

ESCI 7205
HW 9
Due Dec 1, 2009

Write a Matlab function to find the back azimuth and delta between a seismic station and an earthquake. Write the function so that if you give it a “vector” of seismic stations it returns a “vector” of azimuths and deltas from those stations to the earthquake.

Do not use the formulas from spherical geometry. Use the Cartesian formulation presented in “An Introduction to Seismology and Earth Structure” by Stein and Wysession, pp 463-465. To do this you will have to convert the earthquake and station locations from lat / long to Cartesian coordinates.

Use the Matlab Mapping Toolbox distance and azimuth functions to check your results. Write your own implementation using the formulation in Stein & Wysession (pretend you could not afford the Mapping Toolbox).

Select an earthquake from the IRIS DMC and pick 5 stations that have a range of azimuth and deltas and verify you get the correct results. (The probability that two or more people pick the same 5 stations from the same earthquake is zero.)

No loops.