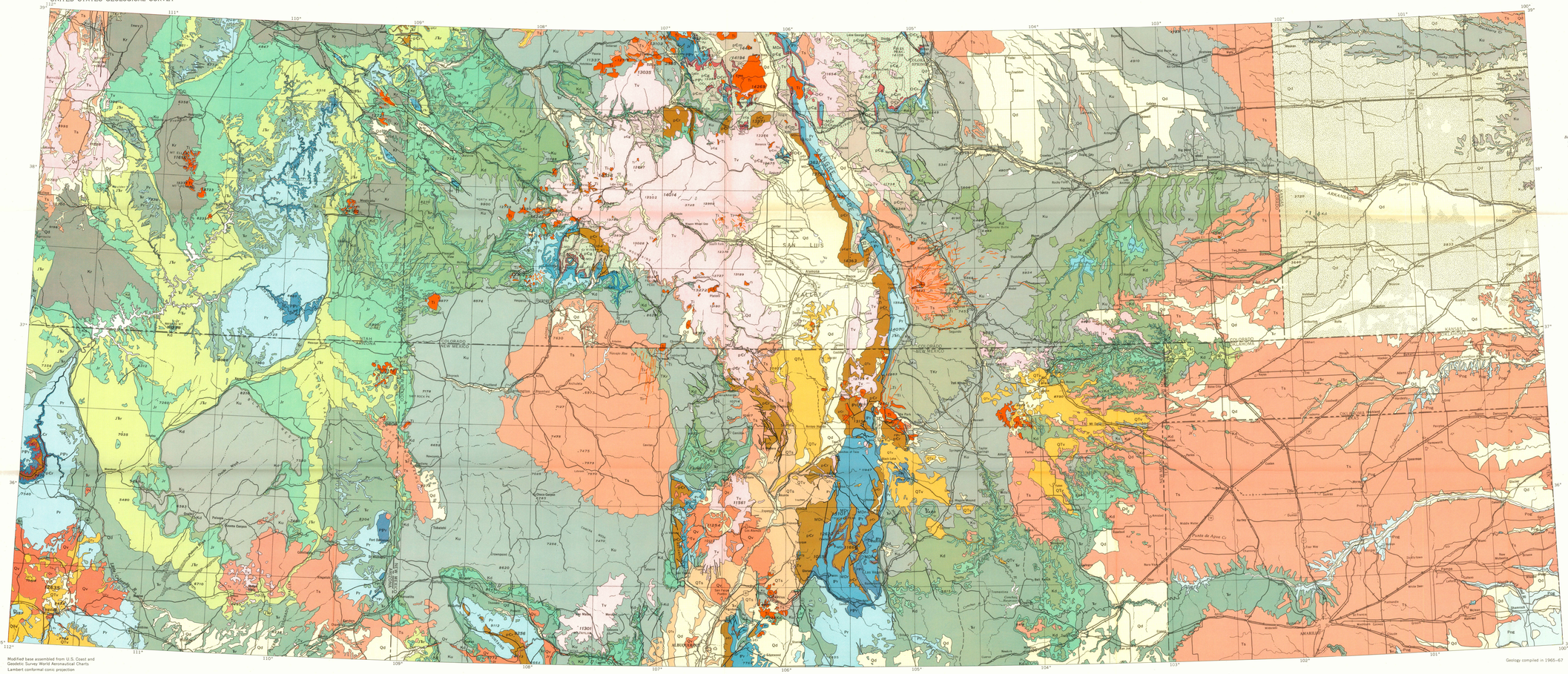
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS GEOLOGIC INVESTIGATIONS
MAP I-533-C



Modified base assembled from U.S. Coast and Geodetic Survey World Aeronautical Charts
Lambert conformal conic projection

Geology compiled in 1965–67

EXPLANATION

Applies to map only

Qd — Quaternary deposits
Includes alluvium, landslides, moraines, and sand dunes. Areas in Kansas covered by loess shown by dot pattern

