CBRNorthTrendPEm Resource

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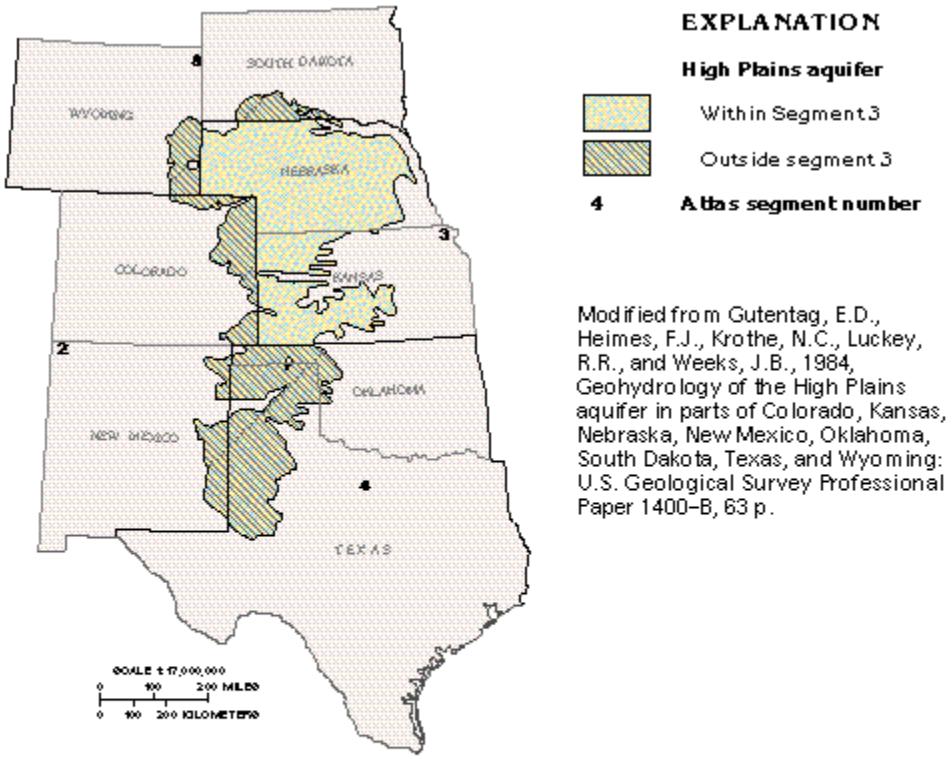

Modified from Gutentag, E.D., Heimes, F.J., Krothe, N.C., Luckey, R.R., and Weeks, J.B., 1984, Geohydrology of the High Plains aquifer in parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming: U.S. Geological Survey Professional Paper 1400-B, 63 p.

Figure 46. The High Plains aquifer extends over an area of about 174,000 square miles in parts of eight States. The aquifer underlies about 94,200 square miles in Kansas and Nebraska.

<table>
<tr><th>System</th><th>Series</th><th colspan="2">Geologic unit</th><th>Lithology</th><th>Hydrogeologic unit</th></tr>
<tr><td rowspan="2">Quaternary</td><td>Holocene and Pleistocene</td><td colspan="2">Valley-fill deposits and dune sand</td><td>Gravel, sand, silt, and clay. Dune sands prominent in Nebraska</td><td rowspan="5">High Plains aquifer</td></tr>
<tr><td>Pleistocene</td><td colspan="2">Alluvial deposits</td><td>Gravel, sand, silt, and clay. Locally cemented</td></tr>
<tr><td rowspan="3">Tertiary</td><td>Miocene</td><td colspan="2">Ogallala Formation</td><td>Unconsolidated, poorly sorted gravel, sand, silt, and clay</td></tr>
<tr><td rowspan="2">Miocene</td><td colspan="2">Arikaree Group</td><td>Sandstone, fine-to very fine-grained. Local beds of volcanic ash, siltstone, claystone, and marl</td></tr>
<tr><td rowspan="2">Oligocene</td><td rowspan="2">White River Group</td><td>Brule Formation</td><td>Siltstone with sandstone as beds and channel deposits</td></tr>
<tr><td>Chadron Formation</td><td>Clay and silt</td><td>Confining unit</td></tr>
</table>

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Figure 48. The High Plains aquifer consists of geologic units that range from Quaternary to Tertiary in age. Where they are saturated, Quaternary dune sands and the Miocene Ogallala Formation yield most of the water to wells.

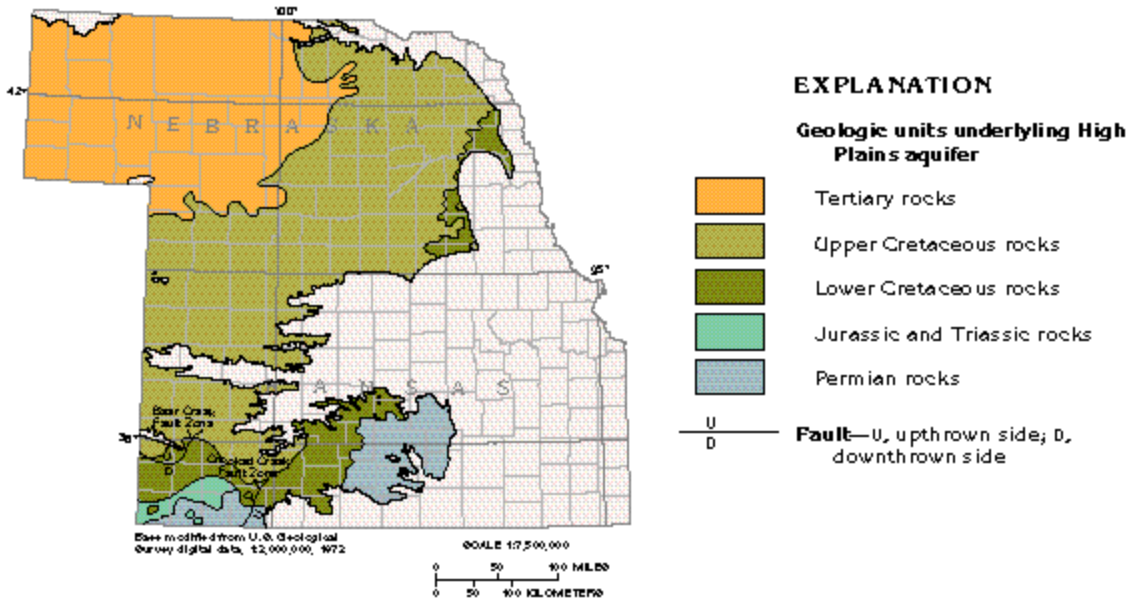

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Figure 52. The High Plains aquifer is underlain by poorly permeable Tertiary and Upper Cretaceous rocks in most places. Less commonly, Lower Cretaceous, Jurassic, Triassic, and Permian rocks form the base of the aquifer.