

In this test, a suite of source locations was created such that there was a source positioned in each and every cell of the unified\_slbm model (see Figure 1). Then a suite of receivers was generated such that every source was within 20 degrees of one of the receivers. Then a Pn travel time was calculated for each source to one and only one of the receivers. A goal of the test was to achieve a reasonably good range of source-receiver separations (figure 2).

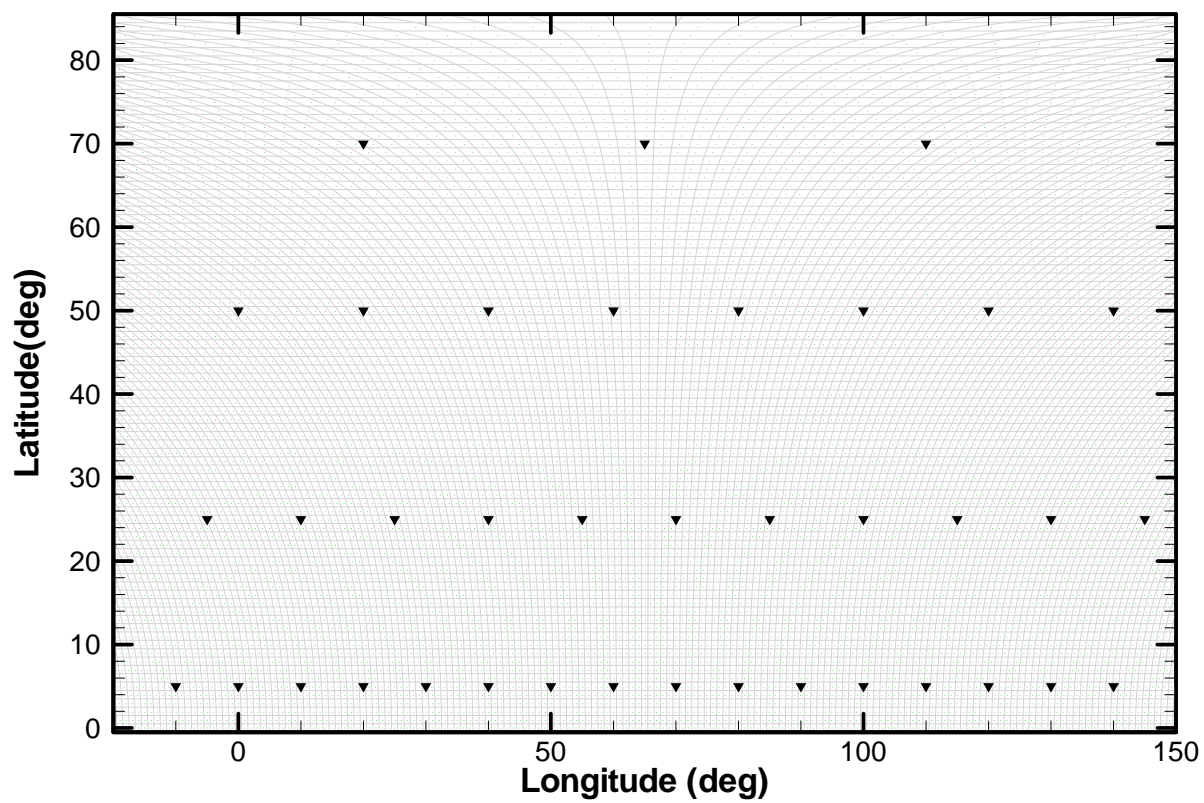
