

ESI 2007 Earthquake Intensity Scale in help of CTBT OSI's Verification Regime

On one side, the Environmental Seismic Intensity scale (ESI-2007) is a recent intensity scale designed, implemented and tested to measure the damage level of an earthquake. ESI-2007 solely focuses on the impact of a seismic event on nature. In other words, it intends to establish the level of damage from observable Environmental Earthquake Effects (EEE) that a particular earthquake can generate on ground surface around the epicenter, which include: mass wasting/sliding, cracks, water changes, etc. In that sense, ESI was proposed with two main aims: 1) to refloat the observational study of natural effects, which past scales used to include or use; 2) to evaluate the effect of earthquakes in sparsely populated to unpopulated areas. On the other side, visual observation (VOB) is a prime approach of the OSI Verification Regime to narrow down and ultimately define the location of a nuclear explosion "ground zero". Since test sites have gone remote and underground through time, VOB must look for "suspicious" man-made installations and/or land/ground modifications, as well as for surface ground modifications characteristic of anthropogenic explosions. These latter ground observables are a commonality between ESI and OSI-VOB. Furthermore, both also targets remote areas with scarce to no population.

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