birth of the carrizo-wilcox

Robert E. Mace, Ph.D., P.G.
The Meadows Center for Water & the Environment
Texas State University

presented at the

Milam and Burleson Counties Groundwater Summit
Caldwell, Texas; August 15, 2018

presentation available at sosecretoccultandconcealed.com

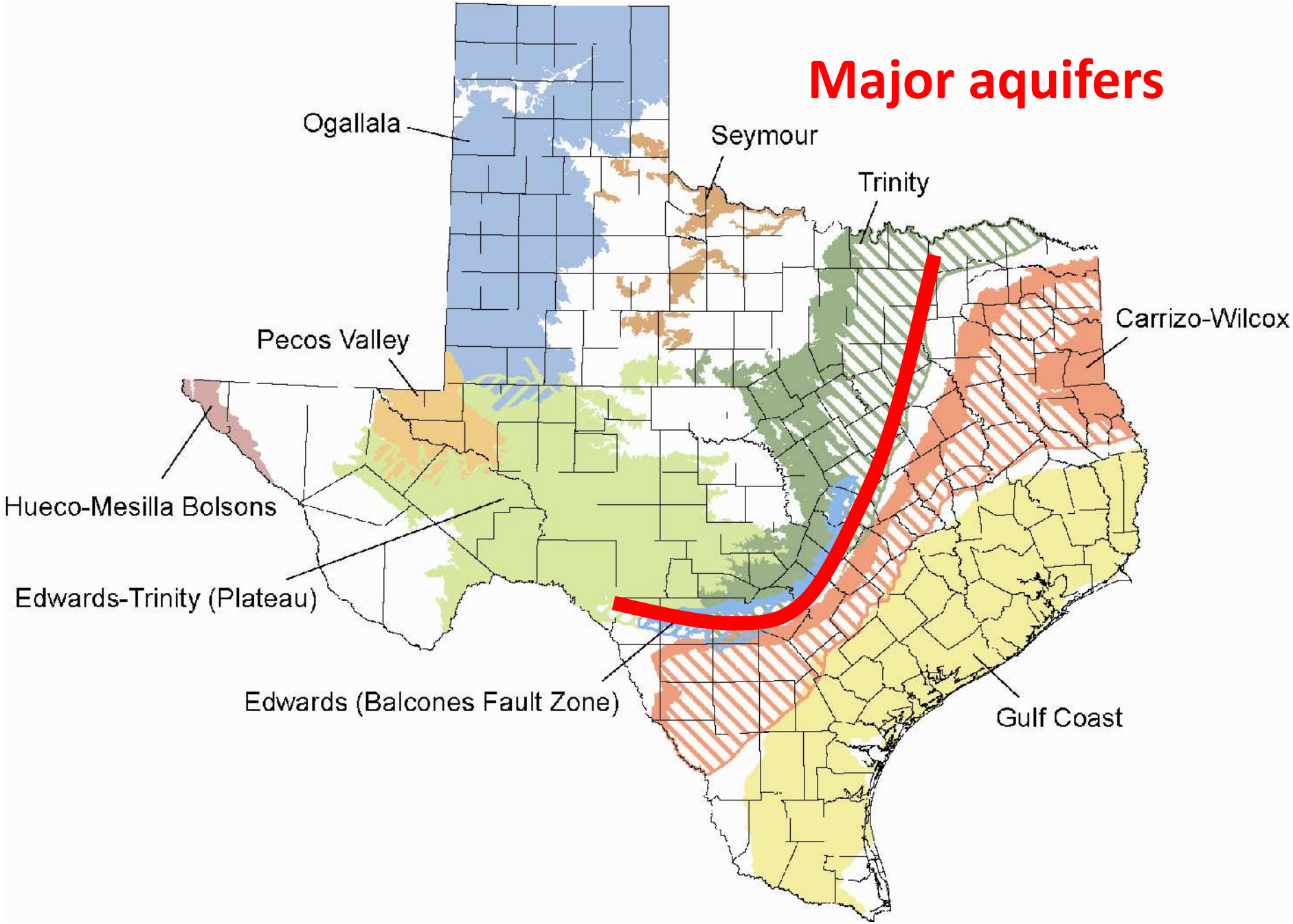
the meadows center for water & the environment

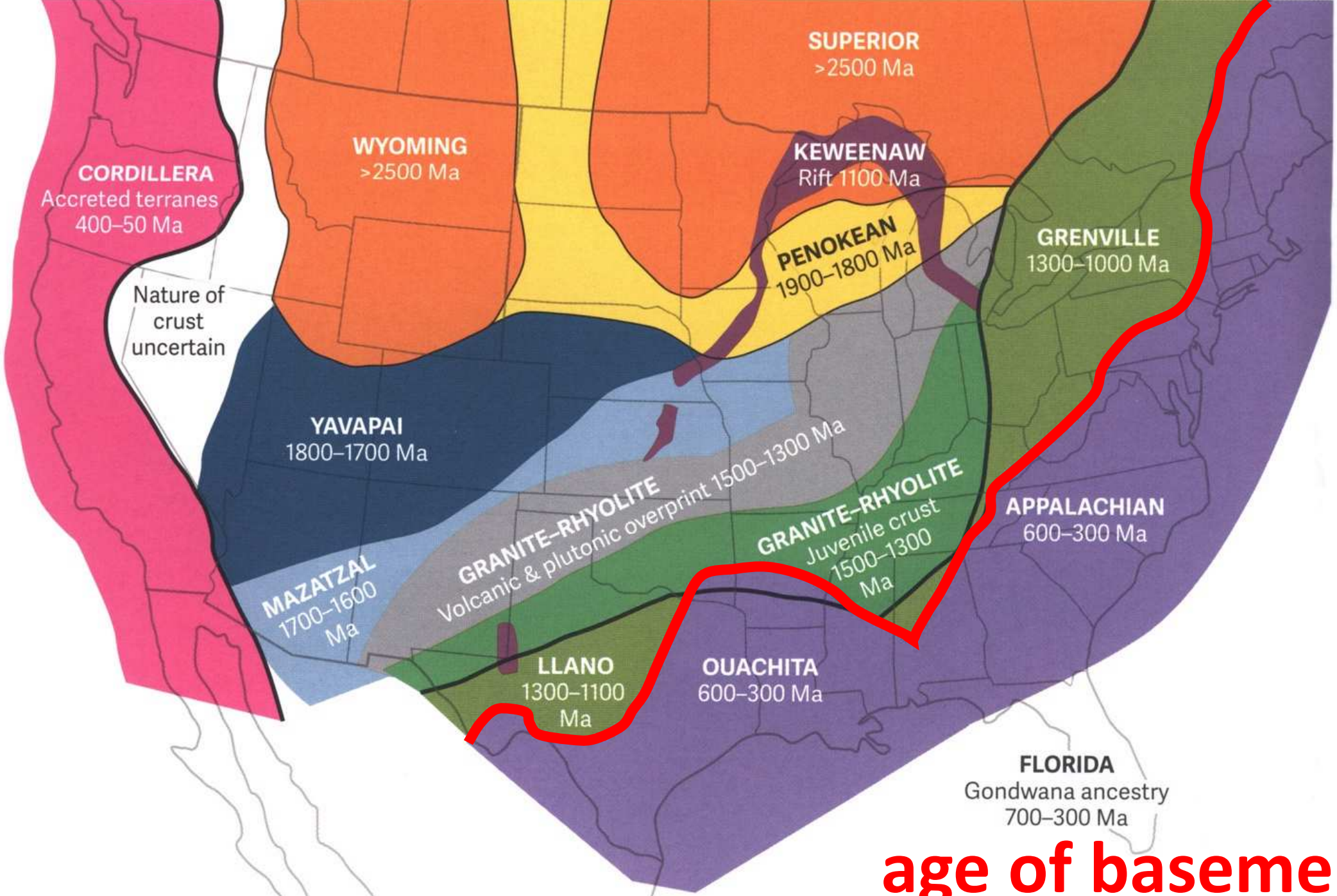
inspiring research and leadership
that ensures clean, abundant water
for the environment and all humanity

TEXAS STATE UNIVERSITY®

The rising STAR *of Texas*

Major aquifers





age of basement rocks

from Ewing (2016)

