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Seismic Study of Carlsbad, NM

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Seismic Study of Carlsbad, NM

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Since January 1, 2000, there have been numerous earthquakes recorded in the vicinity of Carlsbad, NM. Importantly, these shallow (10km) earthquakes with magnitudes < 4.3 , do not have a fault or system of faults directly mapped to explain these events. We will be relocating the largest and most recent earthquake, which occurred 25km west of Carlsbad, NM of magnitude 4.1 on March 28, 2010. Data recorded by seismic stations from the USArray, a large National Science Foundation project, and our local Kidd Observatory will be used for this analysis. The use of Standing Order of Data (SOD) allows us access seismograms, and the Seismic Analysis Code (SAC) helps in the analysis of the seismic data. We will correlate the hypocenters of aftershocks to the main event hypocenter, allowing us to identify the fault plane. Once a fault plane has been identified, we will begin work on relocating a second event, thereby identifying the responsible faults. We believe that faulting in this area is related to the Rio Grande Rift extension and can be used as evidence for an active rift.