

EARTHQUAKE HAZARD

Finally, yes, there are quakes in NJ, mostly in northern NJ, associated with Ramapo Fault.

Note that \blacktriangle denotes location of Indian Point Nuclear Power Plant on Hudson River.

To assess the earthquake hazard in a region it is necessary to extend the seismic record into the part — beyond the historical (felt by people) record.

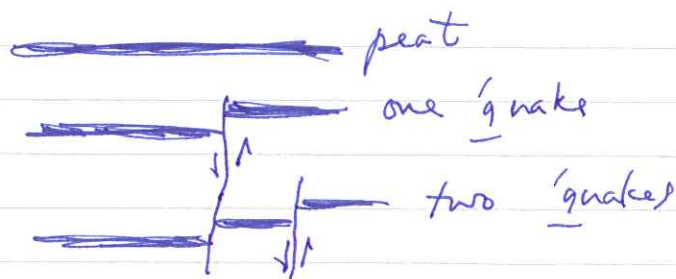
This is the domain of paleoseismology.

A common method — trenching across fault, e.g. San Andreas Fault near Fort Tejon — the Mojave segment — the site of a very large ($M > 8$) quake in 1857 just after the gold rush, at a time when LA was very sparsely populated.

A repeat now would cause extensive damage in LA — this is the "big one".

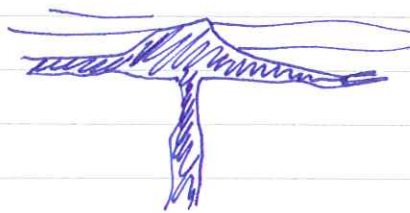
Two techniques:

- (1) small vertical offsets in peat layers



^{14}C dating
of peat

(2) sand blows - due to liquefaction



← need to date
surface onto
which sand has
flowed.

K. Sieh & ^{14}C collaborators have
thereby determined the dates
of the past ten Mojave segment
'quakes' at Pallett Creek.

Mean recurrence time 130 years

~~1997 - 1857 = 140 years~~

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In detail, however, there is
evidence for clustering. The
interval between events V & X is 300
years.

The Working Group on California Earthquake
Probabilities used information such as
this to assign a 30% probability of a

Mojave segment quake in the
next 30 years (1988 - 2018)

Recent awareness that earthquake
hazard in LA ~~is~~ not only
from the BIG ONE on the
Mojave segment, but also from
smaller (but closer) events
on buried thrust faults in
the LA Basin — get some info
from John.