Logan's bergy bits

ICE-BERG ICE

$5.00 a bag

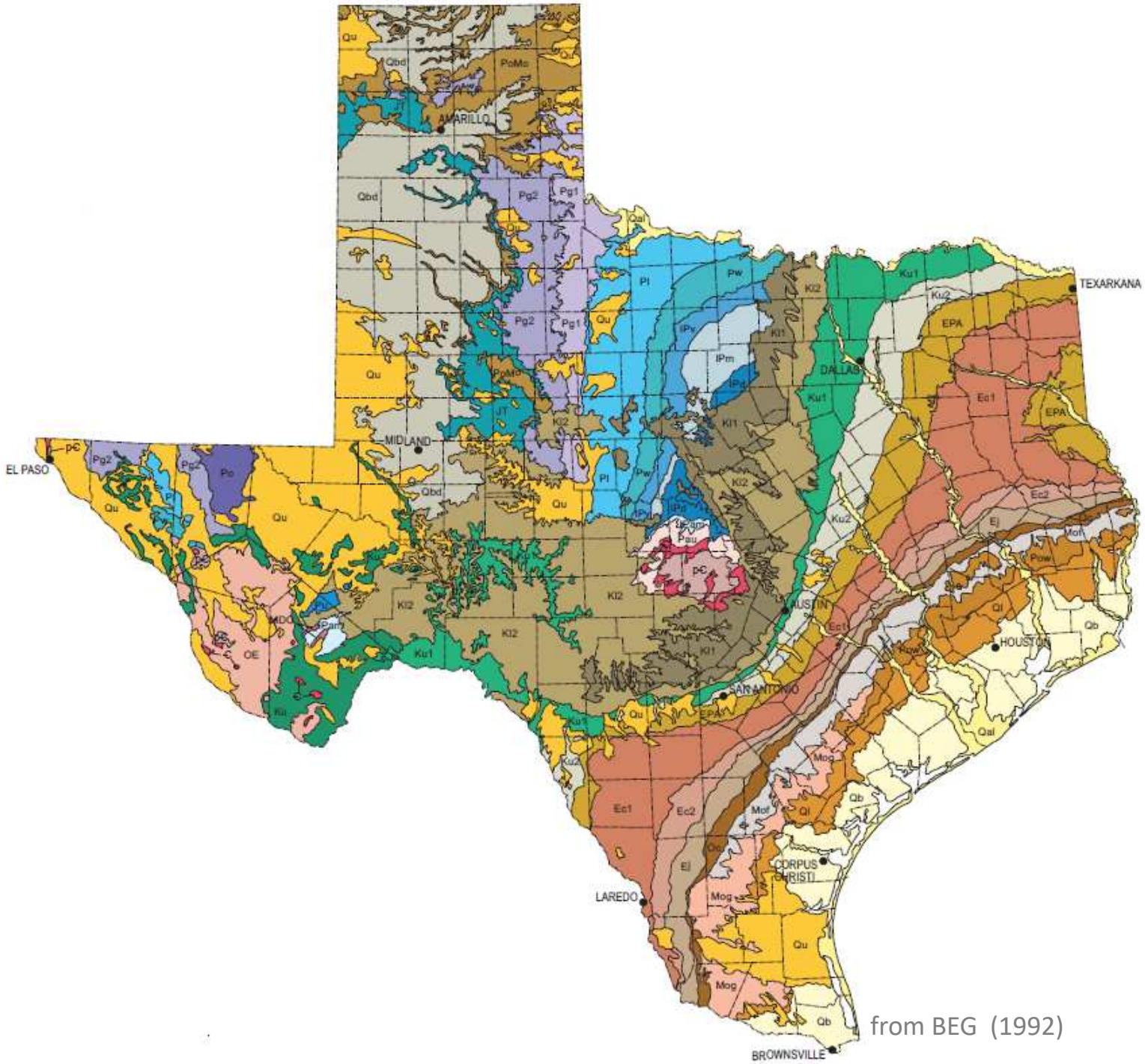
Contact Logan

(709) 454 - 6553

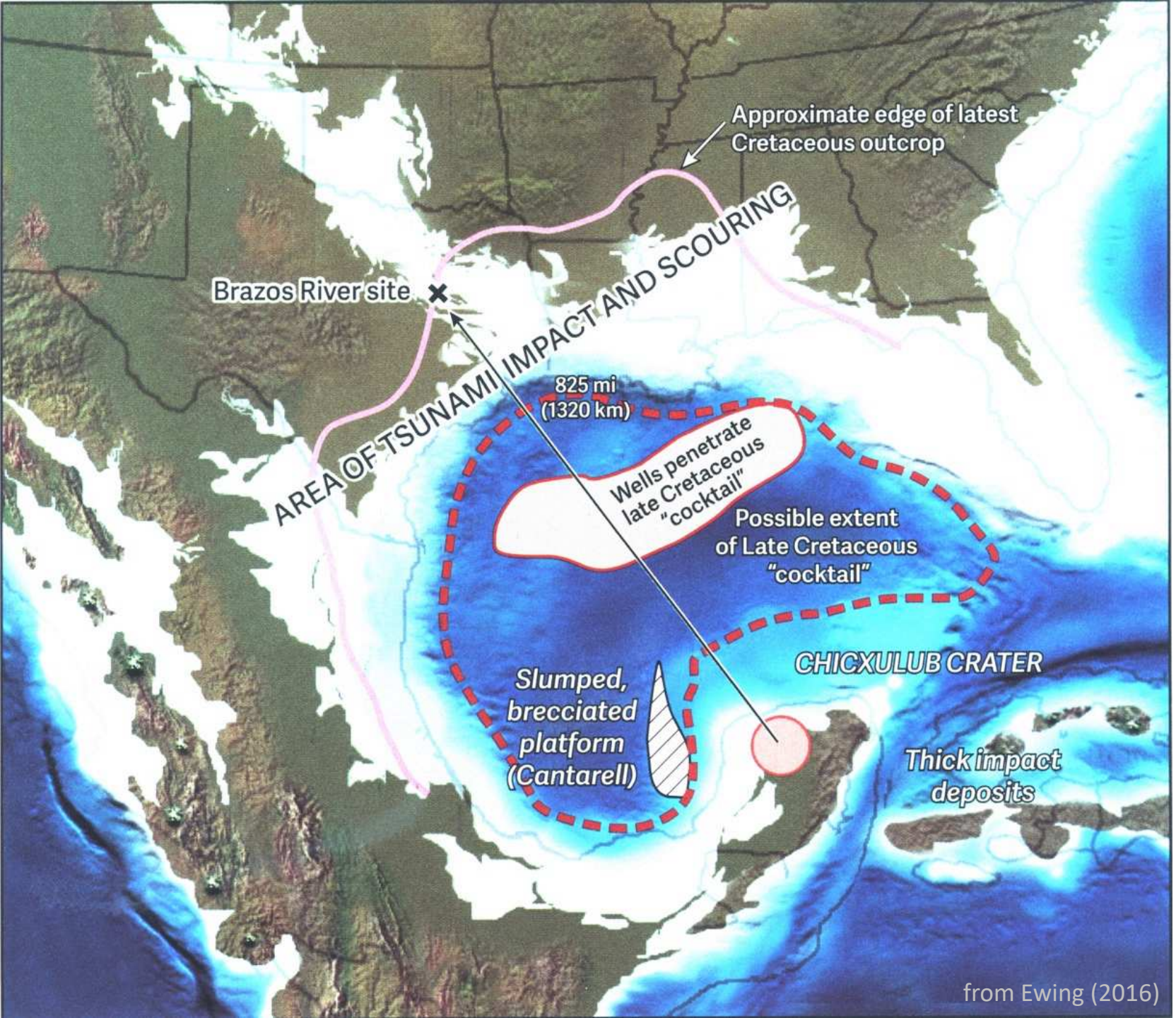
(709) 454 - 6816

St. Lunaire-Griquet, NL

Get em while they're cold



from BEG (1992)



chicxulub crater

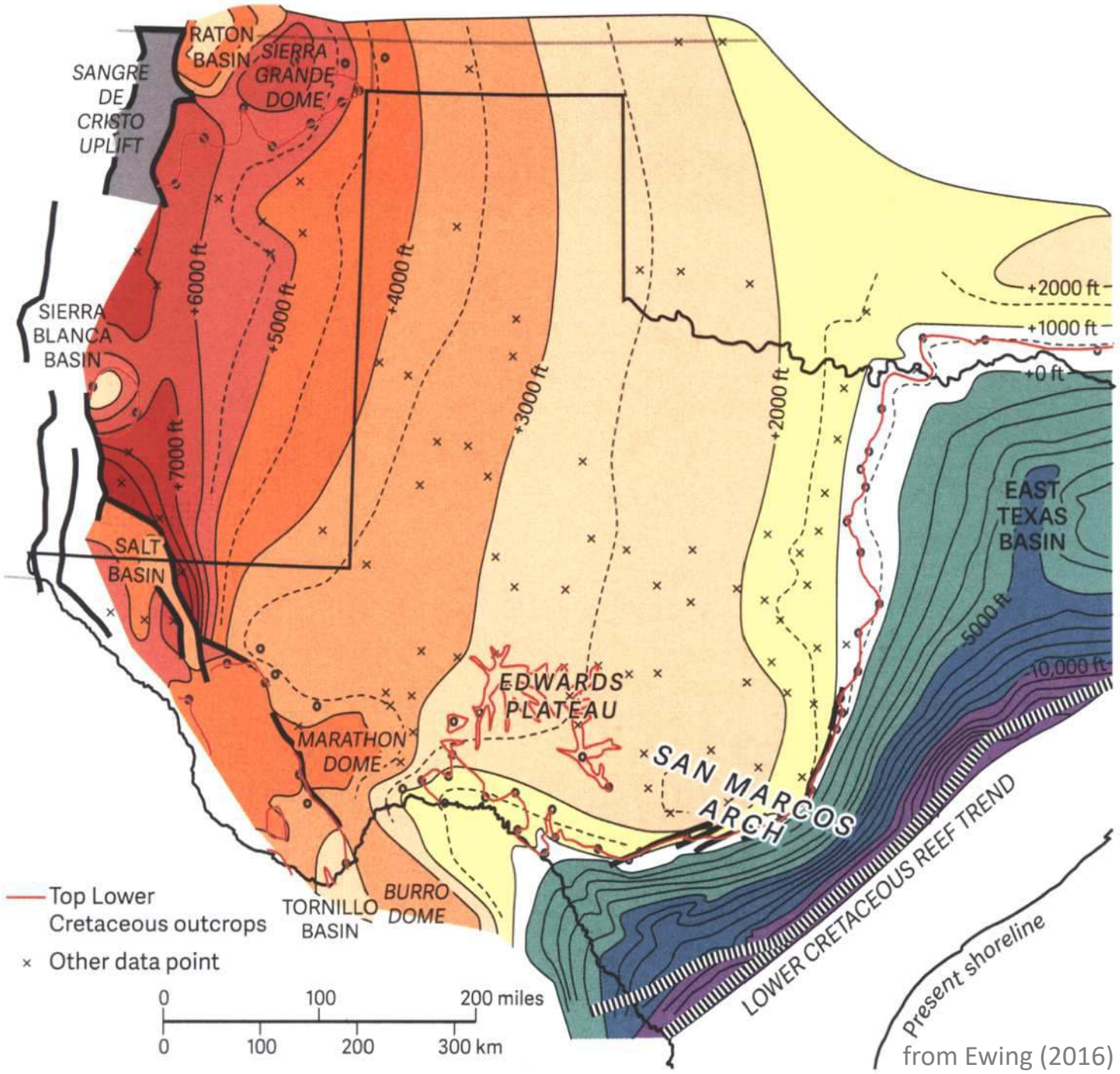
110 miles wide

6-mile wide asteroid

66 million years ago

Falls on the Brazos Park

photo from Yucatan Expat Life (2016)