Qv — Quaternary volcanic rocks
Principally basalt and rhyolite flows and tuffs. Includes some Pliocene volcanic rocks in New Mexico

QTv — Quaternary and Tertiary volcanic rocks
Principally basalt and andesite

QTs — Santa Fe Group

Tv — Tertiary volcanic rocks
Basalt to rhyolite in composition. Includes some Quaternary volcanic rocks and some Tertiary sedimentary deposits

Ti — Tertiary intrusive rocks
Probably includes some rocks of Cretaceous age

Ts — Tertiary sedimentary rocks
Ogallala and Laverne Formations in Oklahoma; Ogallala Formation in Kansas, Texas, eastern New Mexico, and eastern Colorado. Locally includes some volcanic units

TKr — Tertiary and Cretaceous sedimentary rocks
Includes the Animas Formation in New Mexico

Ku — Upper Cretaceous rocks

Kd — Dakota Formation and Lower Cretaceous rocks

Kr — Cretaceous rocks

Jr — Jurassic sedimentary rocks

JTr — Jurassic and Triassic rocks
In Oklahoma includes Morrison, Exeter and Dockum Formations. In Colorado Plateau includes Glen Canyon Group

Tr — Triassic sedimentary rocks

Pu — Upper Permian rocks

Pog — Rocks of Ochoa and Guadalupe age
Recognized only in Kansas, Oklahoma and Texas

Py — Permian sedimentary rocks

PPy — Permian and Pennsylvanian sedimentary rocks
Includes Supai Formation, Abo Formation, Yeso and Hermosa Formations in southeastern Utah and Colorado, Hermit, Supai, and Callville Formations in Grand Canyon Region of Arizona

IPy — Pennsylvanian sedimentary rocks

Mr — Mississippian sedimentary rocks
Used only in New Mexico; elsewhere Mississippian combined with Devonian

MDr — Mississippian and Devonian sedimentary rocks

ODr — Ordovician and Cambrian sedimentary rocks

Cr — Cambrian rocks

Pr — Paleozoic rocks

pCg — Precambrian granitic rocks

pCr — Precambrian metamorphic and granitic rocks

pCm — Precambrian metamorphic rocks

Contact
Dashed where approximately located

Fault
Dashed where approximately located; dotted where concealed

QUATERNARY
TERTIARY
CRETACEOUS
JURASSIC
TRIASSIC
PERMIAN
PENNSYLVANIAN
MISSISSIPPIAN
DEVONIAN
ORDOVICIAN
CAMBRIAN
PRECAMBRIAN

SOURCES OF DATA

Arizona:
Arizona Bureau of Mines, Geologic maps of Coconino (1960), Mohave (1959), Navajo and Apache (1960), and Yavapai (1958) Counties

Colorado:
U.S. Geological Survey, 1955, Geologic map of Colorado, modified from unpublished data

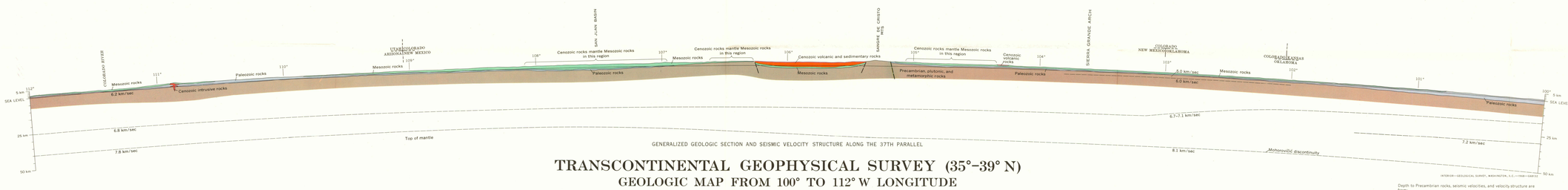
Kansas
State Geological Survey of Kansas, 1964, Geologic map of Kansas

