

Clockquakes

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Alan W. Heldman's comment on slip/stick in my #7 clock is apt. (HSN 99-4 pg 19) Large and small slip/stick events are shown here taken from clock #7 (HSN 99-3) on two days near the end of April 2000.

The chart below shows temperature and period averaged over 10 minute periods. Correlation is nearly perfect near the beginning and end of the sample as shown by the overlapping curves. Temperature coefficient is 0.006 milliseconds per degree centigrade. No barometric effect is seen, all the variation from temperature is, I think, mechanical stick/slip.

Tracking is good for rising temperature -- expanding pendulum length. Shrinking back during cooling periods is much more troublesome. During the long nighttime cooling (shown plot center) an error of about 2.5 microns slowly accumulates then sharply snaps back as seen several hours later.

At right is an expansion of that 'clockquake.'

