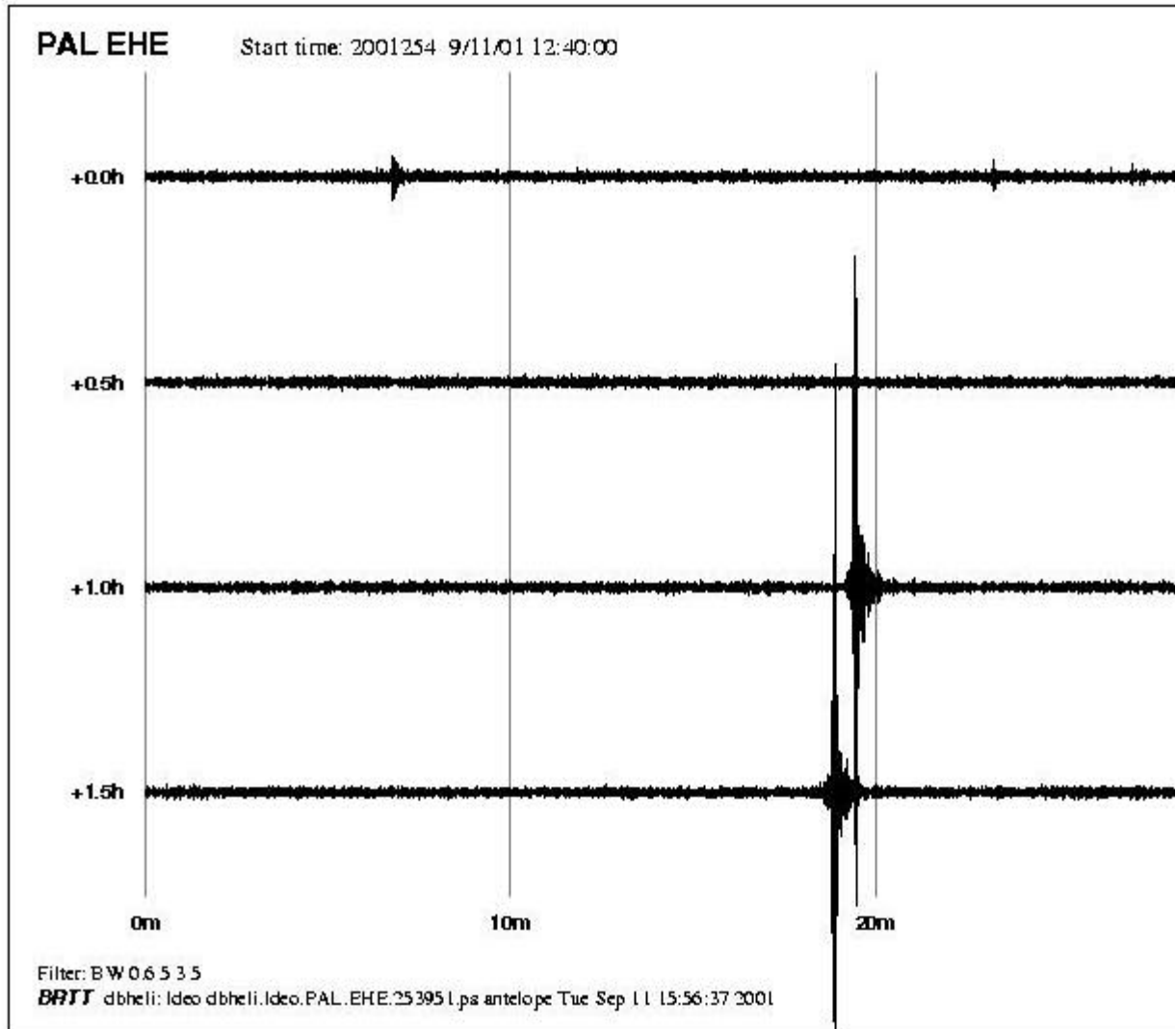


World Trade Center Disaster

Here is a summary of seismic observations of the two impacts and the two collapses:

Date	Origin Time (UTC)	LAT (°N)	LONG (°W)	Depth (km)	Amplitude (counts)	Time (EST)	Dominant Period	Signal Duration	Remarks
09/11/2001	12:46:32	40.71	74.01	0	33	08:46:32	0.8 sec	12 seconds	first impact
09/11/2001	13:03:00	40.71	74.01	0	26	09:03:00	0.6 sec	6 seconds	second impact
09/11/2001	13:59:11	40.71	74.01	0	462	09:59:11	0.8 sec	10 seconds	first collapse
09/11/2001	14:28:38	40.71	74.01	0	588	10:28:38	0.9 sec	8 seconds	second collapse

Seismograms recorded by LCSN Station PAL (Palisades, NY)



Four seismogram traces showing the two hours of seismogram recorded at Palisades (PAL), New York. Each trace is 30 minutes long. The first trace starts at 08:40 (EST), second trace starts at 09:10 (EST), third at 09:40 and the last trace starts at 10:10 (EST; 14:10 UTC). Notice the seismic signals from the first impact at 08:46 EST, second impact at 09:03 (very small), two large signals due to collapse of the World Trade Center buildings at 09:59 and 10:28 (EST). We understand from news reports, that the first impact (0846 EST) resulted in the second collapse (1028 EST), and the second impact (0903 EST) resulted in the first collapse (0959 EST).

Lynn Sykes, Paul Richards, Won-Young Kim and Jeremiah Armitage at Lamont-Doherty Earth Observatory of Columbia University contributed to this note and seismogram images.