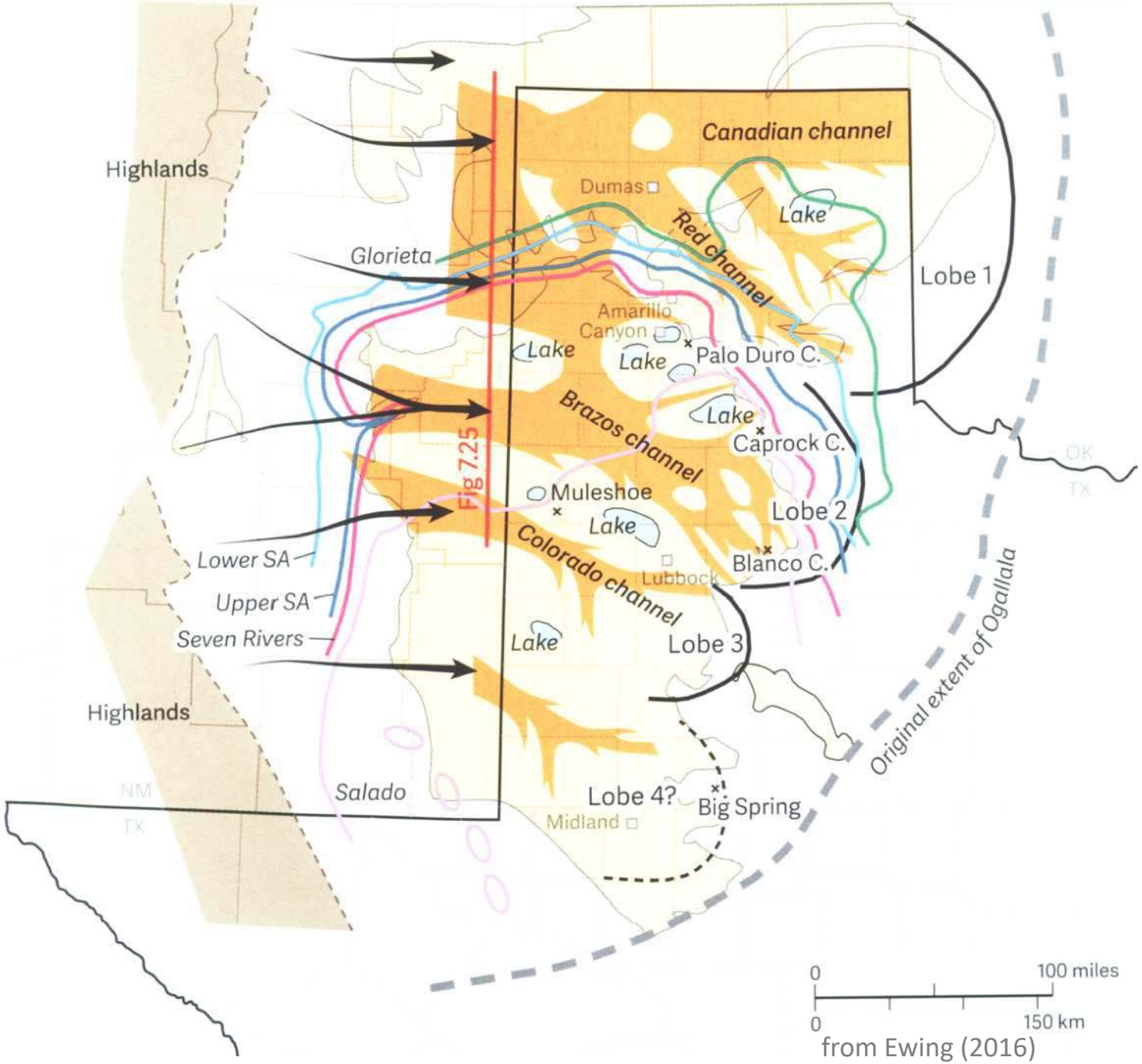


geologic teeter totter

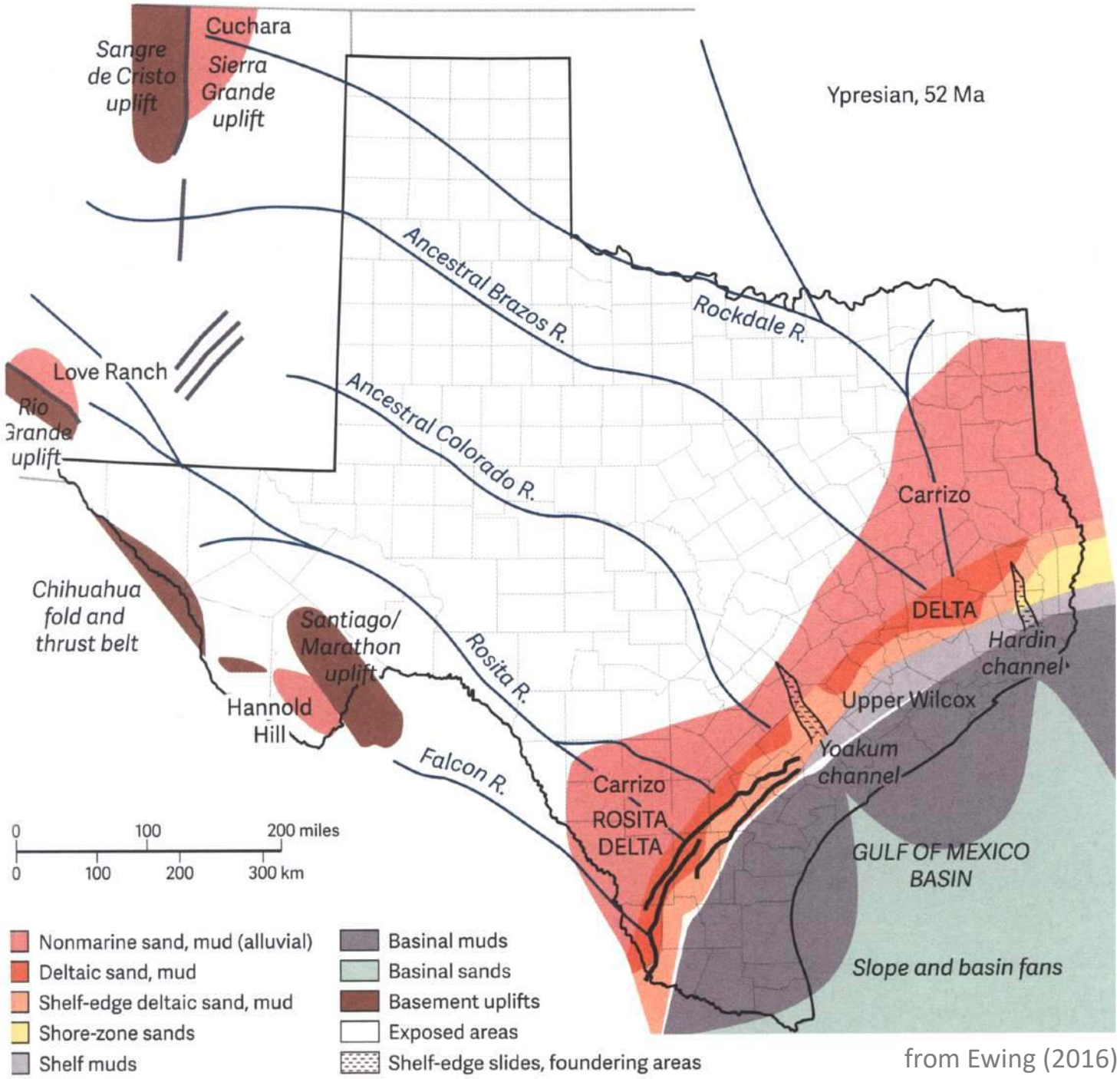
13 to 28 million years ago

from Ewing (2016)

ogallala channels



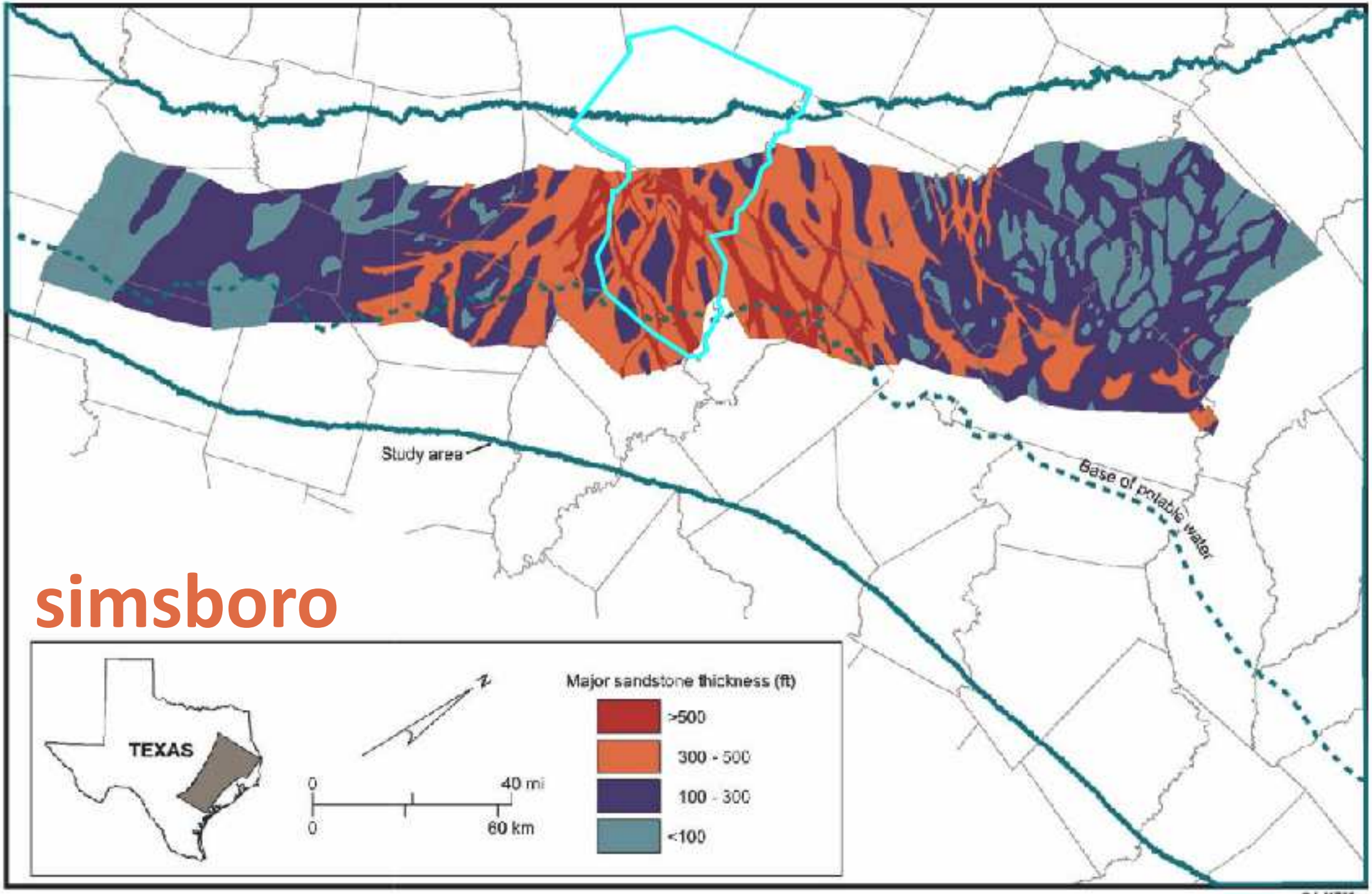
from Ewing (2016)



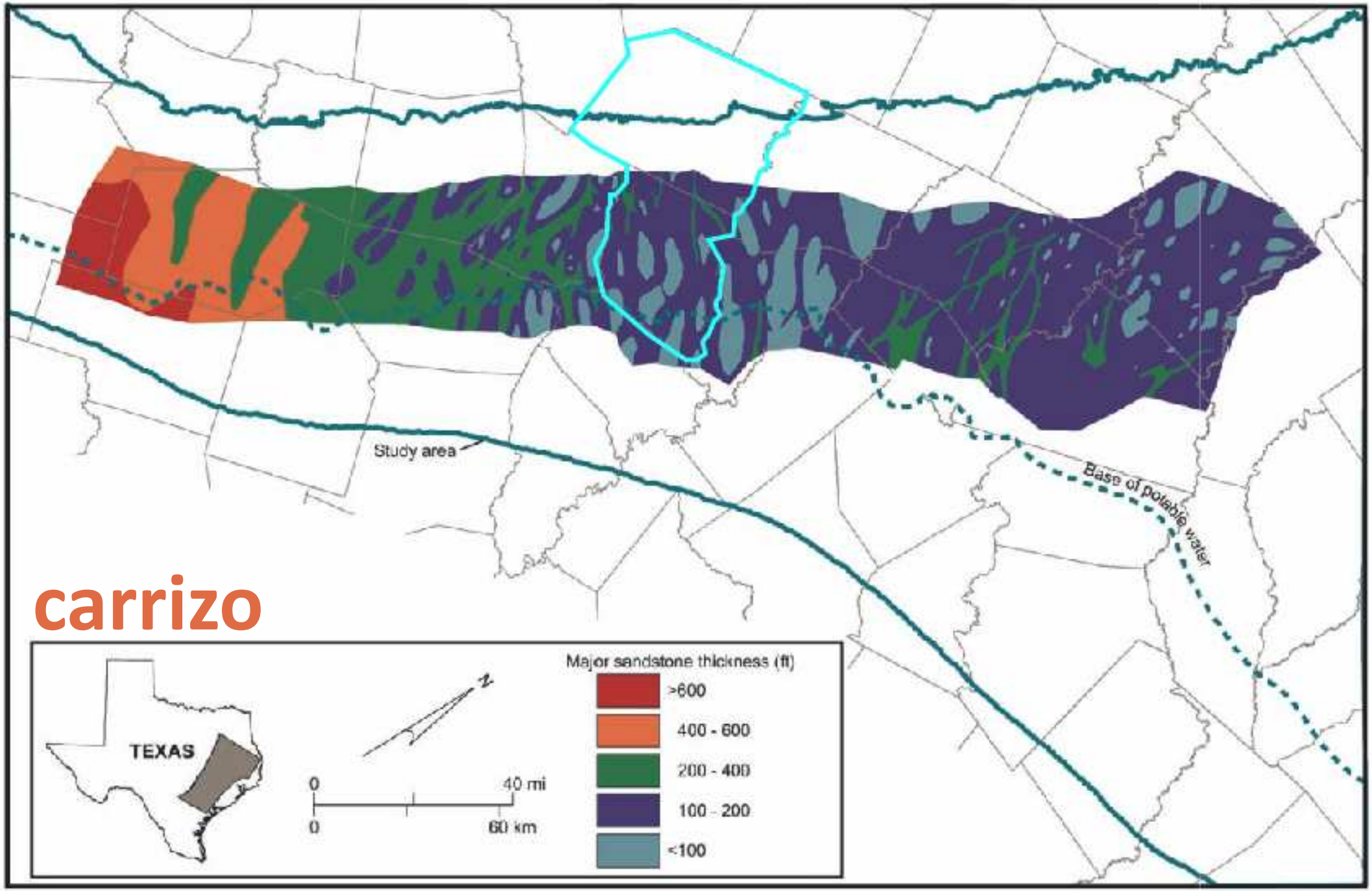
from Ewing (2016)

ancestral rivers

and the formation of coastal aquifers 52 million years ago



from Dutton and others (2003)



carrizo

from Dutton and others (2003)

