U.S. Department of the Interior
U.S. Geological Survey

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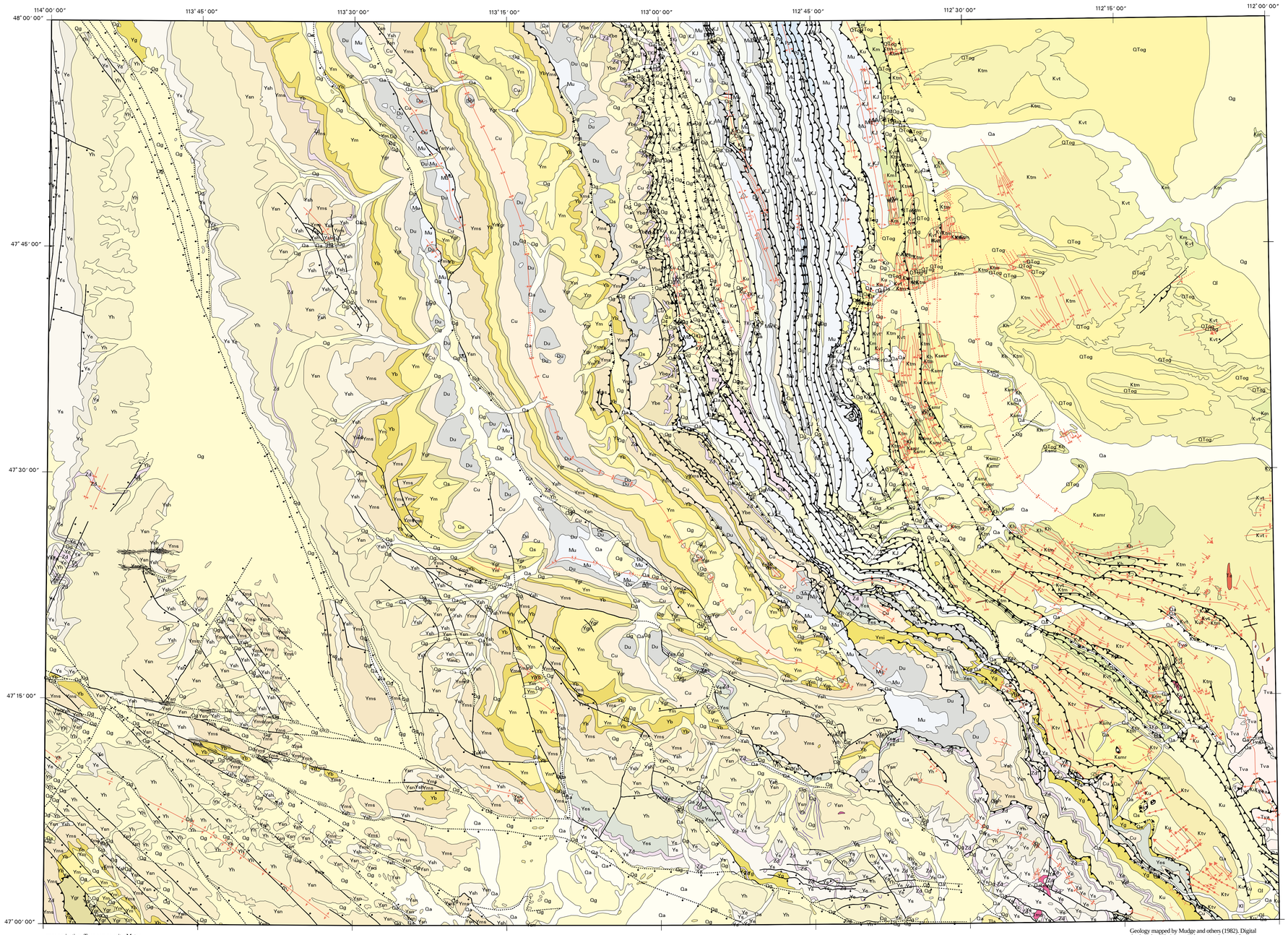
Miscellaneous Investigations Series Map I-1300
Database, version 1.0
Sheet 1



map projection: Transverse; units: Meters
spheroid: Clarke1866; datum: NAD27

Geology

Geology mapped by Mudge and others (1982). Digital database by S.R. Munts (Information Systems Support, Inc.) and J.T. Silkwood (U.S. Forest Service), 1999-2001.

