SESSION 133, Quaternary Geology/Geomorphology (Posters)

st plate that permitted detailed description of depositional facies within geometric process-oriented models (including glacial-morphologic sequences, channel-barrophic logographic inversion, data, plain, coastal bar-like back bay, and a sand-erosion prone behavior). The surface geology is visualized as a thin topographic layer through which sub-basement and block diagrams. The depositional process link facilitates predictive applications of mapping information in studies of resources, nutrient and contamination cycling, and changes involving coastal ecosystems. Internally compiled GIS databases, the map was prepared for editing and printing by the creation of digital graphic files.

BTH 36 Kuzila, Mark S.

BARTAK DEPRESSION OR MEMNA CRATER - THE ORIGIN OF A LANDSCAPE FEATURE IN CUSTER COUNTY, NEBRASKA


The known covered tablelands of central Nebraska are covered with numerous depressions varying greatly in size. The depressions are generally concentrated in two areas: the Rainwater Basin area of central Nebraska and the Central Nebraska Lowlands north of the Sandhills area. One large depression located in Custer County near the town of Memna. The depression is referred to as the "Bartak Depression" by the locals because it is located on property owned by the Bartak family. This depression has been the focus of interest since it was named the Memna Crater in 1997 article "Memna Crater - A young impact feature in basins of Central Nebraska" published in the Calgrove Geological Survey Circ. The depression was probably created by the explosion of an extraterrestrial body which occurred about 6,000 feet above the earth surface. They estimate the explosion occurred about 3,000 years ago.

Results of studies directed at the depression show that the stratigraphic units including the Platte Loess (25,000 to 11,000 YBP) carry the landscape adjacent to and beneath the depression with no discernible effect. This indicates that the depression is older than 3,000 years ago. The origin of the depression may be similar to that of other depressions found throughout Nebraska.

BTH 37 Trierweiler, T. E.

MOUNTAIN RANGE SEGMENTATION: AN EXAMPLE FROM THE WESTERN TRANSVERSE RANGES, SOUTHERN CALIFORNIA

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The Santa Ynez Mountains of southern California have a distinct crest along 110 mi of the range, composed of a 10 mi length, oriented into five mountain segments which are geometric expressions of differential tectonic rates accommodated by structure. The range provides evidence that long mountain ranges, as with the faults that form them, are segmented. At long crest lengths in excess of 10 mi, they form an overlap or collision to create accommodating structural features, such as cross-faults or folds. From east to west, mountain segment 71 is 25 mi long, with mean elevation of 4000 ft, and an average height difference of 0.06. Mountain segment 92 is 25 mi long, with mean elevation of 4100 ft, and an average height difference of 0.09. Mountain segment 94 is 25 mi long, with mean elevation of 4100 ft, and an average height difference of 0.10. Mountain segment 94 is 25 mi long, with mean elevation of 4250 ft, and an average height difference of 0.14. Boundary zones between mountain segments correspond with all of the more major structures separating the range into the Santa Ynez Valley, Zanetti, and Mount elements, which do not partially cut through the range. The easily recognizable patterns support the hypothesis that relief is a primary tectonic signal recorded by the landscape. Increasingly western elevation implies increased shortening in the following order: mountain segments 5, 6, 9, and 92, which is geometrically equivalent between and within mountain segments. Hypsometric equivalence may be explained by: 1) The topography of the line of segments formed by the same time period; 2) tectonic perturbations are slow and their effects are being removed by the high resolution of the hypsometric method; 3) tectonic processes have been cased for long enough that basin hypsometry has established an equilibrium.