

Statistical Analysis of California Earthquakes Over the Past Decade

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Abstract : This paper presents a statistical analysis of 1286 earthquakes with a magnitude of 3.5 or greater recorded in California between 2014 and 2024. The study analyzed the temporal and spatial distribution, depth and magnitude patterns, and regional impacts of these earthquakes. Results demonstrate a concentration of earthquakes in high-risk areas like the San Andreas Fault and a significant relationship between earthquake magnitude and depth, with larger events occurring at shallower depths. The 7.1 magnitude earthquake in Ridgecrest on July 6, 2019, serves as a prominent example of the significant damage these events can cause. Utilizing statistical models and regression analysis, this study predicts the probability of future earthquakes. The findings emphasize the crucial role of improved infrastructure and preventive measures in mitigating earthquake damage and underscore their importance for effective crisis management and community preparedness.

Keywords : earthquake, California, statistical analysis, preparedness

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