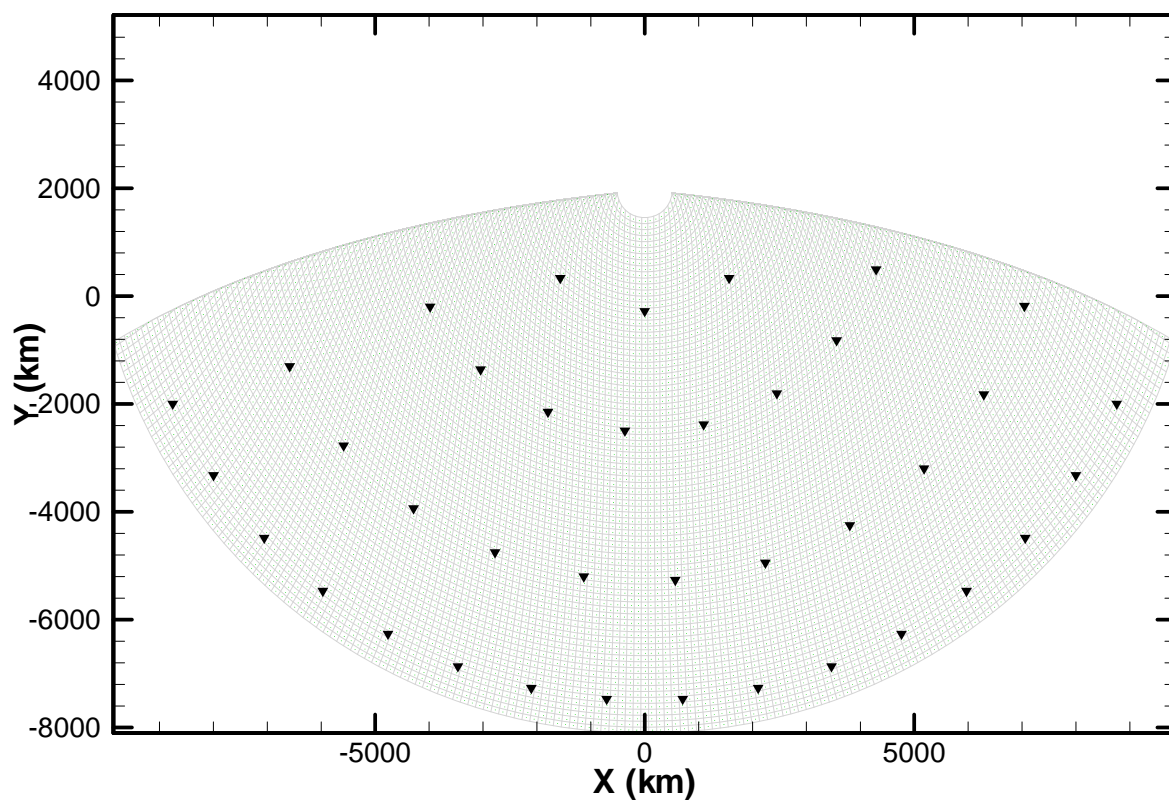
The output of the test can be found in file SLBM\_TT\_Pn.txt. Each record consists of the sourceLat, sourceLon, sourceDepth, receiverLat, receiverLon, receiverDepth, source-receiver separation, total travel time, crustal travel time at the source, crustal travel time at the receiver, travel time between moho pierce points, and zhao gradient correction term. Figure 2 shows a plot of total travel time vs source-receiver separation.