New Mexico:
Kelley, V. C., and Silver, C., 1952, Geology of the Caballo Mountains: New Mexico Univ. Pubs. in Geology, no. 4
Kelley, V. C., and Wood, G. H., 1946, Lucero uplift, Valencia, Socorro, and Catron Counties, New Mexico: U.S. Geol. Survey Oil and Gas Inv. Prelim. Map 47
Read, C. B., and Wood, G. H., 1947, Distribution and correlation of Pennsylvanian and Lower Permian strata of central New Mexico: U.S. Geol. Survey Oil and Gas Inv. Prelim. Map 75
Wilpolt, R. H., and Wanek, A. A., 1951, Geology of the region between Gallup, New Mexico, and Lupton, Arizona: U.S. Geol. Survey Oil and Gas Inv. Prelim. Map 129
Wood, G. H., and Kelley, V. C., 1951, Geology of the northeastern part of the Zuni Mountains area, New Mexico: U.S. Geol. Survey Oil and Gas Inv. Prelim. Map 117
Wood, G. H., and Northrop, S. A., 1946, Geology of Nacimiento Mountains, San Pedro Mountains and adjacent plateaus in parts of Sandoval and Rio Arriba Counties, New Mexico: U.S. Geol. Survey Oil and Gas Inv. Prelim. Map 59
Wood, G. H., Kelley, V. C., and MacAlpin, A. J., 1951, Geology of the northwestern part of the Zuni Mountains area, New Mexico: U.S. Geol. Survey Oil and Gas Inv. Prelim. Map 118
Dane, C. H., and Bachman, G. O., 1957, Preliminary geologic map of the northeastern part of New Mexico: U.S. Geol. Survey Misc. Geol. Inv. Map I-224
Dane, C. H., and Bachman, G. O., 1958, Preliminary geologic map of the southeastern part of New Mexico: U.S. Geol. Survey Misc. Geol. Inv. Map I-268

Oklahoma:
U.S. Geological Survey, 1954, Geologic map of Oklahoma

Texas:
U.S. Geological Survey, 1937, Geologic map of Texas

Utah:
Utah State Land Board, Geologic map of southwestern Utah, 1963, and geologic map of southeastern Utah, 1964



GENERALIZED GEOLOGIC SECTION AND SEISMIC VELOCITY STRUCTURE ALONG THE 37TH PARALLEL

TRANSCONTINENTAL GEOPHYSICAL SURVEY (35°–39° N)
GEOLOGIC MAP FROM 100° TO 112° W LONGITUDE

By
John E. Carlson and Ronald Willden

A CONTRIBUTION TO THE UPPER MANTLE PROJECT

SCALE 1:1 000 000

25 0 25 50 75 100 MILES
25 0 25 50 75 100 KILOMETERS

DATUM IS MEAN SEA LEVEL

1968

INDEX MAP SHOWING AREA COVERED BY THE TRANSCONTINENTAL GEOPHYSICAL SURVEY. AREA OF THIS MAP SHADED

Depth to Precambrian rocks, seismic velocities, and velocity structure are from:

Cole, V. B., 1962, Configuration of top of Precambrian basement rocks in Kansas: Kansas Geol. Survey Oil and Gas Inv. 26

Foster, R. W., and Stipp, T. F., 1961, Preliminary geologic and relief map of the Precambrian of New Mexico: New Mexico Bur. Mines and Mineral Resources, Circ. 57

Gaca, J. R., and Karig, D. E., 1965, Gravity survey in the San Luis Valley area, Colorado: U.S. Geol. Survey open-file report

U.S. Geological Survey and American Association of Petroleum Geologists, 1962, Tectonic map of the United States exclusive of Alaska and Hawaii: U.S. Geol. Survey, 2 sheets

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INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1968—GS0753