2016 Kaohsiung earthquake, Taiwan

$M_w$ 6.4, 6 February 2016

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8 February 2016
Date: 6 February 2016
Origin time: 03:57:27 (Taiwan time)
Magnitude: 6.4 M\text{\textsubscript{w}}
Depth: 23.0 km
Epicenter: Kaohsiung, Taiwan
Areas affected: Republic of China (Taiwan)
Max. intensity: Very strong
Casualties:
- 37 dead
- More than 500 injured
- 121 missing
☆ : Main shock
● : Aftershocks
☆ : Main shock of Jiaxian EQ, 2010/03/04
In this cross-section, W is on the left and E is on the right. The topography is in green at top, and the seismic wave speed, $V_p$, is at bottom. Francis T. Wu. The 6 Feb 2016 (Taiwan time) $M=6.4$ mainshock is the green ‘beach ball’ (focal mechanism). Taiwanese seismologists suspect that the rupture aligns with the small red beachballs on a gently inclined ‘blind’ thrust fault.

Reconnaissance Report by Yi-Hsuan Tu, Associate Prof., Dept. of Architecture, National Cheng Kung University, Taiwan.
Downtown area, Tainan City

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球場震出小河

搶救18小時 小病請先暫勿前往大醫院急症室

台北-台南 災情通報專線 0800-022-967

強震過後... 台南高球場驚現10公尺裂縫

22:25 南台6.4震 泰山企業響應救災 捐出數百箱物資

交通 嘉義到高雄停駛

高鐵明天中午前
• The epicenter of the quake was in Kaohsiung City's Meinong District (at a depth of 16.7 km) giving off energy equivalent to two atom bombs. It was the strongest earthquake to jolt the island since March 2010.

• The 5 Feb 2016 M=6.3 event struck at a depth of 20 km (12 mi) about 40 km (25 mi) east of the southern city of Tainan, with a population of 1.9 million.

• Based on the focal mechanism, aftershocks, geology, and the distribution of shaking, the earthquake most likely involves slip on a blind thrust fault.

• The worst affected city was Tainan, where numerous buildings reportedly collapsed including at least one 17-story residential building with hundreds of people trapped in collapsed buildings.

• Eight buildings collapsed or were semi-collapsed, several of which were left leaning at alarming angles.
The Weiguan Jinlong building, Tainan City

- 16 stories with 1-story basement
- About 16 years old
- Collapsed and overturned to the street side
- 1F-2F: commercial (big electronic store)
- Above 3F: residential

Before earthquake

256 people registered as living in the complex comprising 96 apartments.

However, it was not clear how many people were inside the building at the time of the quake.

As of 9:30 pm, rescuers had pulled 167 people from the building, while 155 remained unaccounted for, according to family members.
Used oil tanks cast in the concrete were used as inside formwork of non-structural façade to reduce the weight.

Reconnaissance Report by Yi-Hsuan Tu, Associate Prof., Dept. of Architecture, National Cheng Kung University, Taiwan.
Hsinhua branch of King's Town Bank

10 stories with 1-story basement

About 20 years old

1F-3F collapsed and inclined to the street side

Collapsed 3-story building in Rende district

Before

After

References

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