

Application of Hybrid earthquake early warning system

NCREE has developed a Hybrid earthquake early warning system (EEWS) by integrating on-site EEWS from NCREE and regional EEWS from Central Weather Administration (CWA). Within a 10 to 100-kilometer radius from the earthquake epicenter in the local region, this system can provide 3 to 15 seconds of warning time.

To achieve effective alerts with the available warning time, the utilization of a Hybrid EEWS cloud platform is crucial. This platform facilitates the transmission of alerts and the affected administrative regions to various industries. Industries, in turn, leverage these alerts to develop warning systems and automated control devices tailored to meet the specific requirements of different environments. This approach aims to minimize secondary damages resulting from earthquakes, transforming EEWS beyond being notifications received Presidential Alert on mobile phones. Instead, it offers a multi-faceted alerting and disaster reduction application system tailored to different environmental settings.

The exhibition at the thematic pavilion showcases applications in residences, high-tech factories, and hospitals. Examples include warning signals through lighting and sound, halting production lines in factories, and stopping elevators at the nearest floor. We hope to see more industries join, allowing for the development of earthquake alert services that cater to various environments and user needs. This ensures that people can safely evacuate during earthquakes, and businesses can minimize casualties and losses caused by seismic events.

複合式地震速報服務

地震預警發展是當地震發生同時產生出地震波(P波、S波、表面波等)，因為P波傳遞速度較S波快，利用地震P波與S波的速度差，透過及早偵測先到達的P波進行判斷，在破壞性高的S波到達前的很短時間內發出預警訊息，讓大眾立即避難減災。

國震中心現地地震預警系統是在全島各地區學校設置現地型主站，主站當埋在地底下的地震儀偵測到P波振動，將振動波形傳至EWEWS運算主機去解算，加上結構物上地震儀偵測到P波振動後產生交集，運算主機在解算後提出預估震度數值上傳至雲端平台，並同步保留地震波資料至IPC儲存主機。

當複合式地震速報雲端平台收到國震中心現地地震速報主站或中央氣象局地震速報資訊，轉譯成各行政區預估震度提供給轉發商，而轉發商則發給聯地地震速報系統，透過物聯網收到從雲端平台發給之地震預警訊息，在人的地震波尚未到達前，相關地震預警控制與地用設備開始作動，可因場域環境去提供警示燈光聲音、螢幕或出地震預警訊息、瓦斯自動關閉、電梯能就近樓層停靠開門並提醒移動至電梯外避難等等。



地震速報產品與服務

- 地震速報數位指引燈**
收到地震速報預警訊息，自動投射出光點並指示式地圖，指引人員至安全地方避難。
- 地震速報聲光警報器**
利用4G或WiFi連線接收地震速報訊息，可於收到地震速報訊息2秒內產生警報燈光與警音，提醒民眾有地震，盡速避難。
- 地震速報卡拉OK機**
與民眾常使用的卡拉OK機結合，當設備有連接網路時，可以接收地震速報訊息，可隨時將播放影片在使用的民眾有地震，盡速避難。
- 地震預警智慧電視**
利用4G或WiFi連線接收地震速報訊息，收到地震速報訊息強制優先顯示地震訊息，提醒觀看電視之民眾有地震，盡速避難。
- 地震速報瓦斯遮斷**
系統收到地震速報訊息後，自動關閉瓦斯。
- 地震速報電梯控制**
當電梯收到地震速報訊息，地震速報雲端平台則會通知於電梯內人員有地震避難發生，並同時會就近樓層停靠開門，讓人員向外避難。

複合式地震速報服務與應用產品展示

複合式地震速報服務

