Glossary

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All Terms

Part of text and figures are adapted from Faccioli E. e R. Paolucci: “Elementi di Sismologia applicata all’Ingegneria”, Pitagora, 2005.

A

Accelerometer

Instrument to measure seismic acceleration. It can be of two types:

analog instrument: ground acceleration is reproduced by a mechanical instrument on a physical support, typically paper or photographic film, and it is digitized at a later stage.

digital instrument: it is typically based on either electro-magnetic or force-balance transducers. The electric signal is then properly conditioned, sampled and digitized. The digital instruments are operating from about the mid-80s.

The most representative parameters defining the characteristics of the recording instrument response are as follows:

- sensor undamped natural vibration frequency (*frequency*);

- sensor damping coefficient with respect to critical (*damping*);

- frequency band for which the sensor gives a flat response (*frequency band*);

- generator constant of the sensor (*gain*);

- smallest signal that can be resolved by the sensor (*sensitivity*);

- maximum signal that can be resolved by the sensor (*full scale*);

- number of bits of the recorder (*number of bits*).

Active Fault

A fault segment that has moved within a time lapse that can be associated with recent to present-day activity normally in the last 10.000-100.000 years. Such manifestations may include for instance mild warping of the ground-surface associated with the effects of an active fault or geodetic data indicating crustal movement across a particular region otherwise known for seismic activity.

Adimensional Spectra

Response Spectra whose ordinates are divided by their PGA (see *PGA*).

a_g [g]

Peak ground acceleration (see *PGA*) value to which the target spectrum (see *Target Spectrum*) is anchored

Arias Intensity

A ground-motion parameter derived from an accelerogram and proportional to the integral of the acceleration squared over the entire signal *duration*.[1]

Introducing the function of motion intensity:

$$I(t) = \frac{\pi}{2g}\int_0^t a^2(\tau)d\tau$$

where a(t) is the acceleration at time t and g the gravity acceleration, the Arias Intensity is the maximum value of this function, i.e.: