LATE TRIASSIC TO LATE CRETACEOUS GEOLOGICAL EVOLUTION OF NORTHWESTERN MEXICO.

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From late Triassic to late Cretaceous, the geological history of northwestern Mexico can be subdivised into three main periods.

- A late Triassic to Neocomian period is marked by large scale fragmentation of the precambrian paleozoic orogens along lineaments trending WNW. Ophiolitic and volcanic plutonic arc type terranes are generated along the western most lineaments (Vizcaino-Cedros and Margarita-Magdalena), but only volcanic plutonic terranes are emplaced along the easternmost ones in Sonora.

- An Aptian-Albian period is characterized by the Alisitos arc development in Baja California and a coeval northestward marine transgression of the Chihuahua - Sierra Madre oriental basin in Sonora.

Terranes of both periods are strongly deformed during a late Albian-Cenomanian compressive tectonic phase (orogenian event). Main tangential structures are developped along these lineaments.

- A late Cretaceous period is marked by an eastward migration of magmatism and thick molasse type deposits in Sonora and western Baja California.

The Laramide tectonic event concluding this later period is marked in Baja California by large scale folding, and in Sonora by local southwestward overthrusts located along lineaments.

SAN ANDREAS FAULT GEOMETRY AND MAXIMUM PROBABLE EARTHQUAKES IN SOUTHERN CALIFORNIA

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The San Andreas fault in southern California is an extremely complex zone of faulting made up of different segments, each with separate earthquake histories. The structural geometry of a fault is very important in assigning maximum probable and credible earthquakes. Discrete structural "reaches" of the San Andreas fault zone are characterized by distinctly different fault geometries. There are at least five distinct reaches and four "big bends" along the San Andreas fault zone between the Gulf of California and the fault's intersection with the Garlock fault. From south to north these are: 1) the Gulf of California to the southern Salton Sea, 2) southern Salton Sea to Desert Hot Springs, 3) San Gorgonio Pass, 4) San Gorgonio Pass to Cajon Pass, and 5) Cajon Pass to Garlock fault.

The changes in orientation of the fault plane appear to be directly related to the size of earthquakes that can be expected to recur. The following maximum probable earthquakes are suggested as being most likely on these fault reaches: 1) from the Gulf of California to Desert Hot Springs, M7; 2) San Gorgonio Pass, M8+; 3) San Gorgonio Pass to Cajon Pass, M7.5; 4) Cajon Pass to Gorman, M7.5; and 5) Gorman to Taft, M8+. Based on fault geometry relationships, it also appears that earthquakes are more likely to be centered at the "big bends" where the strike and dip of the fault change. These "big bends" occur at the California-Mexico border, Desert Hot Springs, San Gorgonio Pass, Cajon Pass-Wrightwood, and near the Garlock fault. It is time to recognize the extremely complex nature of the San Andreas fault and to stop treating it as a fault characterized by uniform recurrence intervals and uniform maximum probable earthquakes.

EOCENE METAMORPHIC CORE COMPLEX TECTONICS NEAR THE LEWIS AND CLARK ZONE, WESTERN MONTANA AND NORTHERN IDAHO

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