



GEOTECHNICAL ANALYSIS OF SEISMIC VULNERABILITY OF MONUMENTS AND HISTORICAL SITES

Catania, November 15th, 2001

Michele Maugeri Roberto Nova
Editors

PATRON EDITORE
BOLOGNA 2003

CONTENTS

Editorial, <i>M. Maugeri, R. Nova</i>	pag.	7
---	------	---

The Pisa Tower: an Italian special case-history

Chapter 1 – The stabilisation of the leaning tower of Pisa, <i>Burland J.B., Jamiołkowski M., Viggiani C.</i>	»	13
---	---	----

Part 1 – Soil Characterisation and modelling

Chapter 2 – Geotechnical investigation for the stability analysis of Pavia's medieval towers, <i>Ghionna V.N., Porcino D.</i>	»	51
---	---	----

Chapter 3 – Capabilities of seismic tests in soil characterisation, <i>Foti S., Lancellotta R.</i>	»	83
--	---	----

Chapter 4 – Shallow footing under cyclic loading: experimental behaviour and constitutive modelling, <i>di Prisco C., Nova R., Sibilia A.</i>	»	99
---	---	----

Chapter 5 – Analysis of soil-foundation interaction of tower structures under cyclic loading, <i>di Prisco C., Nova R., Perotti F., Sibilia A.</i>	»	123
--	---	-----

Part 2 – Geotechnical analysis of the seismic vulnerability of historical sites in Umbria and Marche Regions

Chapter 6 – Site dependent spectra at the town of Sellano by the 1997-1998 Umbria-Marche seismic sequence records, <i>Capilleri P., Massimino M.R., Maugeri M.</i>	»	139
--	---	-----

Chapter 7 – Evaluation of site coefficients for aseismic building design: seismological and geotechnical investigations in two historical centres of the Marche region, Italy, <i>Crespellani T., Facciorusso J., Madiai C.</i>	»	169
---	---	-----

Chapter 8 – FEM geotechnical analysis of the seismic damage to the church of San Filippo in Nocera Umbra during the September 26, 1997 seismic sequence, <i>Crespellani T., Madiai C., Uzielli M.</i>	pag. 187
Part 3 – Geotechnical analysis of the seismic vulnerability of monuments and historical sites of Noto	
Chapter 9 – The earthquake on January 11 TH , 1693 in South-Eastern Sicily: macroseismic analysis and strong motion modelling in Noto, <i>Bottari A., Saraò A., Teramo A., Termini D., Carveni P.</i>	» 211
Chapter 10 – Influence of geological-structural discontinuities on the seis- mic response of some sites affected by the earthquake of 12/13/1990, in South-Eastern Sicily, <i>Failla S.S., Failla F., La Delfa S., Maugeri M., Patanè G.</i>	» 223
Chapter 11 – Site characterization by in-situ and laboratory tests for the microzonation of Noto, <i>Cavallaro A., Maugeri M.</i>	» 237
Chapter 12 – Grade-3 seismic microzonation at Noto by synthetic input accelerograms, <i>Campoccia I., Massimino M.R.</i>	» 257
Chapter 13 – Design spectrum by synthetic accelerograms for Noto Cath- edral (Siracusa, Italy), <i>Massimino M.R., Maugeri M.</i>	» 287
Chapter 14 – Retrofitting of the foundation of Noto Cathedral (Italy) accord- ing to Eurocodes, <i>Massimino M.R., Maugeri M.</i>	» 309