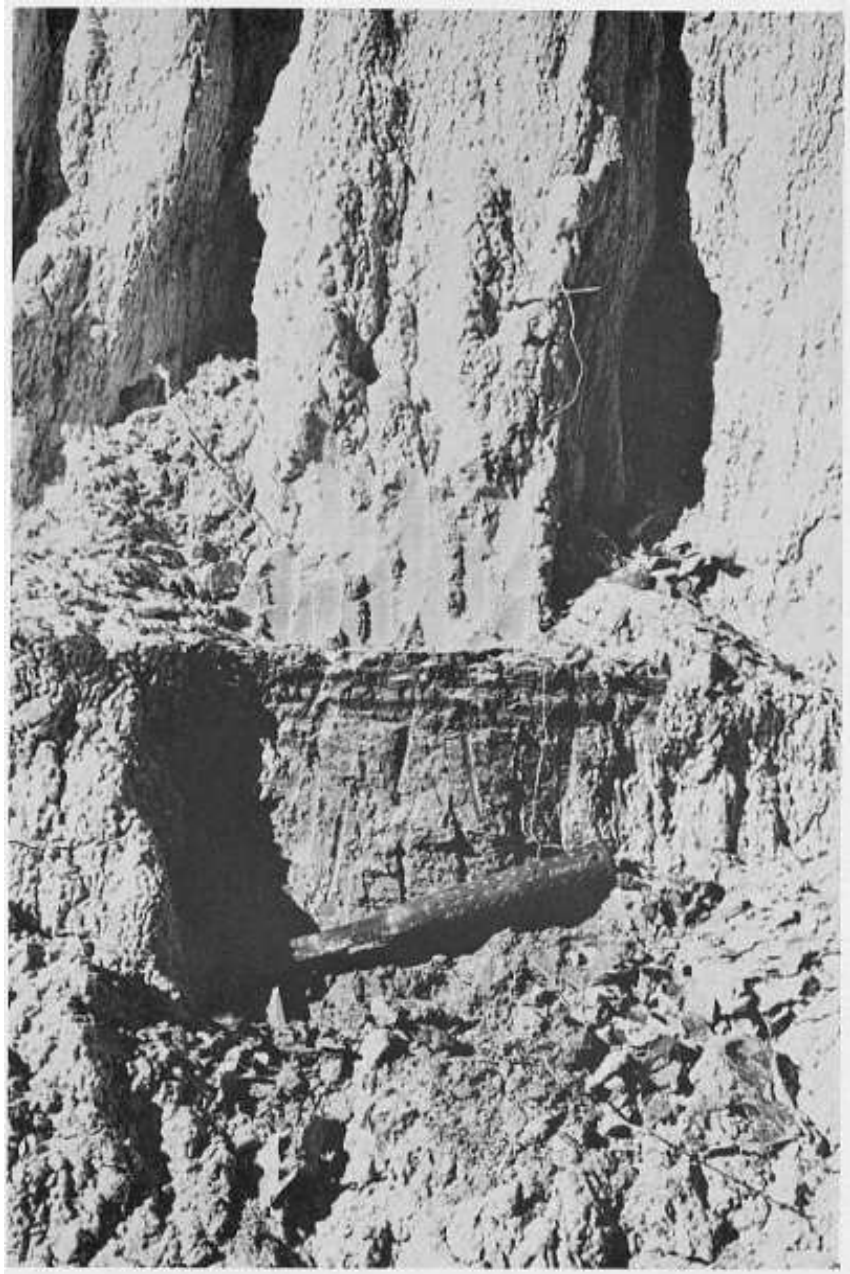
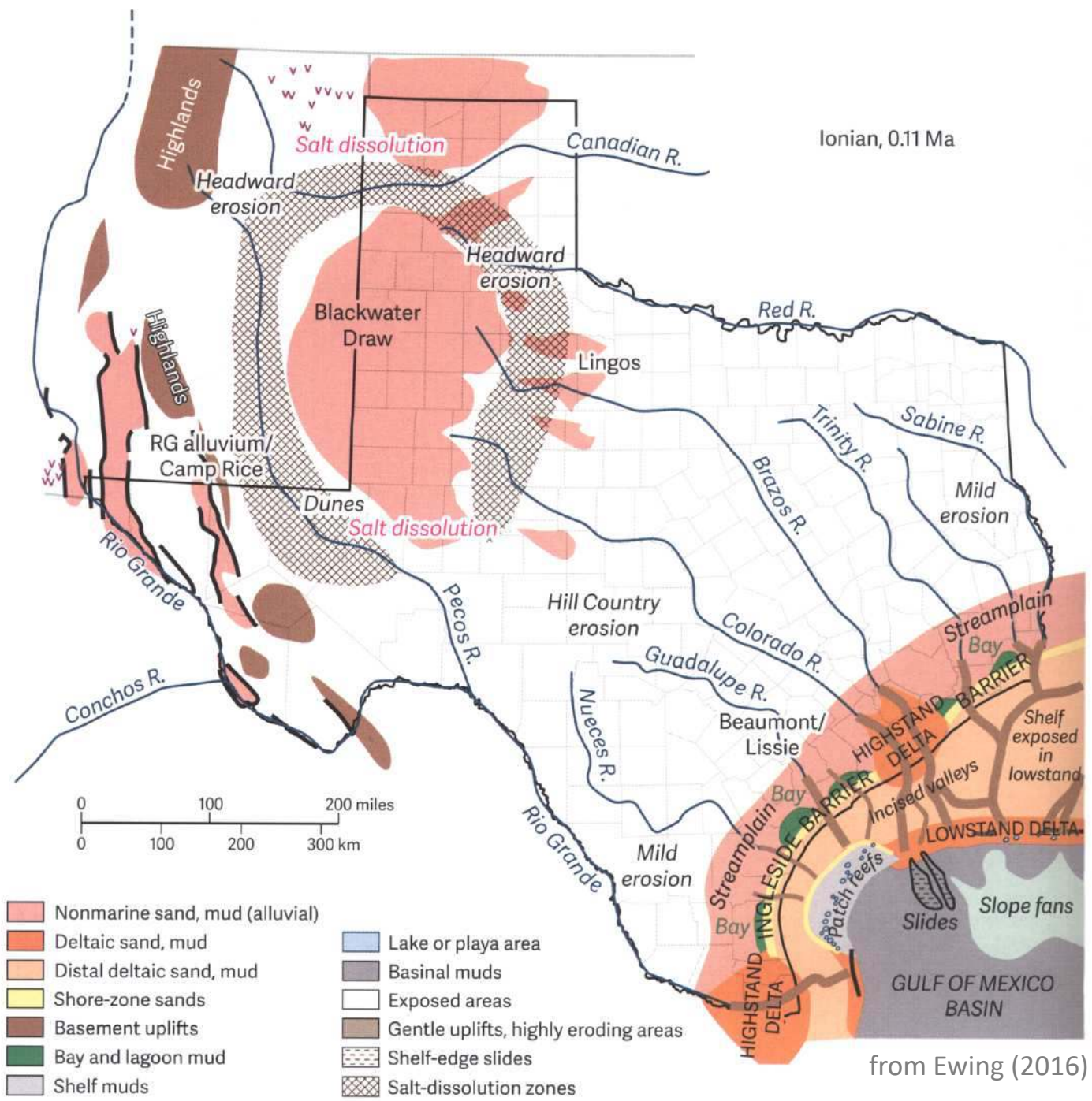


Fig. 22. (Locality 49) The Hooper-Simsboro contact here is disconformable, marked by a layer of lignite and fragmented petrified wood. The Hooper Formation consists of clay, sand and lignite overlain by clean, white sand of the Simsboro Formation.

Bammel (1979)

Figure 2.3: Carrizo overlain by 'Quaternary high gravel'. Robust Ophiomorpha nodosa occur to the right of the person for scale.

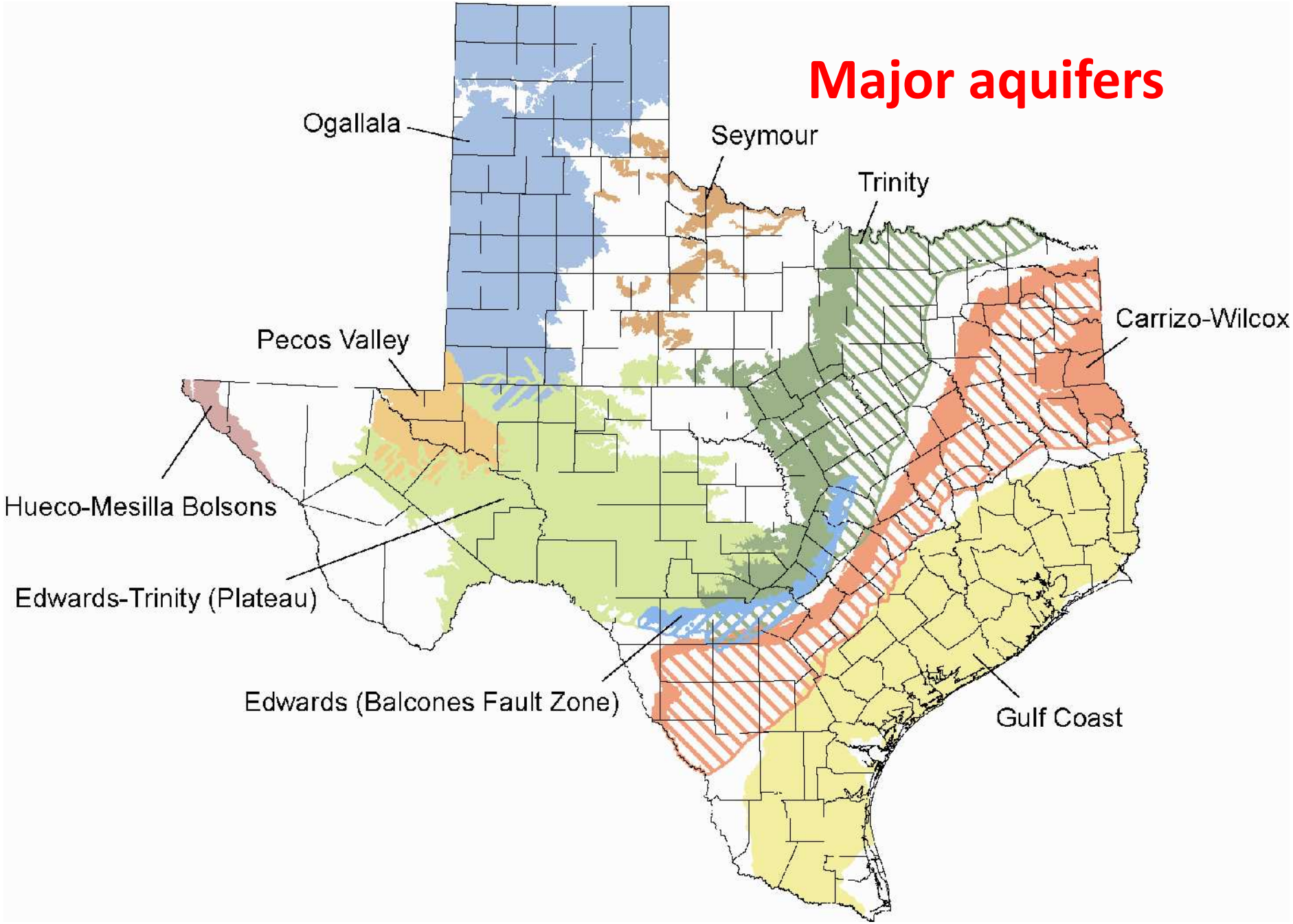
Denison and others (2016)



from Ewing (2016)