Next, the source-receiver locations were read from file SLBM\_TT\_Pn.txt and the source depth was modified to be 200 km. The travel times computed and stored in SLBM\_TT\_Pn200.txt. The file format is similar to the Pn file.

Next, the source-receiver locations were read from file SLBM\_TT\_Pn.txt and the travel times computed for phases Sn, Pg and Lg. Outputs are in files SLBM\_TT\_Sn.txt, SLBM\_TT\_Pg.txt and SLBM\_TT\_Lg.txt. The file formats are all similar to the Pn file.

Finally, the source-receiver locations were again read from file SLBM\_TT\_Pn.txt. This time, the source depth was modified to be 1 millimeter above the moho and 1 millimeter below the moho and travel times were computed in both cases. The difference in travel time was computed and stored in file moho\_test/SLBM\_TT\_PnMoho.txt.

Plots of travel time vs distance are included in this document for all these tests.



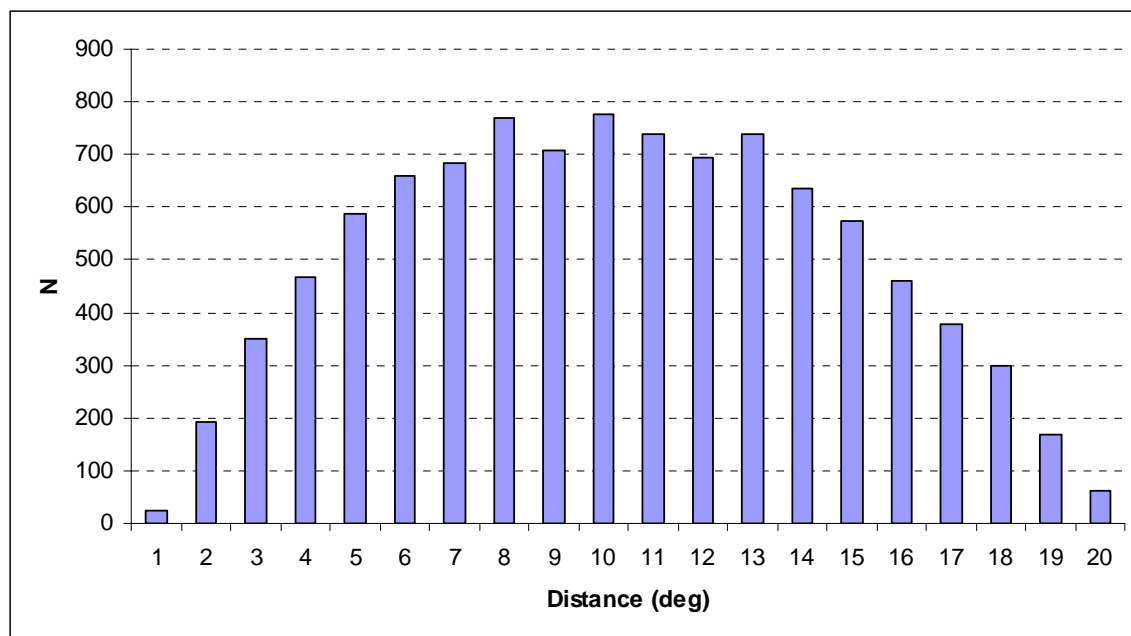
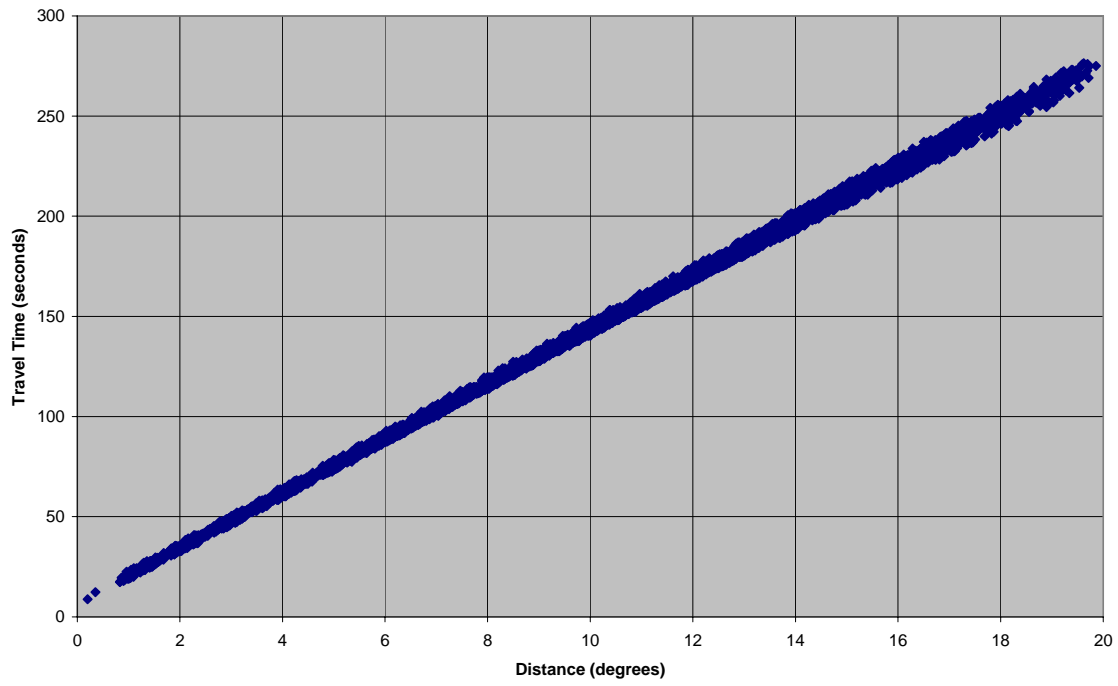
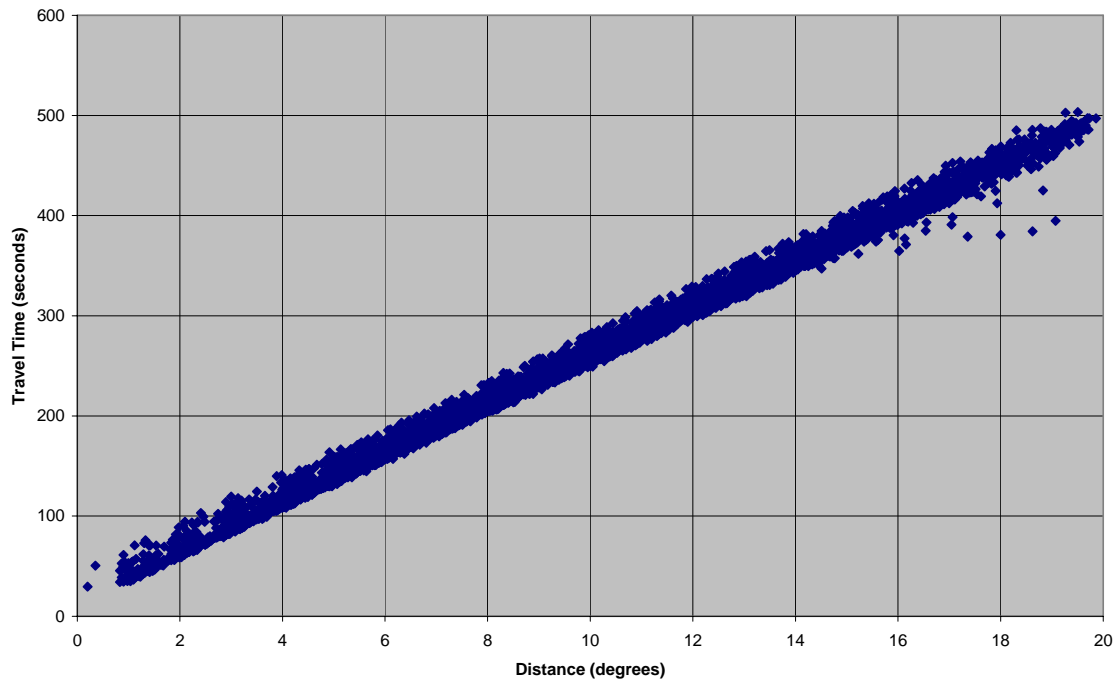


