A RAY-BASED AUTOMATIC INFRASONIC SOURCE LOCATION ALGORITHM

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A procedure for automatic infrasonic source location is presented and discussed in the context of the IMS. Software based on the tau-p method of Garces et al. (1998) has been developed to generate sets of travel-time curves at specified locations on demand, based on MSISE and/or G2S climatological models. These curves divide the atmosphere into upper-atmosphere and lower-atmosphere propagation regions, are geographically and temporally specific, and account for variations in propagation characteristics with azimuth. Using these curves, we present a comparative study of multiple-station infrasonic locations for events in the IDC infrasonic reference event database. We also compare the results from the relatively sparse IMS ground truth database with a more dense data set derived from the frequent explosions of Tungurahua volcano, Ecuador, recorded by the ASHE monitoring system.