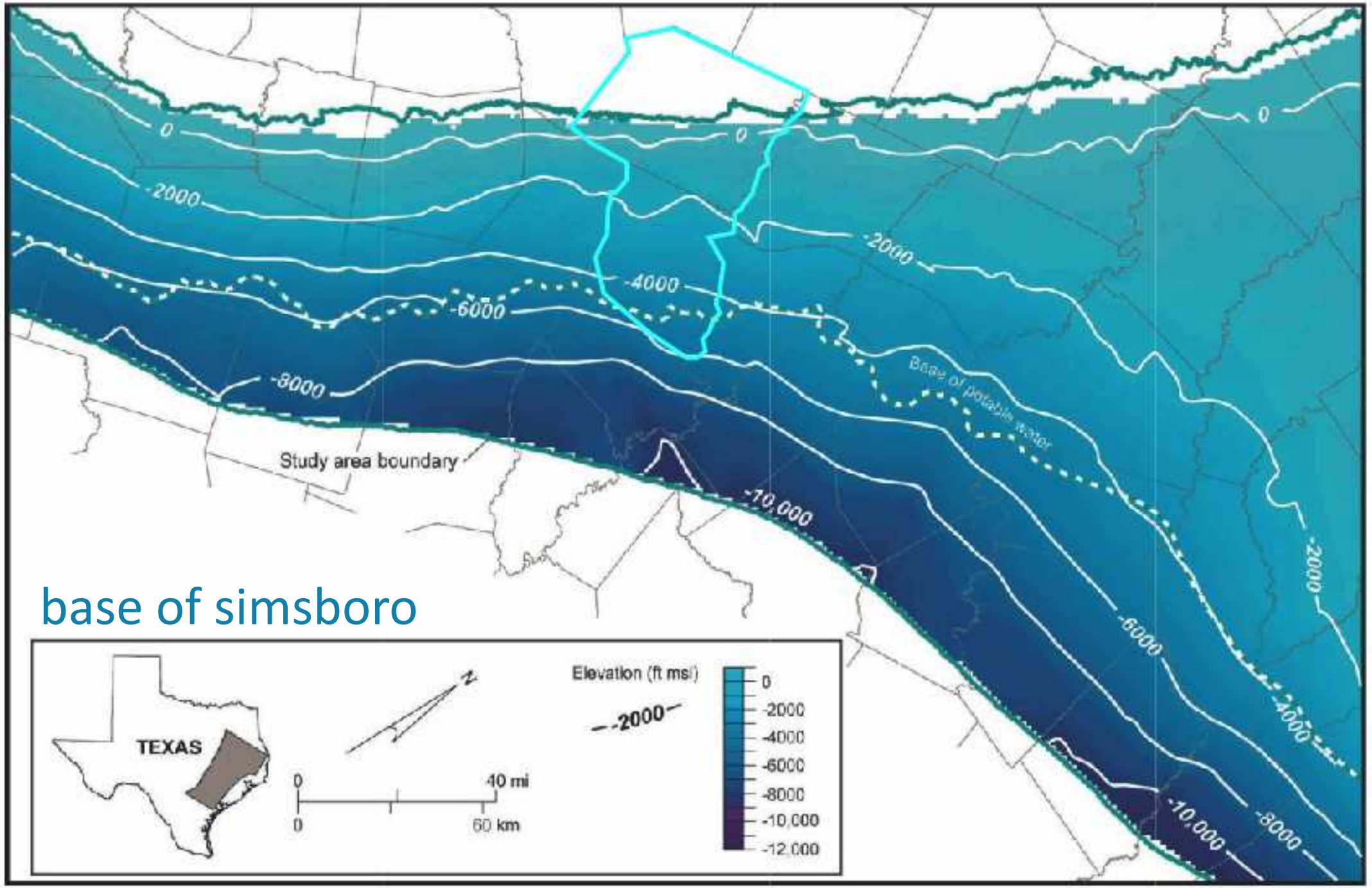
that thieving pecos

Major aquifers



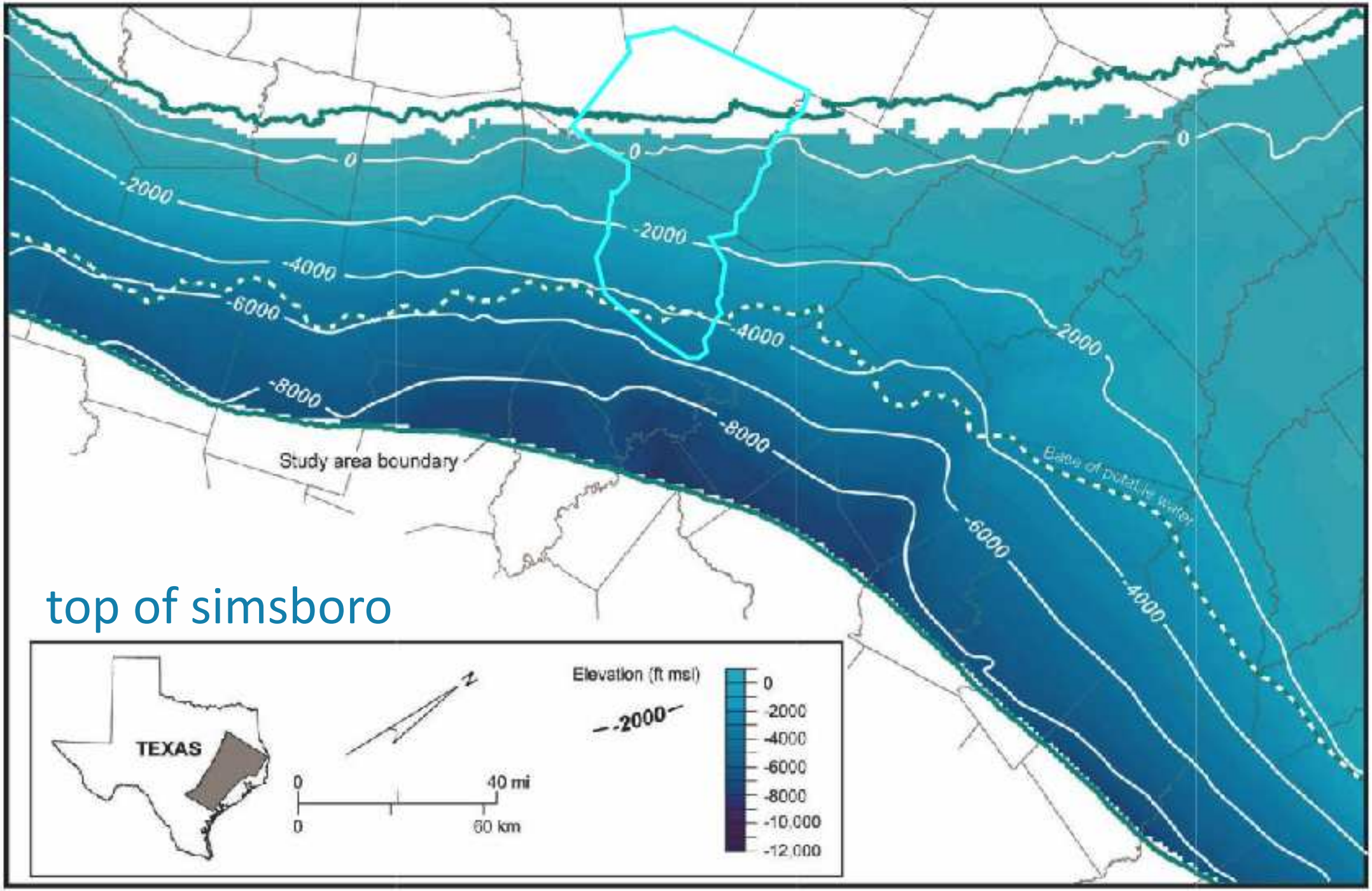
surface geology

from Dutton and others (2003)



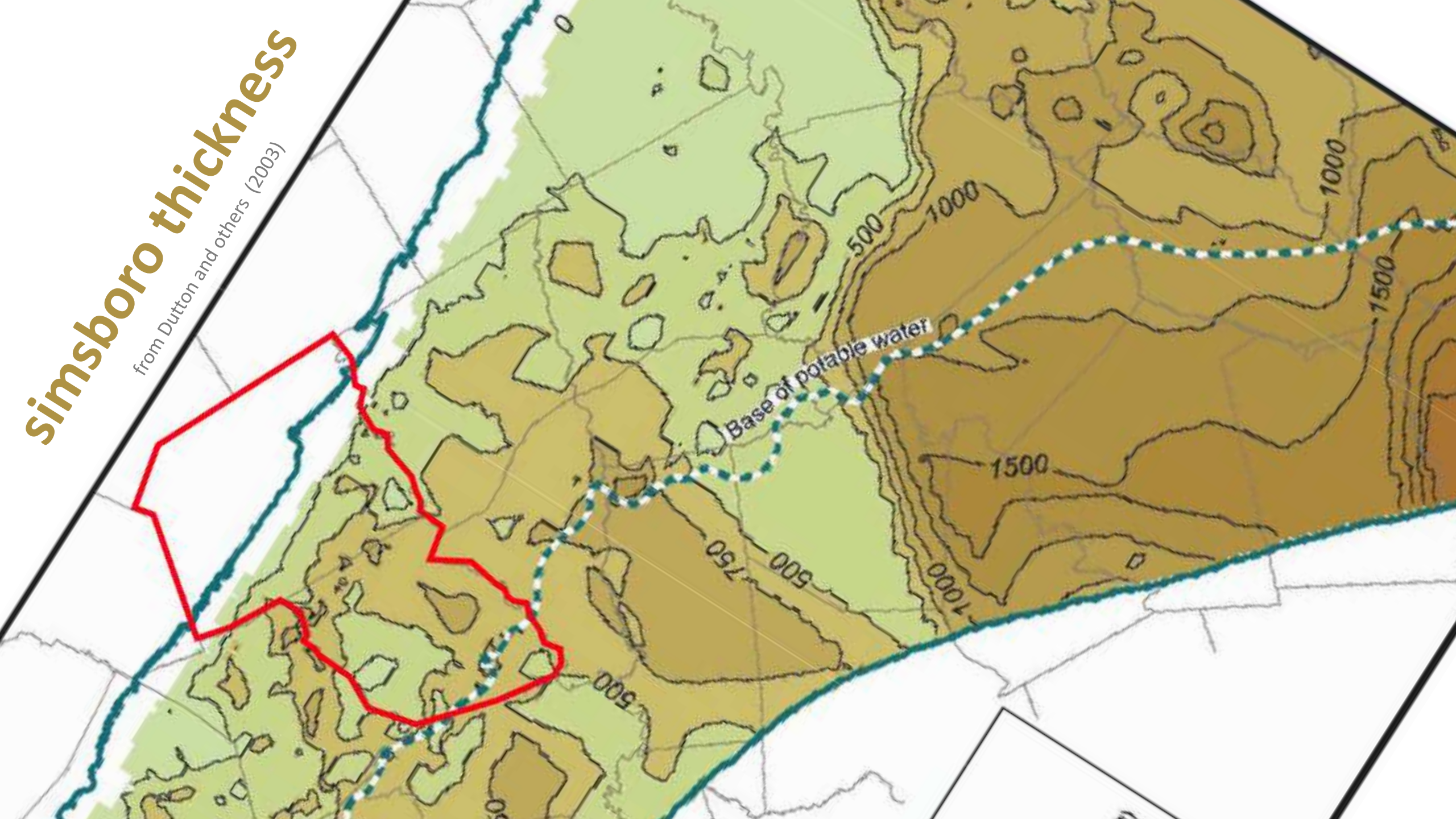
base of simsboro

from Dutton and others (2003)



top of simsboro

from Dutton and others (2003)


simsboro thickness
from Dutton and others (2003)
0
500
1000
1500
Base of potable water
750
500
1000
1500
500

from Dutton and others (2003)

Base of potable water

Milano Fault Zone

Fault Zone

A

A'

B

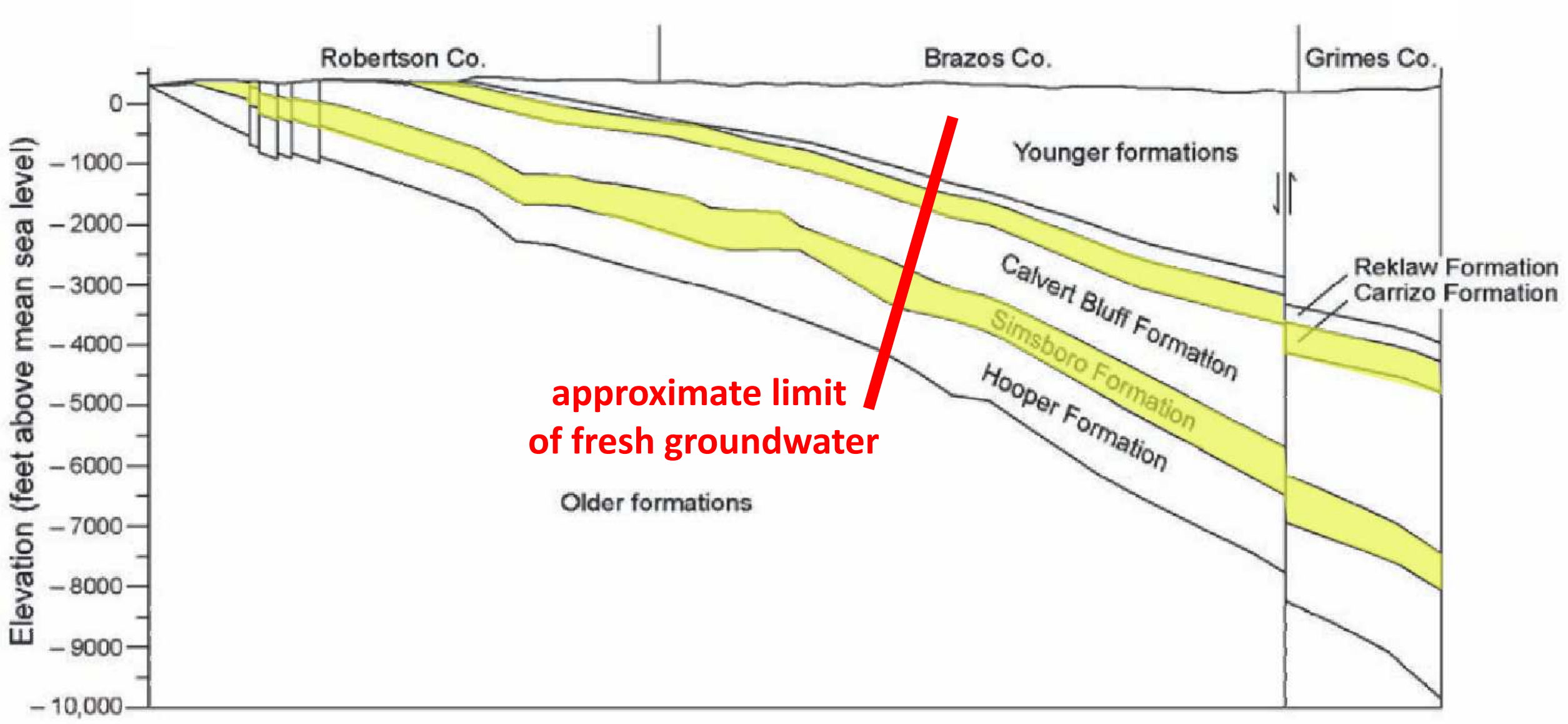
B'

