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Detail examination of the March 4, 2008 Taoyuan earthquake sequence from Regional Network and the TAIGER Short-period Array Observations

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The March 4, 2008, a moderate earthquake (ML 5.2) occurred in the southwestern part of Taoyuan District of Kaohsiung City in southern Taiwan. It was followed by numerous aftershocks in the next 48 hours, including three events with magnitude lager than 4. This sequence occurred during the TAIGER (TAiwan Integrated GEodynamics Research) project, which deployed 85 temporary seismic stations in southern Taiwan. We have processed data from these stations and 35 permanent stations located around the aftershocks area by using the commercial Antelope-software suit from Brtt. Form these qualified data, we determined mainshock and aftershocks in first 2 days of sequence. Then we relocated events by applying the double-difference relocation algorithm and the differential arrival times obtained by the waveform cross-correlation. The resulting aftershocks are extended along the NE-SW direction and located on a 40° SE-dipping plane. Most of aftershocks occurred at northwest and southwest edges around the mainshock and the largest aftershock, respectively. Furthermore, the aftershocks distribution is aligned along the fault plane of mainshock. The temporal and spacial aftershocks evolution will be discussed in detail, according to our preliminary results.