

2.2-O6. Towards a physical understanding of the mb:Ms Event Screening Criterion.

mb:Ms is one of the four current experimental provisional event screening criteria applied by the International Data Centre. The use of mb:Ms, either for screening or as a discriminant, has a long history based on the empirical observation that for a given body-wave magnitude, mb, earthquakes tend to have a larger surface-wave magnitude, Ms, than underground explosions. However, the physical basis of the criterion is still not fully understood, as shown by the three DPRK announced nuclear tests, which have Ms values higher than other explosions with similar mb. Here I investigate, using historical explosion magnitudes and International Monitoring System recordings of the DPRK explosions, some of the possible controls on the explosion mb:Ms population such as explosive yield, source depth, and P wave attenuation, and suggest avenues for future research.

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