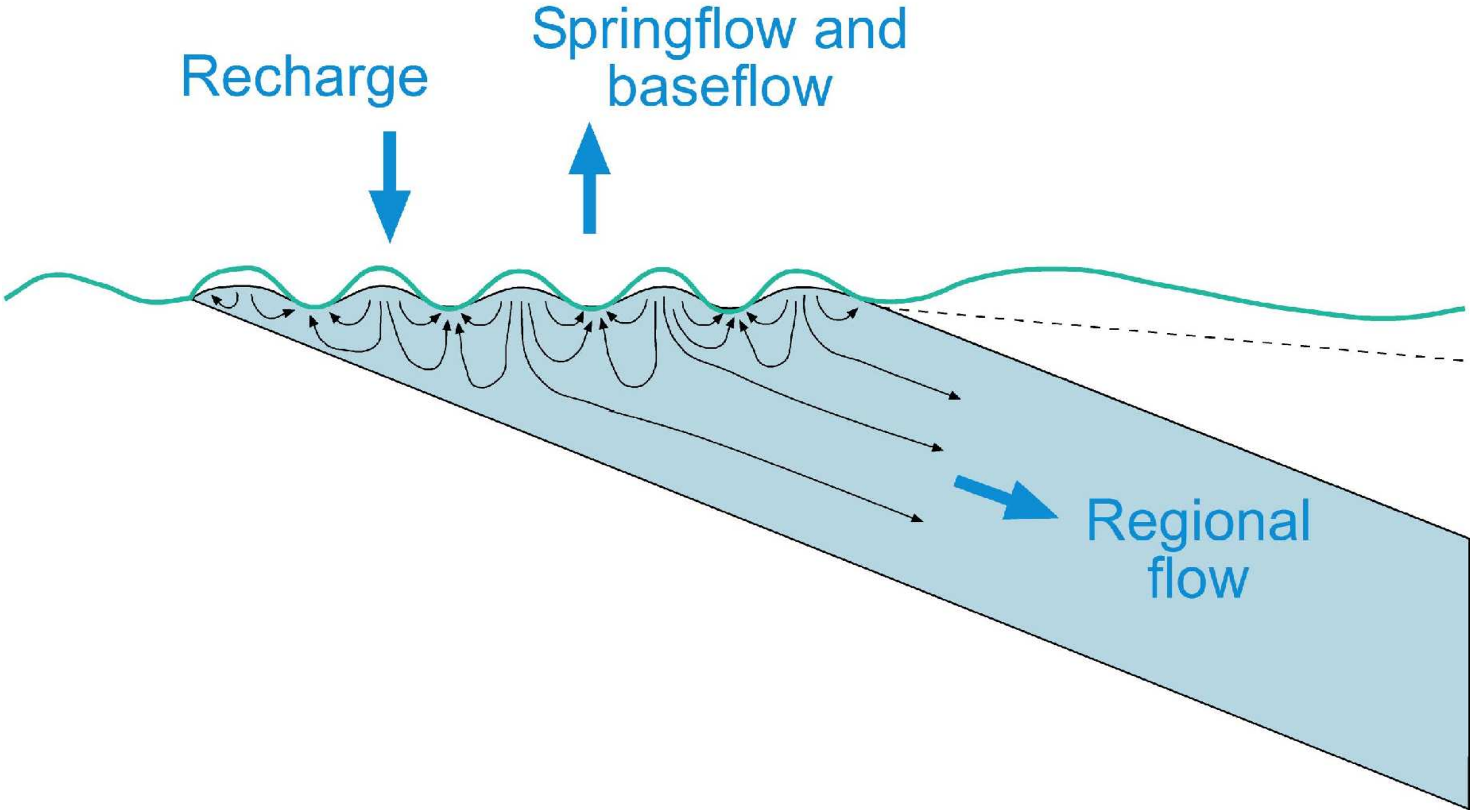
C

C'

D

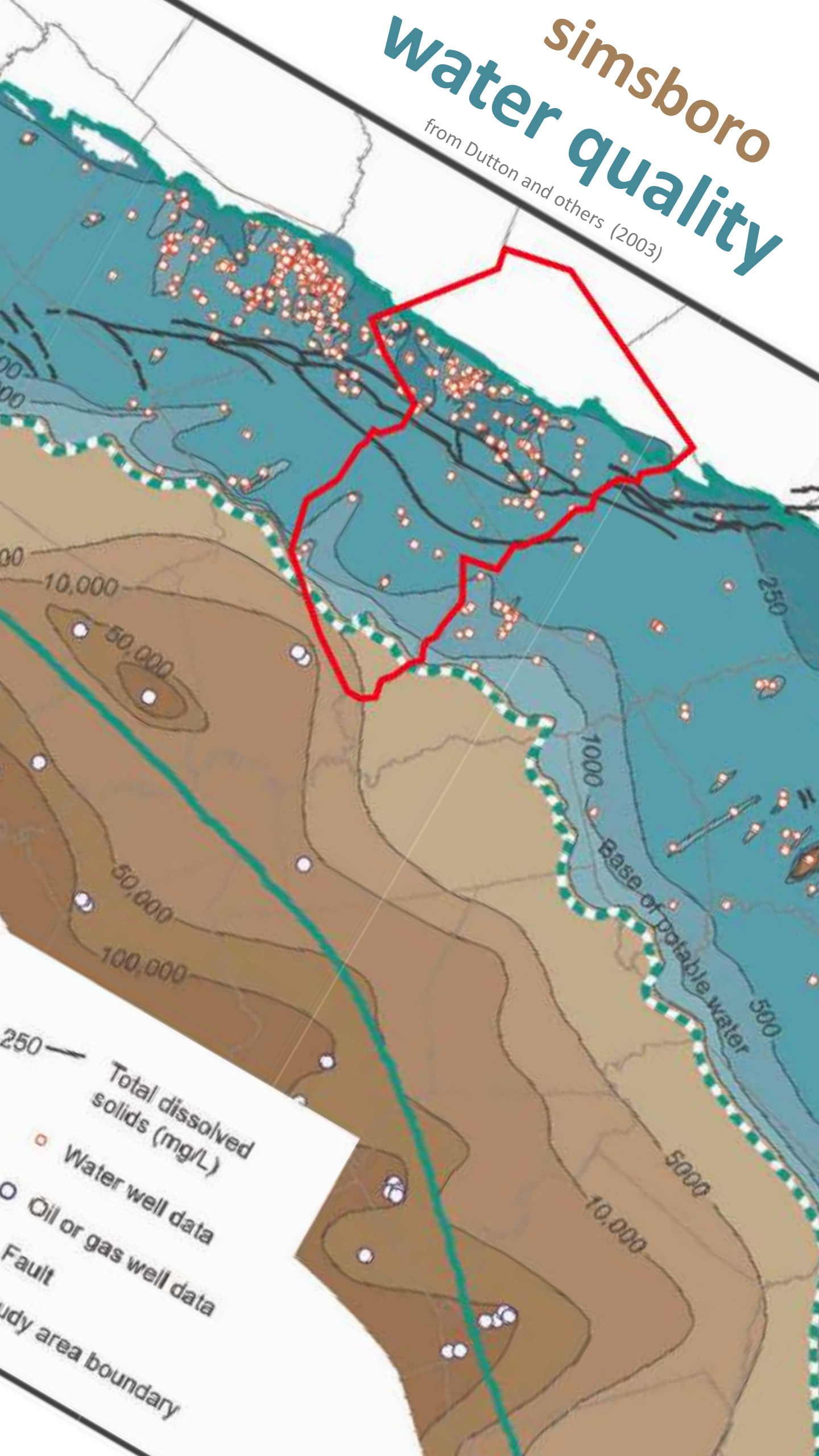
D'

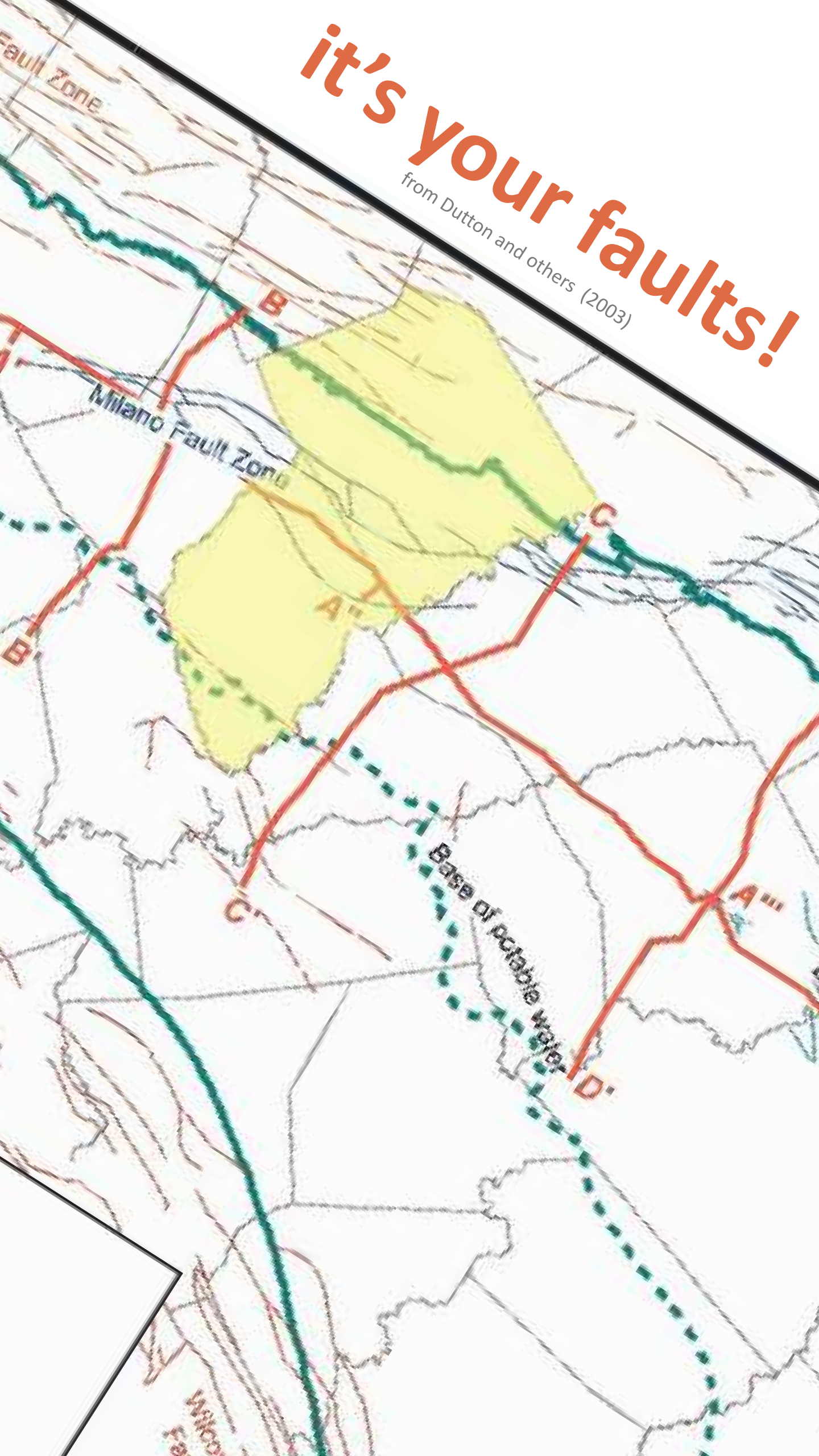

Robertson Co.
Brazos Co.
Grimes Co.
Elevation (feet above mean sea level)
0
−1000
−2000
−3000
−4000
−5000
−6000
−7000
−8000
−9000
−10,000
Younger formations
Calvert Bluff Formation
Simsboro Formation
Hooper Formation
Reklaw Formation
Carrizo Formation
approximate limit
of fresh groundwater
Older formations

