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AN OVERVIEW OF LONG-PERIOD GROUND MOTIONS: THEIR NATURE AND THEIR EFFECTS ON CRITICAL INFRASTRUCTURE

Απόστολος Παπαγεωργίου*

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Πανεπιστήμιο Πατρών
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PAPAGA@UPATRAS.GR

ΠΕΡΙΛΗΨΗ

Long-period ground motions is an important consideration in seismic design because of the increasing number of large scale structures such as high-rise buildings, oil storage tanks, and cable-stayed and suspension bridges.

Long-period ground motions may consist of basin-induced surface waves that may be generated even at a large distance from the seismic source as seismic energy (usually in the form of body waves) is impinging on sediments which form a basin/valley. Such locally induced surface waves cause significant elongation of the duration of strong ground motion, especially in the intermediate and long period range.

In the near-fault region on the other hand, long-period ground motions are primarily generated by source effects of forward rupture directivity.

We review both kinds of motion, we examine their nature, and we investigate their effects on critical infrastructure.