

# 土砂災害肇生前兆之綜觀環境條件診斷

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## 摘要

從過往土砂災害事件統計發現，事件一旦肇生，其所造成的損失與災害均相當嚴重。

本研究的執行，主要目的為透過科學量化的研判步驟，對歷史土砂災害事件進行診斷分析，藉此增進對事件發生前兆之綜觀環境條件更多的認識與掌握，釐清當時環境的關鍵氣象參數特徵，進而延長土砂災害可能肇生的事先預警整備時間，有效支援強化防災應變指揮官進行災害警戒調度的決心下達。

最後，利用機器學習建模，建置穩定可靠的崩塌潛勢預報模式，提出最佳崩塌潛勢前兆之 AI 方法論，並有效回饋至防災預警的實際整備作業與應變決策上。

**關鍵詞：**土砂災害、氣象參數特徵、AI 方法論

# Diagnosis of Synoptic Environmental Conditions on the Precursors of Soil-Sand Disasters

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## Abstract

From the statistics of past soil and sand disaster events, it is found that once the event occurs, the losses and disasters caused are quite serious.

The main purpose of the implementation of this study is to conduct diagnostic analysis of historical soil and sand disaster events through scientific and quantitative research and judgment steps, thereby enhancing a better understanding and grasp of the overall environmental conditions that are precursors to the event, and clarifying the key meteorological parameters of the environment at that time. characteristics, thereby extending the advance warning and preparation time for possible soil and sand disasters, and effectively supporting the determination of commanders to strengthen disaster prevention and response to carry out disaster alert dispatch.

Finally, use machine learning modeling to build a stable and reliable collapse potential prediction model, and propose the best AI methodology for collapse potential precursors, and effective feedback to actual

preparation operations and contingency decisions for disaster prevention and early warning.

**Keywords: soil and sand disaster, meteorology parameter characteristics, AI methodology**