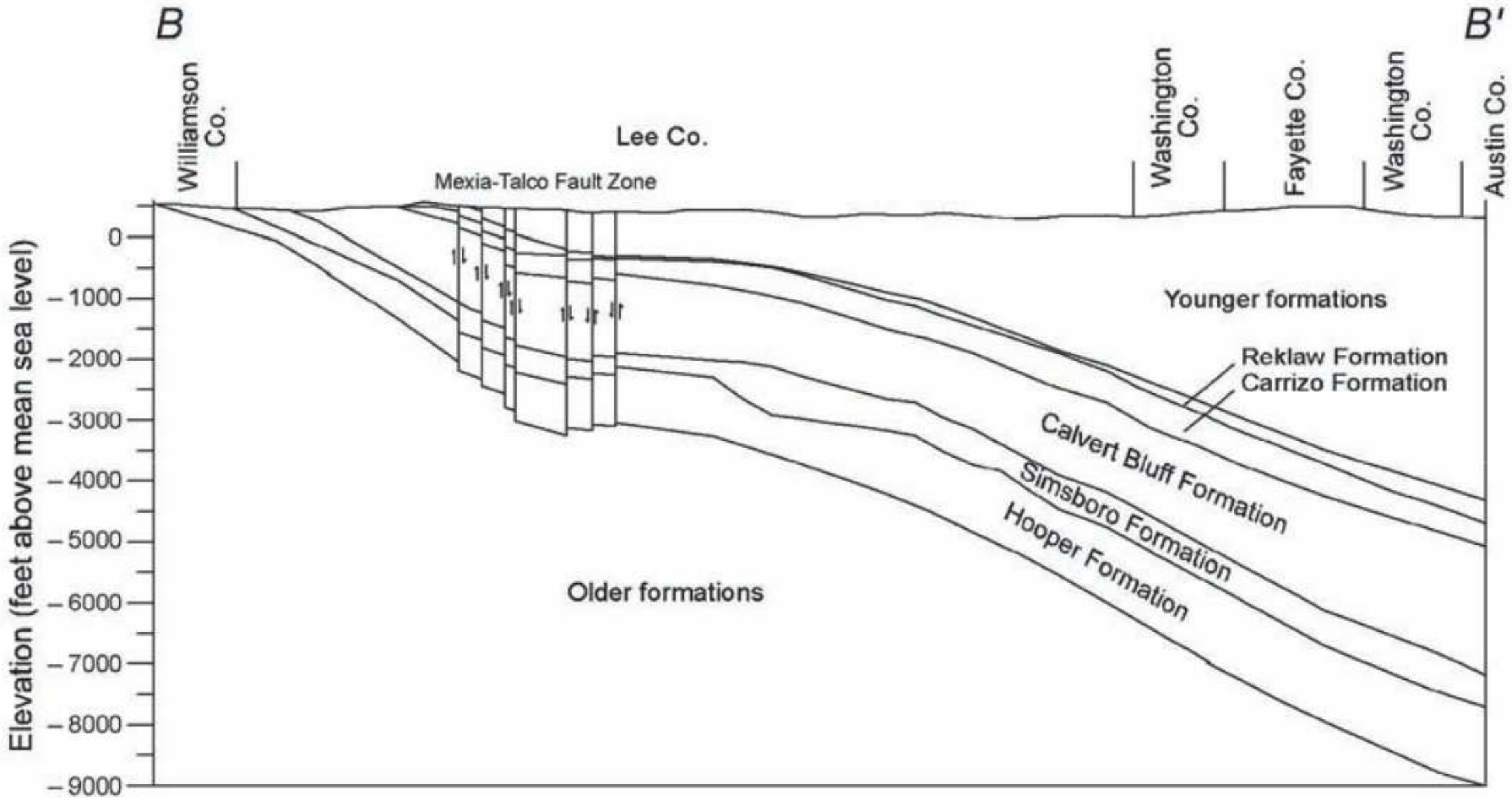

Recharge
Springflow and baseflow
Regional flow

simsboro water quality

from Dutton and others (2003)

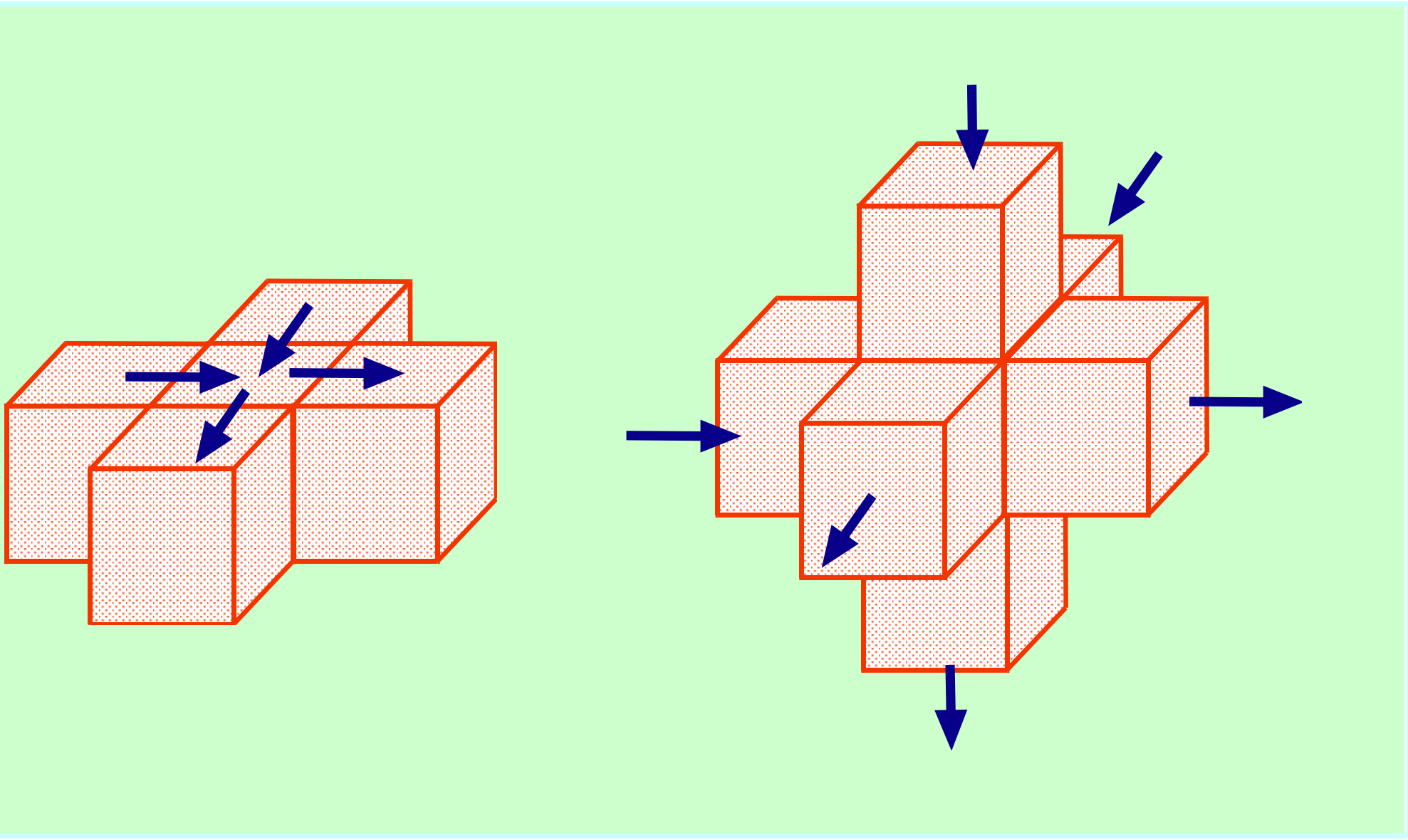



it's your faults!
from Dutton and others (2003)
Fault Zone
Wasatch Fault Zone
Base of Active Wedge
B
B'
C
C'
A
A'
D
D'

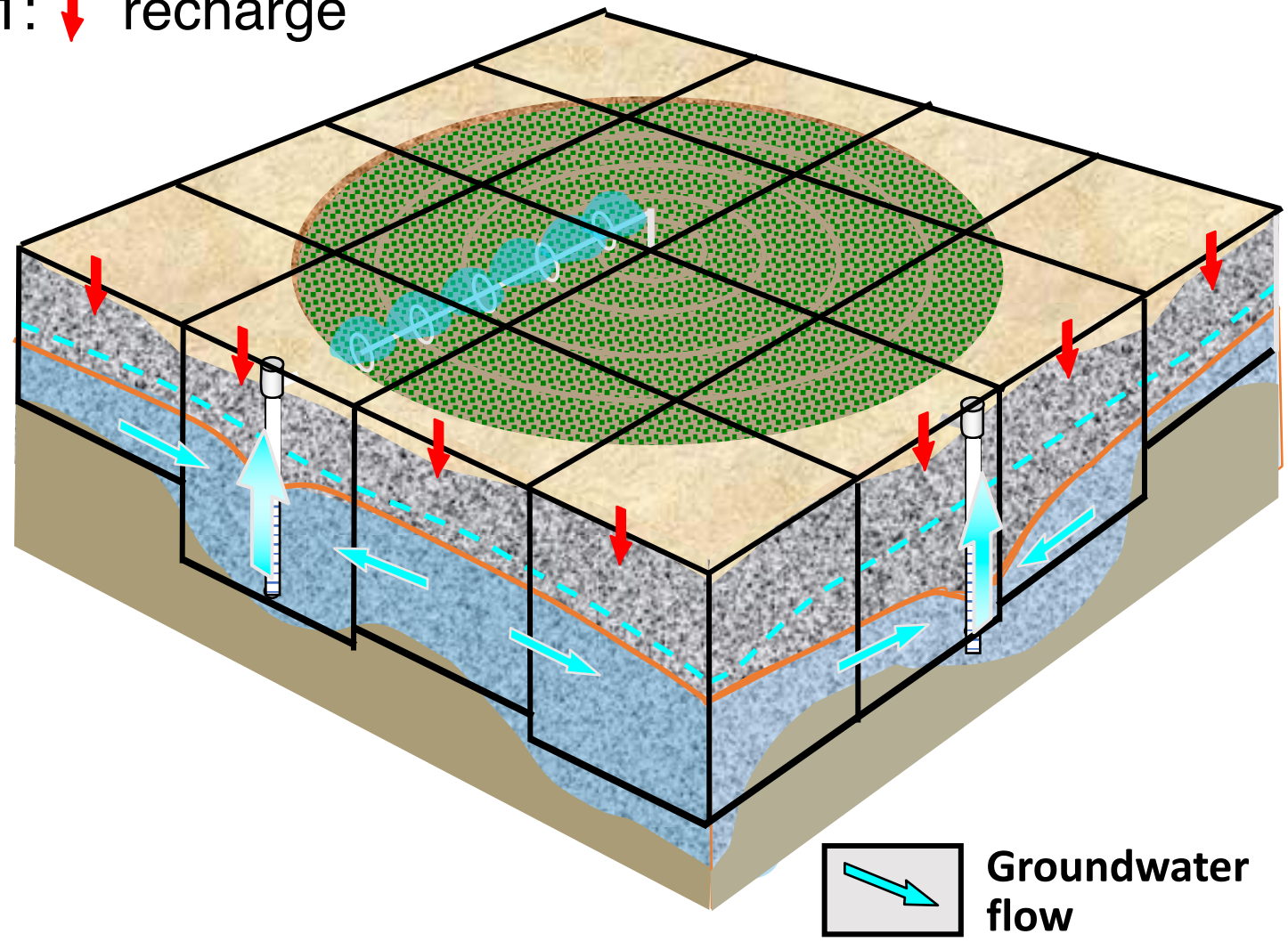


from Dutton and others (2003)

