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Importance of Real-time PGV Shakemaps: Experience from 2018 ML 6.2 & 2019 ML 6.3 Hualien Earthquakes

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Two earthquakes having almost the same magnitude and focal mechanism occurred in Hualien County, Taiwan, in 2018 and 2019. The 2018 earthquake had a magnitude M_L6.2 produced severe destruction; however, the 2019 earthquake (M_L=6.3) did not cause any significant damage. The P-Alert instrumentation network consisting of 711 instruments provided high-quality real-time peak ground acceleration (PGA) and peak ground velocity (PGV) shakemaps during both events. Considering recorded PGA, both events should cause substantial destruction. On the contrary, PGV shakemaps display a different pattern. The higher PGV values (more than 17 cm/s) are observed in the rupture zone during the 2018 earthquake (locations suffering building collapse) as compared to the 2019 earthquake, proving the fact that PGV is a better indicator of damage distribution. The PGV shakemap, currently only available for P-Alert network, provides crucial information that complements the PGA issued by the official agency in Taiwan