Figure 2 – Source-receiver separations achieved in the grid tests.

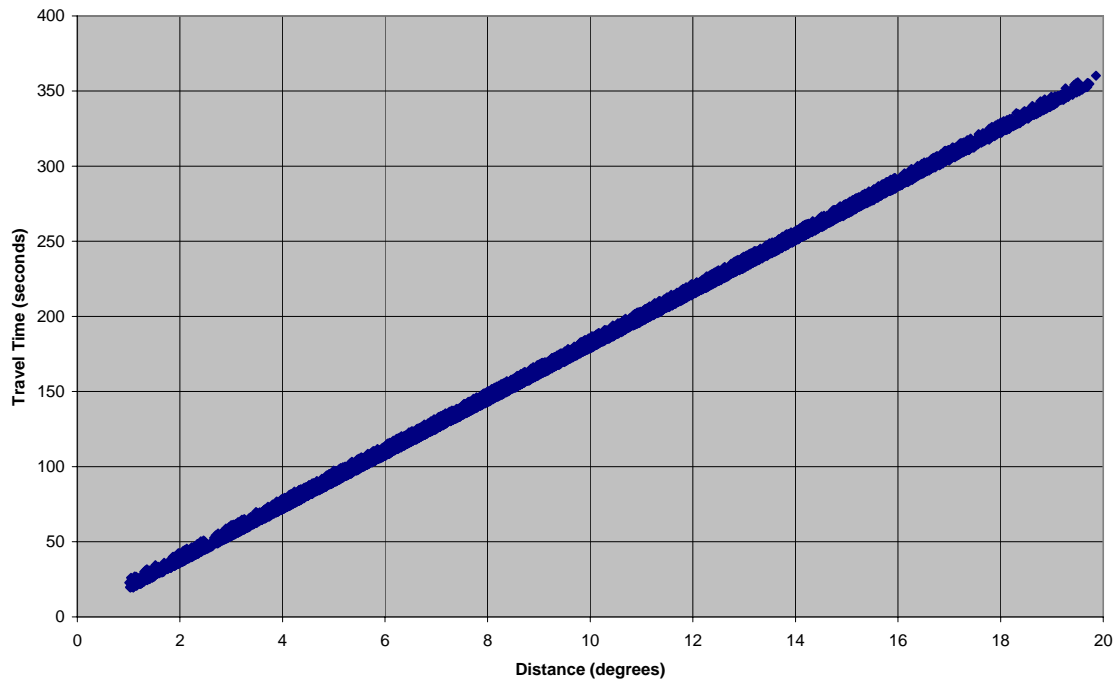
Pn Travel Time vs. Distance



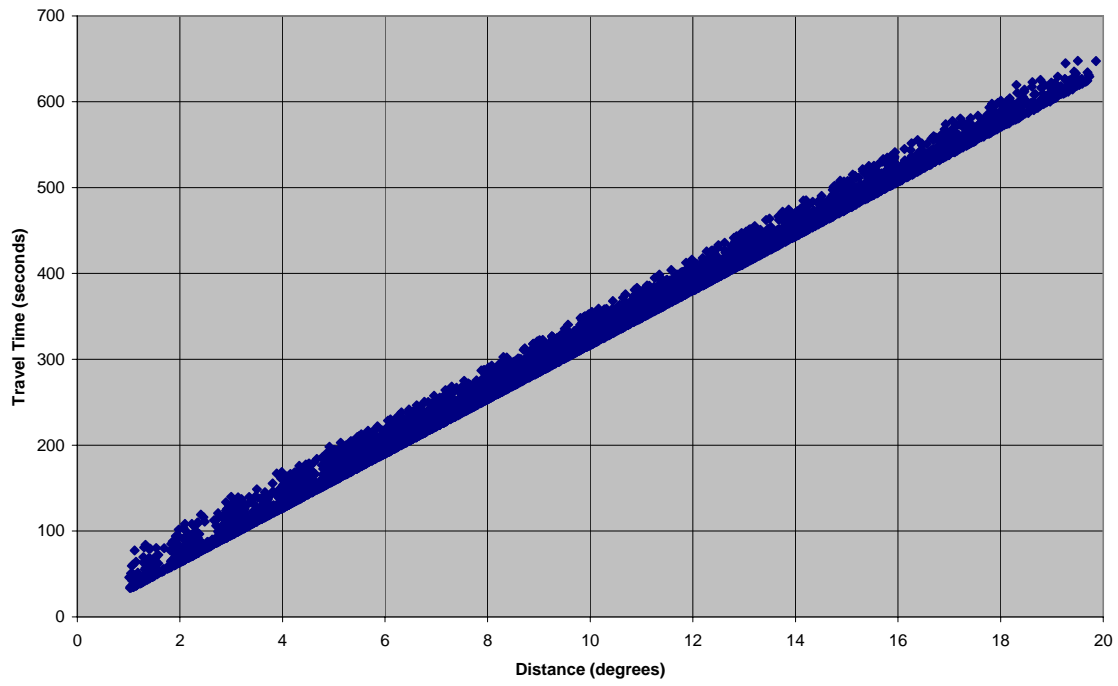
Sn Travel Time vs. Distance



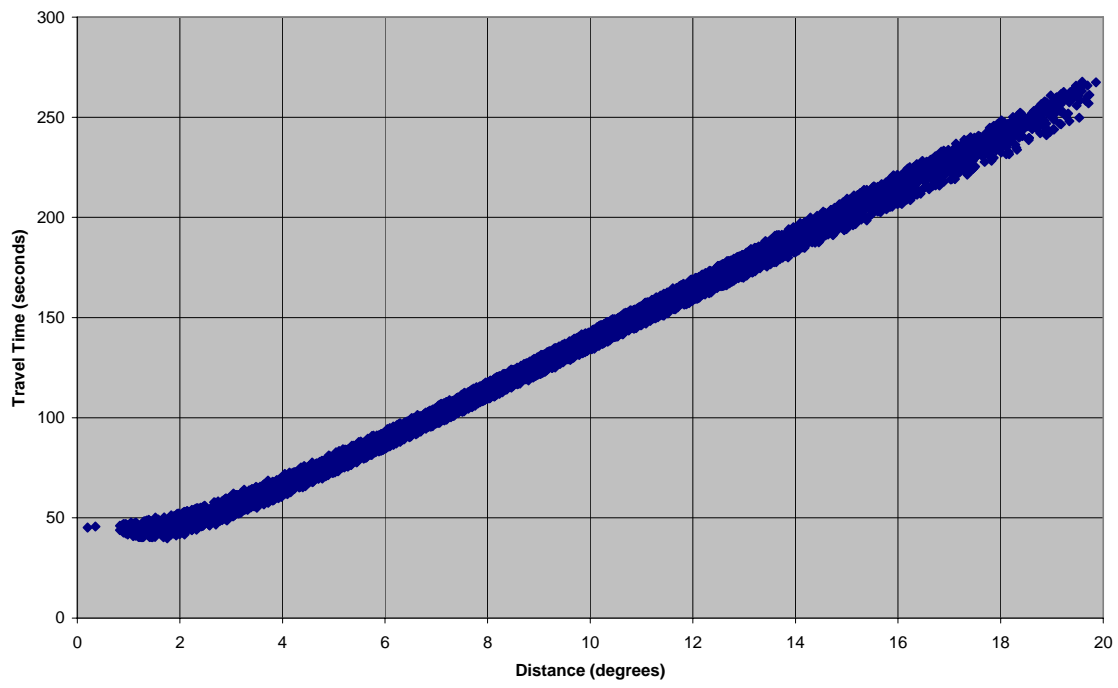
