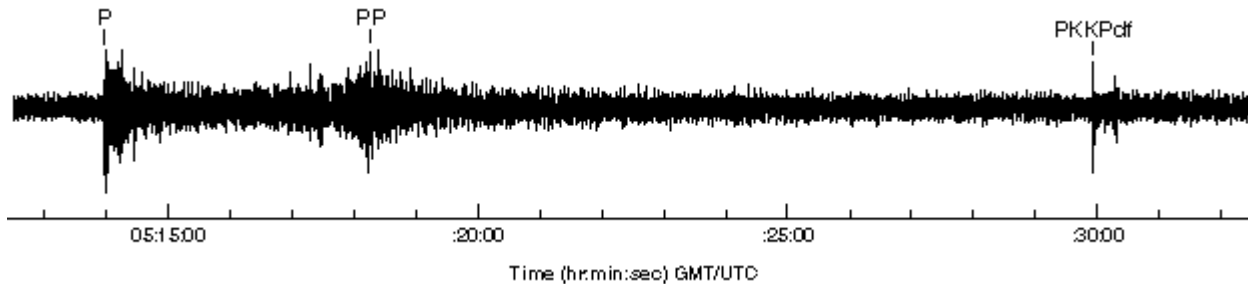


Lop Nor PRC Underground Nuclear Test, 1992 MAY21

The 700-1800 kiloton yield makes this the largest underground nuclear test since 1976.



The seismogram above is vertical earth motion from the 1992 May 21 Lop Nor PRC 700-1800 kiloton underground nuclear test. It was recorded from a short period borehole seismometer at 748 meters depth at the OGS Observatory near Leonard. A direct P arrival plus reflected PP and PKKP are marked.

The diagram of the earth's cross section below shows the ray paths for the different P arrivals at Leonard, Oklahoma. The North Geographic Pole is at the top of the cross section. The pole happens to lie almost at the midpoint of the great circle path from Lop Nor to Leonard, which is 102.8 great circle degrees, or 11420 kilometers, or 7100 miles long (i.e., along the earth's surface, not along the ray paths).

The asterisk on the left represents Lop Nor, The triangle on the right represents Leonard. The P wave is the direct wave through the mantle, which just grazes the core. PP has two P segments through the mantle with one reflection at the earth's surface, in this instance near the earth's Geographic North Pole.

The PKKP wave travels through the mantle, is refracted into the outer core, is then reflected from the mantle-core boundary and passes back through the outer core, and the mantle. Travel times from the blast are about 13 minutes and 59.9 seconds for P, 18 minutes and 12.9 seconds for PP, and about 31 minutes for PKKP. There may be a second branch of PKKP just after the one marked PKKPpdf.

jl