modified from Kelley and Northrop, 1977; Ferguson et al., 1996; Karlstrom et al., 1995; Connell et al., 1995; and Read et al., 1995; refer to the paper by Karlstrom et al, this volume, for references).