

Integration of Remotely Sensed Lineament and Subsurface Geological Data in the Avonlea-Roncott Region, Williston Basin, Southeast Saskatchewan

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The landscape overlying the Williston Basin is characterized by prominent and subtle NE-SW, NW-SE and N-S surface lineament zones that are mappable from topographic maps, airphoto mosaics and satellite imagery. Our studies across much of southeastern Saskatchewan, as well as the adjoining basin area, show a substantial correlation among surface lineament zones, stacked subsurface linear elements interpreted from stratigraphic-interval geological and geophysical datasets, and proven oil and gas pools.

These correlations point to the possibility of basement-rooted tectonostratigraphic control of oil and gas prospective areas, a noteworthy example being the alignment and location of Minton Red River oil pools. These pools are located within a recent surface/subsurface lineament data integration study covering the Avonlea-Roncott area in southern Saskatchewan (Twp 1 to 17-Rge 14 to 30-W2M). The study area includes the Wilcox, Hummingbird, and Avonlea/Truax structural trend areas, where multiple pay-zone discoveries have been made.