

# 臺灣地區 107 年中大型地震震源資訊之快速彙整與提供

## The rapid integration of 2018 large earthquake source information in Taiwan

主管單位：中央氣象局地震測報中心

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### 摘要

臺灣位處於活躍的造山帶，菲律賓海板塊每年以 8.2 公分的速度向歐亞板塊聚合，使得臺灣地區地殼變動劇烈，活動斷層遍佈且地震活動頻繁，災害性地震也經常發生。本整合型計畫以 2018 花蓮地震後，採用體波震源逆推方法，針對震源破裂過程的時間-空間分佈進行分析，可於地震發生後快速建立震源破裂過程的初步結果，所建立之震源破裂模型亦可對於後續研究提供重要的資訊。

對於較遠的隱沒帶大地震產生之長周期表面波，有機會造成本地高科技產業經濟損失。藉由過去在中大型地震發生以後迅速獲得完整的地震資訊，包括地震的位置，規模和震源機制，破裂面的判定，甚至震源滑移量的時空分佈，可為研究地震構造和地震防救災反應提供重要的指標，以進行即時示警程序及災後之規劃。

**關鍵詞:** 2018 花蓮地震、震源破裂過程、隱沒帶大地震、長週期表面波

## **Abstract**

Taiwan is located on an active orogenic belt where the Philippine Sea plate converges toward the Eurasian plate with a speed of 8.2 cm per year. This rapid convergence induced dramatic crustal deformation, very active faults and high seismic activity over the past few years in Taiwan, and brought many earthquake disasters. This integrated plan analyzes the geological and seismotectonic of the seismic source area after the 2018 Hualien earthquake. By performing the body wave source inversion to analyze the time-space distribution of the source rupture process, which can quickly establish the preliminary results of the source rupture process after the earthquake.

For the long period surface wave produced by the large earthquakes in the far subduction zone, which will cause the economic loss of the local high-tech industry. Through the rapid acquisition of complete seismic information in the past after the occurrence of large earthquakes, including the location, magnitude and mechanism of the earthquake, and even the spatiotemporal distribution of the source slip. It can provide important pointers for the study of seismic structure and earthquake disaster prevention and response, in order to carry out real-time warning procedures and post-disaster planning.

**Key words:** 2018 Hualien Earthquake, time-space distribution of the source rupture process, large earthquakes in the subduction zone, long period surface wave