

THE SOUTHERN CALIFORNIA EARTHQUAKE PREDICTION OF 1976 :
A PREDICTION UNFULFILLED

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1. INTRODUCTION

On 15 April 1976, at the annual meeting of the American Geophysical Union in Washington, D.C., a paper entitled "Time-dependent V_p and V_p/V_s in an area of the Transverse Ranges of southern California" was presented by Dr. James H. Whitcomb, Senior Research Fellow at the Seismological Laboratory of the California Institute of Technology. Although the published abstract was relatively specific in identifying a 1.8-year-long V_p/V_s anomaly in an area of 140-km diameter centered in the vicinity of the earlier 1971 San Fernando earthquake, the word "prediction" was not used in the abstract, and the area was simply identified as "a candidate for intensified geophysical monitoring". It was several days before members of the news media realized that something akin to a prediction had indeed been made, and the first major publicity followed a news conference at Caltech on 21 April-- somewhat hastily called to head-off rapidly spreading rumors. At that time, Dr. Whitcomb indicated that the recent termination of the velocity anomaly (i.e., a return to normal velocities) suggested, on the basis of experience in the Soviet Union and elsewhere, that an earthquake of magnitude 5.5 to 6.5 might occur within the following 12 months in the aforementioned area-- which included not only much of the City of Los Angeles, but also the Palmdale area. As was consistent with the theory at that time, the projected magnitude of the earthquake was related to the length of the anomalous period, and the time window for the projected event was related to the time of termination of the anomaly.

The inclusion of Palmdale within the affected area was significant because this area was already the subject of considerable public concern owing to the announcement by the U.S. Geological Survey only two months earlier of the existence of the southern California uplift--better known locally as the "Palmdale Bulge". Dr. Whitcomb went out of his way to emphasize that there was no necessary relationship between the uplift and his prognostication, and he preferred to use the term "hypothesis test" rather than "prediction" in describing his analysis.