

Abstract Submitted
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jSynthesizer: A Java based first-motion synthetic seismogram tool MARK SULLIVAN — Both researchers and educators need software tools to create synthetic seismograms to model earthquake sources. We have developed a program that generates first-motion synthetic seismograms that is highly interactive and suited to the needs of both research and education audiences. Implemented in the Java programming language, our program is available for use on Windows, Mac OS X and Linux operating systems. Our program allows the user to input the fault parameters strike, dip and slip angle, numerically or graphically using a lower hemisphere equal-area stereographic projection of the focal sphere of the earthquake. This representation is familiar to geologists and seismologists as the standard way of displaying the orientation of a fault in space. The user is also able to enter the relative location of the seismograph and the depth and crustal velocity structure in the vicinity of the earthquake. The direct P wave along with reflections off of layer boundaries near the source are generated using a constant ray-parameter approximation. The instrument response functions used by the Worldwide Standardized Seismogram Network and the attenuation response of the Earth's mantle are generated in the frequency domain and applied to generate the synthetic seismogram. Planned enhancements to this program will allow the simultaneous generation of seismograms at many stations as well as more complicated crustal structures.

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