**Pg Travel Time vs. Distance**



Lg Travel Time vs. Distance



Pn Travel Time vs. Distance (source @ 200 Km)





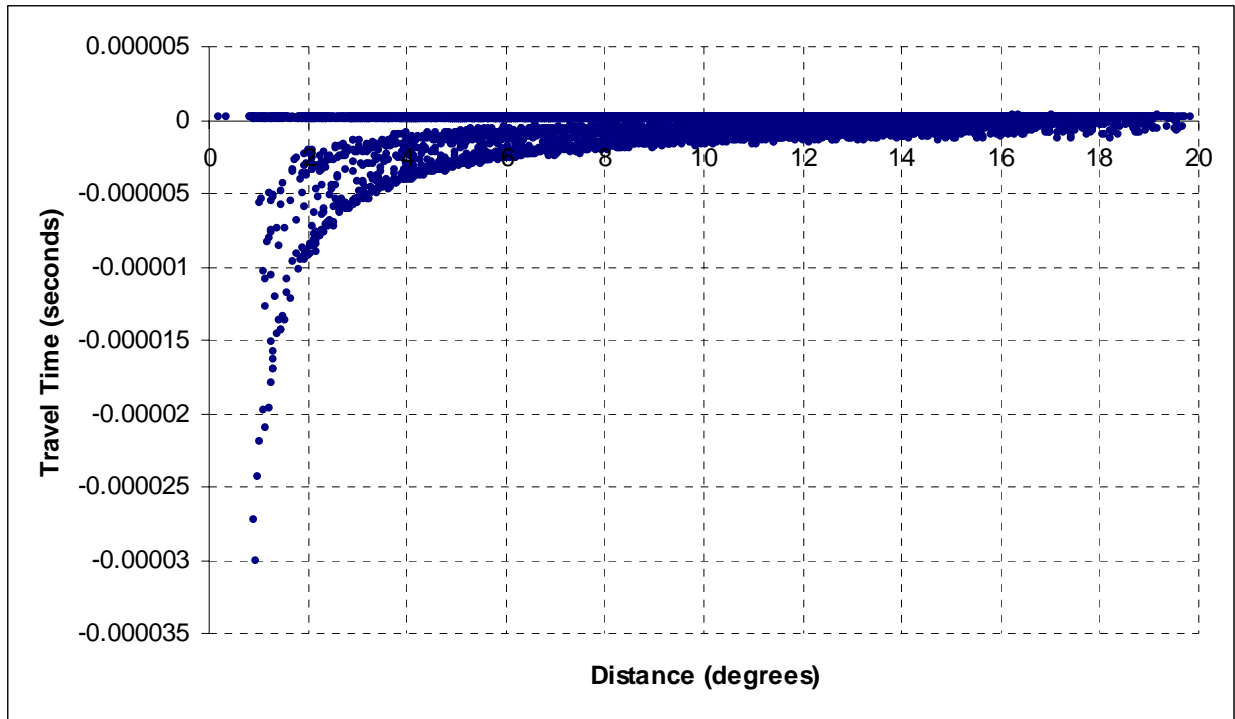


Figure x – Travel time difference for events just above, and just below the Moho.