

Table 12  
ISC Event 13437052 Location

Bulletin	Longitude (°)	Latitude (°)	Depth (km)	$m_b$	Time	$S_r(-)$
NNC	81.53	42.37	3.9	3.2	1237760634.43	
NET-VISA	82.7	42.5	0.4	2.2	1237760637.8	47.2

The location of ISC event 13437052 in the regional bulletin (NNC) and NET-VISA.

those reported in the preceding paragraphs, but the evaluation criteria used by IDC differed from ours in two aspects. First, the Reviewed Event Bulletin was used as ground truth instead of the LEB. The REB is a subset of the LEB events that satisfy certain rules, the most critical of these rules being that three primary IMS stations must detect each event. Second, an REB event was considered matched if it was within  $18^\circ$  of epicentral distance and 120 s of time of the predicted event and if it shared at least two time-defining arrivals with a predicted event (where time-defining arrivals are those satisfying a set of rules designed to ensure accuracy).

The IDC evaluation was conducted for two different time periods. First, a three-month interval with normal seismic activity was considered. During this time period, NET-VISA and GA (SEL3) were running concurrently on the same set of arrivals in near real time. For the second time period, NET-VISA was evaluated on historical data from the large aftershock sequence following the March 2011 Tohoku earthquake. These results are summarized in Table 13. The table also reports under the unmatchable column the subset of REB events that lacked two automatically picked time-defining arrivals. These events are effectively unmatchable by both the SEL3 and NET-VISA, which are built exclusively from automatically picked arrivals. The most striking result from the Tohoku evaluation is that nearly all (98.4%, to be precise) of the NET-VISA events matched

an REB event, while at the same time matching 15% more events than the SEL3. A possible explanation for this unusually small false positive rate from NET-VISA is that most of the events in the Tohoku aftershock sequence are fairly large events that are detected across many stations in the IMS

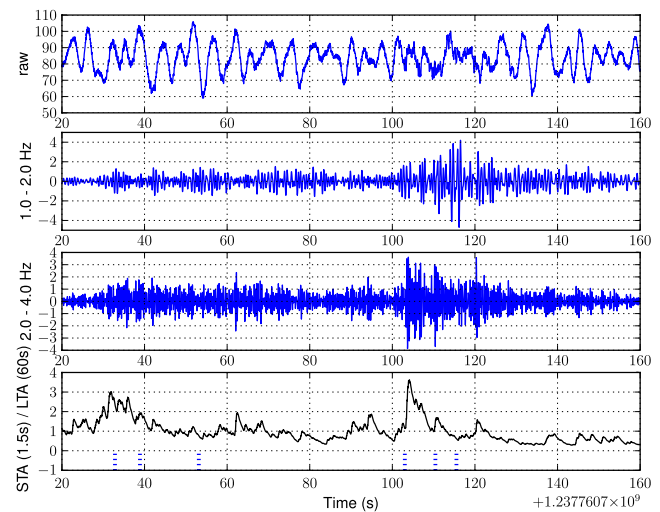


Figure 28. Waveforms at station AAK (channel BHZ) for ISC event 13437052. The color version of this figure is available only in the electronic edition.

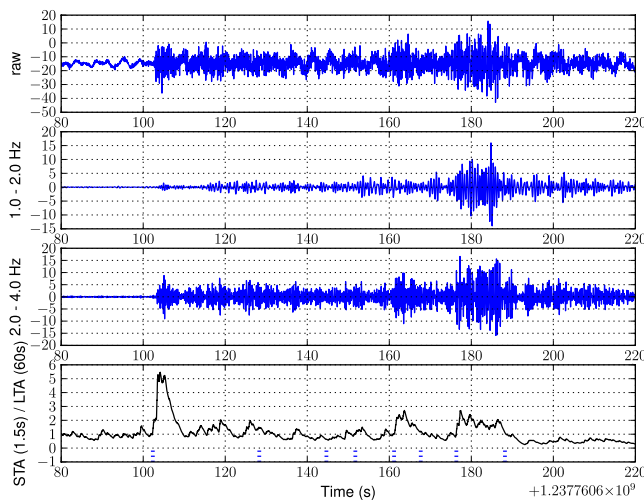


Figure 27. Waveforms at station MKAR (channel BHZ) for ISC event 13437052. The color version of this figure is available only in the electronic edition.

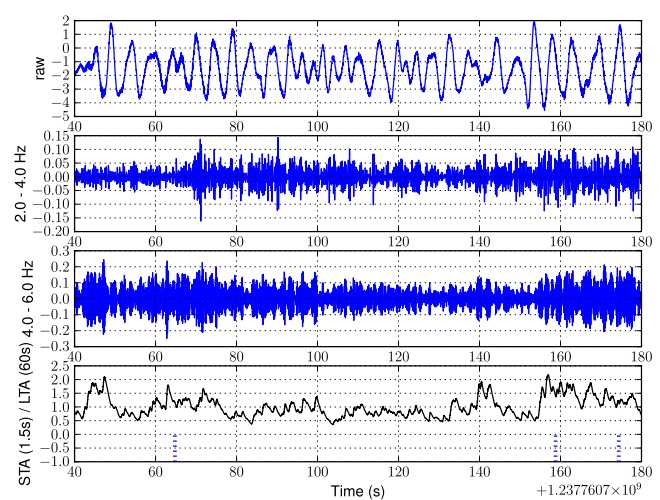


Figure 29. Waveforms at station KURK (channel BHZ) for ISC event 13437052. The color version of this figure is available only in the electronic edition.