1. Record Nr. UNINA9910829935203321

Autore	Betbeder-Matibet Jacques
Titolo	Seismic engineering [[electronic resource] /] / Jacques Betbeder-Matibet
Pubbl/distr/stampa	London, : ISTE Hoboken, NJ, : John Wiley & Sons, 2008
ISBN	1-282-69000-0 9786612690006 0-470-61113-8 0-470-39372-6
Descrizione fisica	1 online resource (987 p.)
Collana	ISTE ; ; v.29
Disciplina	624.1/762 624.1762
Soggetti	Earthquake engineering Engineering geology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Seismic Engineering; Table of Contents; Foreword; Preface; Part 1. Earthquakes and Induced Phenomena; Chapter 1. Causes of Earthquakes; 1.1. Tectonic earthquakes; 1.1.1. First attempts at explanation; 1.1.2. From continental drift to plate tectonics; 1.1.3. Seismicity of tectonic origin; 1.2. Faults; 1.2.1. Relationship between earthquakes and faults; 1.2.2. Classification of faults; 1.2.3. Focal mechanisms; 1.2.4. Different aspects of rupture; 1.3. Non-tectonic earthquakes; 1.3.1. Non-tectonic quakes with natural causes; 1.3.2. Artificial earthquakes; 1.3.3. Induced earthquakes Chapter 2. Parameters Used to Define Earthquakes2.1. Elementary theory of elastic rebound; 2.1.1. Description of the elementary model; 2.1.2. Energy balance; 2.1.3. Law of scale; 2.2. Geometry of the faults; 2.2.1. Length of fault and length of rupture; 2.2.2. Well documented examples of fault ruptures; 2.2.3. Correlations of geometric characteristics of ruptures with moment magnitude; 2.3. Parametric description of earthquakes; 2.3.1. Source parameters and effect parameters; 2.3.2. Different magnitudes; Chapter 3. Manifestations of the Seismic Phenomena on the Surface

3.1. Deformation of superficial terrains3.1.1. Deformations linked to tectonics; 3.1.2. Deformations linked to vibratory motions; 3.2. Seismic waves; 3.2.1. Different types of seismic waves; 3.2.2. Ideas on the theory of rays; 3.2.3. Attenuation of seismic waves; 3.3. Induced phenomena; 3.3.1. Soil liquefaction; 3.3.2. Landslides; 3.3.3. Tsunamis and seiches; 3.3.4. Other seismic manifestations; Part 2. Strong Ground Motions; Chapter 4. Strong Vibratory Motions; 4.1. Recordings; 4.1.1. Examples of accelerograms recorded in the near zone; 4.1.2. Parametric description of the accelerograms
4.1.3. The three components of vibratory motion4.2. Attenuation laws of peak values; 4.2.1. General considerations as regards attenuation laws; 4.2.2. Examples of attenuation laws for peak values; 4.2.3. Recommendations for the use of attenuation laws; 4.3. Directivity effects and site effects; 4.3.1. Inadequacy of a description based on magnitude and distance; 4.3.2. Directivity effects; 4.3.3. Presentation of site effects; 4.3.4. Causes of site effects; Chapter 5. Calculation Models for Strong Vibratory Motions; 5.1. Orders of magnitude deduced from the basic theory of elastic rebound
5.1.1. Limits of the basic theory of elastic rebound for the calculation of motions5.1.2. Model of elastic rebound with multiple ruptures; 5.1.3. Calculation of the theoretical attenuation laws associated with the model of rebound elasticity with multiple ruptures; 5.2. Digital source models; 5.2.1. General considerations pertaining to models of digital simulation of the seismic source; 5.2.2. Examples of digital simulation of real earthquakes; 5.3. Practical calculations of the site effects; 5.3.1. Models of soil behavior; 5.3.2. Seismic responses of columns of soil
5.3.3. Review of the assessment of site effects

Sommario/riassunto

This title offers a comprehensive coverage of the many facets of seismic engineering.The first half of the book is devoted to seismic phenomena and hazards, detailing the causes of earthquakes, the parameters used to characterize earthquakes, strong ground motions, seismic hazards and their evaluation, and seismic action. The second half discusses the effects of earthquakes and tools used to assess and reduce risk, including the effects of vibratory motions and induced phenomena, seismic calculations and technical aspects of prevention. The importance of keeping orders of magnitude in m