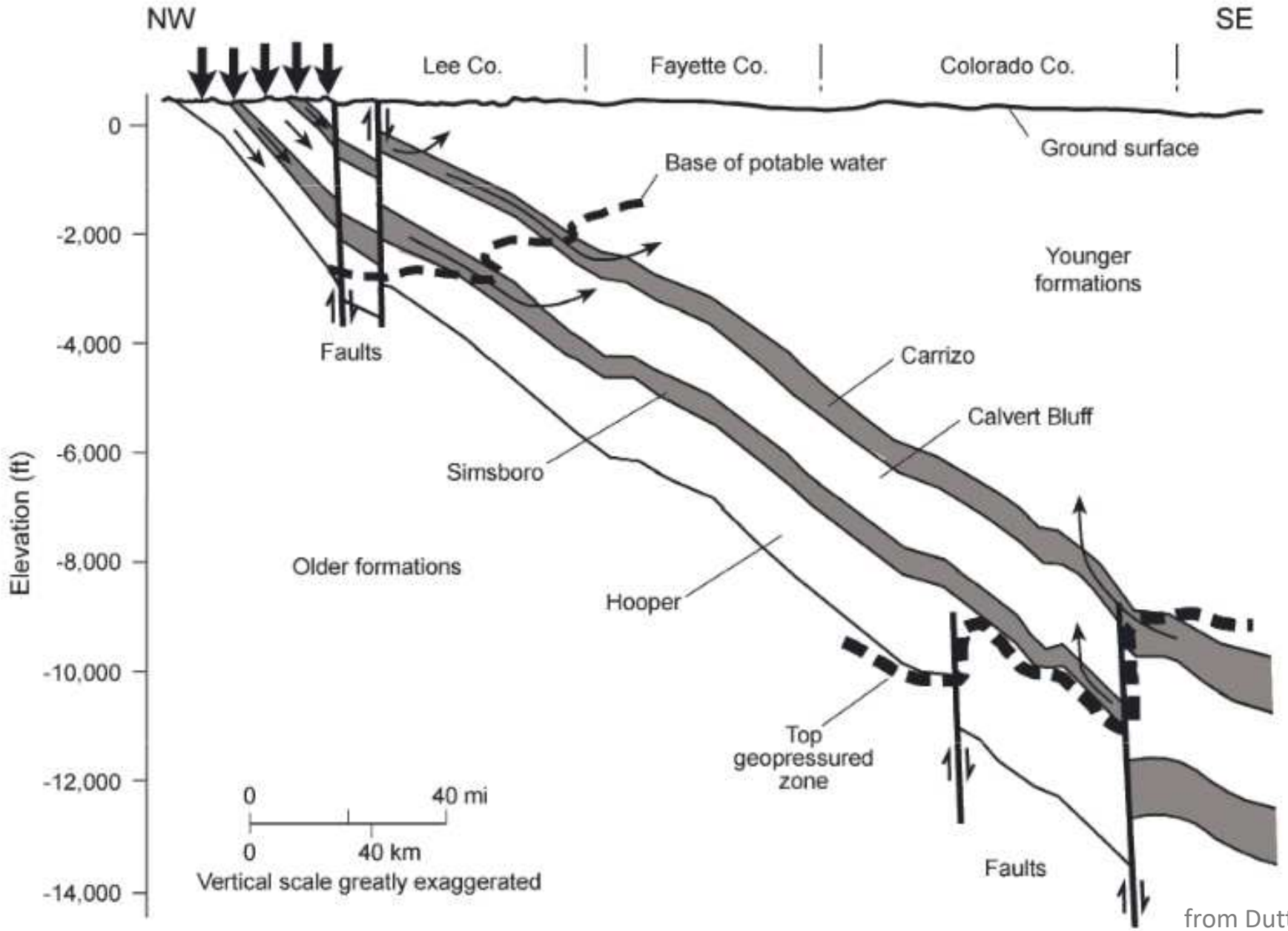

I STARTED BUILDING THIS MODEL
OF THE CAR AT AGE 12
RIZO-WILCOX
FINALLY GOT IT DONE
makeameme.org



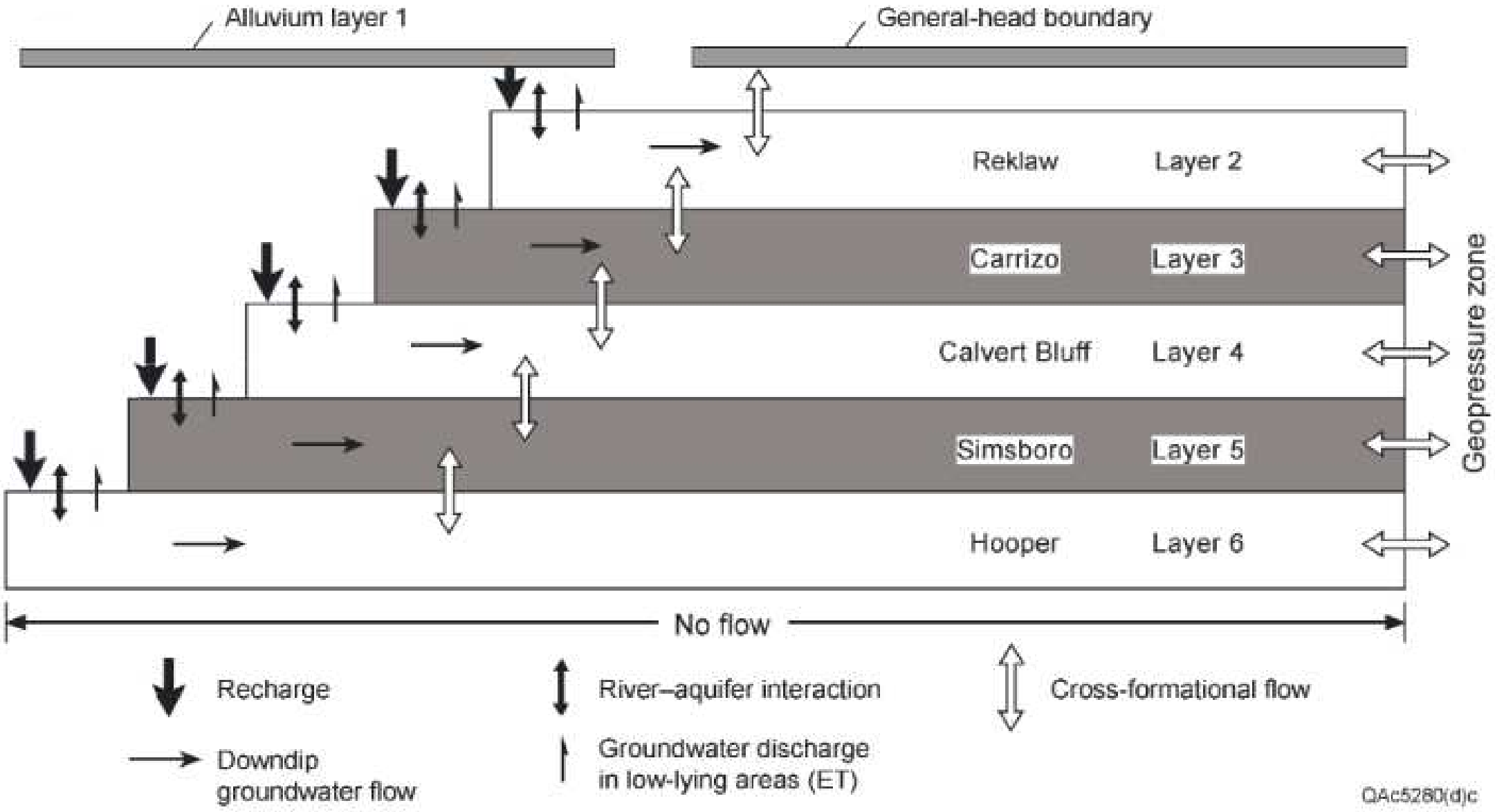
Example 1: ↓ recharge



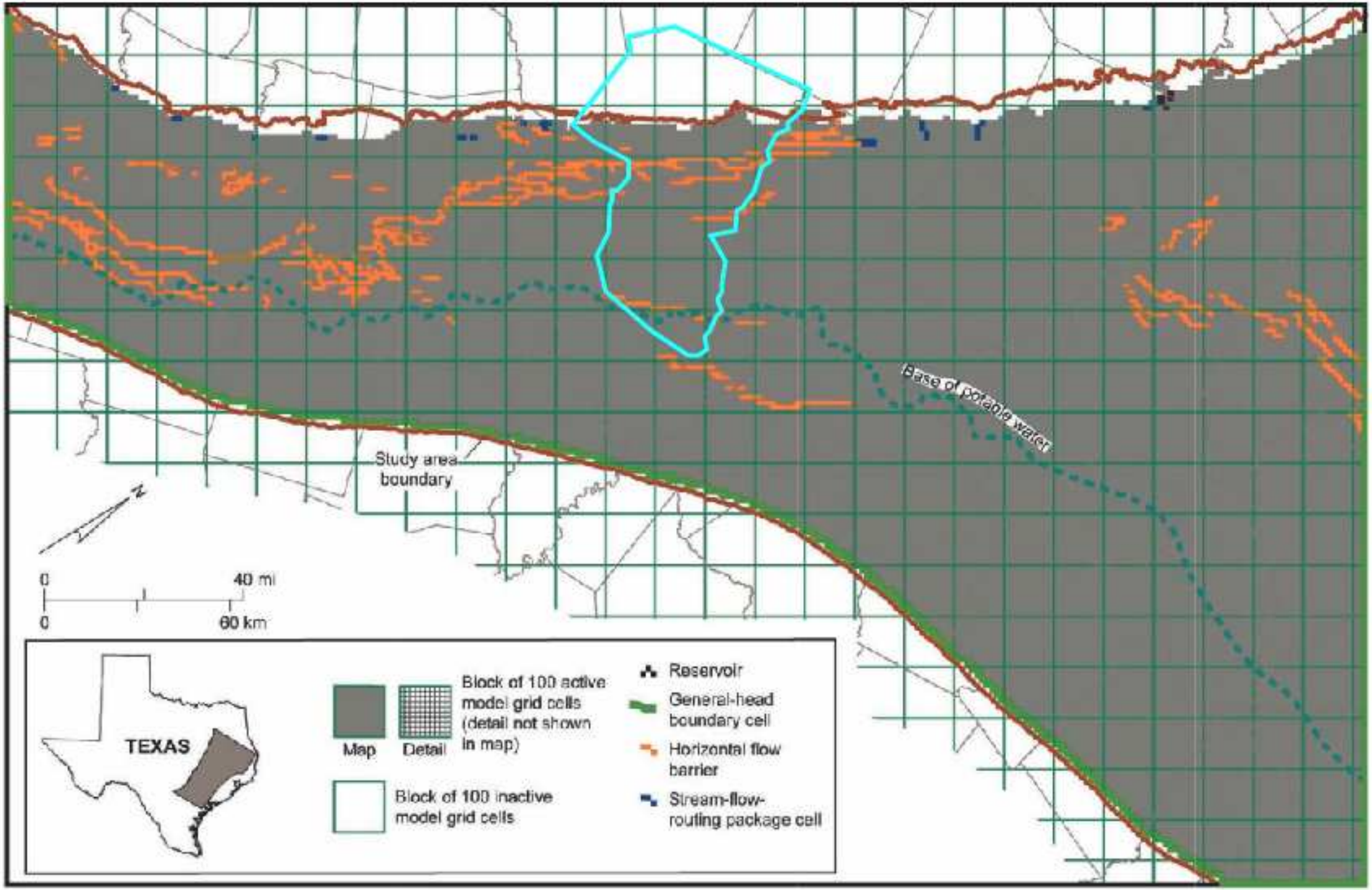
Schematic based on Daniel B. Stephens and Associates, Ogallala South Model Training



from Dutton and others (2003)



from Dutton and others (2003)



from Dutton and others (2003)

questions?

Robert E. Mace, Ph.D., P.G.
The Meadows Center for Water & the Environment
Texas State University

robertmace@txstate.edu
(512)245-6021
@MaceatMeadows

references:

- Bammel, B.H., 1979, Stratigraphy of the Simsboro Formation, East-Central Texas: Baylor Geological Studies Bulletin No. 37, 40 p. [link]
- BEG (Bureau of Economic Geology), 1992, Geology of Texas: The University of Texas at Austin, map. [link]
- Denison, C., Demchuk, T., and O'Keefe, J., 2016, Paleocene-Eocene stratigraphy and paleontology of East-Central Texas—Wilcox Group—Clairborne Group—Jackson Group: The Palynological Society 49th Annual Meeting of AASP, post-meeting field trip, September 24, 2016, 40 p. [link]
- Dutton, A.R., Harden, B., Nicot, J.-P., and O'Rouke, D., 2003, Groundwater availability model for the central part of the Carrizo-Wilcox Aquifer in Texas: Final technical report to the Texas Water Development Board, variously paginated (405 p. total) [link]
- Ewing, T.E., 2016, Texas through time: Bureau of Economic Geologty, The University of Texas at Austin, 431 p. [link]
- Yucatan Expat Life, 2016, Residents see little gain from famous Chicxulub Crater: posted July 11, 2016 [link]