Distribution of Marginal Texture in the Quanah Granite Pluton, Wichita Mountains, Oklahoma

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We conducted several field surveys over the area. We located important land features and contacts in a number of representative samples. Upon returning to the lab, we photographed our samples using digital microscopy and performed scanning electron microscopy. We then compared our observations to the literature on the geology of the area. Our study focused on the northeastern margin of the Quanah Granite. We located pods, veins, dikes, and mining pits. We also mapped three textural facies based on inspection of the texture and general weathering and erosional morphology.

How did we go about it?
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What did we find?
The texture variations in the marginal Quanah Granite are subtle in places, but three distinct types emerge from field observations. We divided the textures into different facies. The coarse-grained facies has large alkali feldspar and slightly smaller quartz crystals (Figure 4A). The fine-grained facies has smaller alkali feldspar and quartz crystals (Figure 4B). The porphyritic facies has larger phenocrysts with a sub-millimeter alkali feldspar and quartz matrix (Figure 4C).

Discussion
The northern margin of the Quanah Pluton is naturally weathered and exhibits considerable variation in exposure. We documented numerous mineralogical and structural features of the surface and subsurface geology. The Quanah Granite contains pegmatitic bodies and quartz pods and veins. Field mapping and exploration pits from the 1900’s confirm the presence of large alkali feldspar and quartz crystals. Our study area is located in the Wichita Mountains, Oklahoma, near the town of Burford Lake. We also discovered several unexpected features, including facies contacts and other complications. However, our survey documented the prominence of three distinct textural facies.

Conclusions
We completed several field surveys in the area and documented important features in the northern margin of the Quanah Granite. We located pods, veins, dikes, and mining pits. We also mapped three textural facies based on inspection of the texture and general weathering and erosional morphology. The coarse-grained facies has large alkali feldspar and quartz crystals. We also observed the presence of quartz pods and veins. These features suggest that the coarse-grained facies predates the others, but sometimes contain quartz veins.

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References