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Geologic and Structure Map of the Choteau 1° x 2° Quadrangle, Western Montana: A Digital Database

By

M. R. Mudge, R. L. Earhart, J. W. Whipple and J. E. Harrison

Digital database by

Steven R. Munts and Jeffery T. Silkwood

2001

(map originally published in 1982)

Scale 1:250000

0 5 10 15 20 25 30 35
Kilometers

0 5 10 15 20 25 30 35
Miles

Explanation

- Qa - alluvial and colluvial deposits
- Qs - landslide deposits
- Qg - glacial deposits
- Ql - lake deposits
- QTog - older gravel
- Tla - lake deposits
- Ksmr - St. Mary River Formation
- Kh - Horsethief Sandstone and Bearpaw-Horsethief transition unit
- Ku - Upper and Lower Cretaceous rocks undivided, includes Two Medicine Formation, Virgelle Sandstone, Telegraph Creek Formation, Marias River Shale, and Blackleaf, Kootenai, and Mount Pablo Formations
- Ktm - Two Medicine Formation
- Ktv - volcanic-rich sedimentary rocks, flows, and tuffs
- Kvt - Virgelle Sandstone and Telegraph Creek Formation
- Km - Marias River Shale
- KJ - Lower Cretaceous and Jurassic rocks undivided
- Pz - Paleozoic rocks, includes part or all of Mississippian, Devonian, and Cambrian sequences
- Mu - Upper and Lower Mississippian rocks undivided
- Du - Upper and Middle Devonian rocks undivided
- Cu - Cambrian rocks undivided

Belt Supergroup

- Ygr - Garnet Range Formation
- Ybe - McNamara Formation, Bonner Quartzite, and Mount Shields, Shepard, Snowslip, Helena, Empire, and Spokane Formations
- Ym - McNamara Formation
- Yml - Bonner Quartzite and Mount Shields, Shepard, and Snowslip Formations, undivided
- Yb - Bonner Quartzite
- Yms - Mount Shields Formation
- Ysh - Shepard Formation
- Ysn - Snowslip Formation
- Yh - Helena Formation
- Yes - Spokane and Empire Formations undivided
- Ye - Empire Formation
- Ys - Spokane Formation
- Yg - Greyson Formation

Igneous rocks younger than Early Tertiary thrust faulting

- Tb - basalt
- Td - dacite
- Tm - hornblende monzonite
- Tmp - monzonite porphyry
- Ta - biotite trachyandesite and andesite

Igneous rocks older than Early Tertiary thrust faulting

- Tva - Adel Mountain Volcanics of Lyons (1944)
- TKl - trachyandesite
- TKr - rhyolite
- TKp - quartz monzonite porphyry
- Kl - latite
- Zd - diorite sills and local dikes
- Ydi - andesite, basaltic andesite, and dacite

- Tm - hornblende monzonite dikes and sills
- Tmp - monzonite porphyry dikes and sills
- Ks - diorite sills
- Ydi - andesite, basaltic andesite, and dacite sills
- Contact; dotted where concealed
- Contact; scratch boundary
- Fault, unknown offset; dotted where concealed
- Normal fault; dotted where concealed. Bar and ball on downthrown side
- Right-lateral strike-slip fault; dotted where concealed
- Left-lateral strike-slip fault; dotted where concealed
- Thrust, dotted where concealed. Teeth on upper plate
- Anticline; dotted where concealed; arrow head on axis line indicates plunge direction
- Syncline; dotted where concealed; arrow head on axis line indicates plunge direction
- Overturned anticline; dotted where concealed
- Horizontal monocline; dotted where concealed
- Overturned syncline
- Monocline

Index map showing Choteau quadrangle

References

Lyons, J.B., 1944, Igneous rocks of the Northern Big Belt Range, Montana: Geological Society of America Bulletin, v. 55, no. 4, pp. 445-472.

Mudge, M.R., Earhart, R.L., Whipple, J.W., and Harrison, J.E., 1982, Geologic and structure map of the Choteau 1° x 2° quadrangle, western Montana: U.S. Geological Survey Miscellaneous Investigations Series Map I-1300, 2 sheets, scale 1:250,000.

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The digital database is not meant to be used or displayed at any scale larger than 1:250,000 (e.g., 1:100,000, or 1:24,000).