Preface

The special issue "Geophysics and critical facilities" of the Bollettino di Geofisica Teorica ed Applicata includes some papers presented at the session "Seismic hazard for critical facilities" of the 30th annual meeting of the Gruppo Nazionale di Geofisica della Terra Solida (GNGTS), held in Trieste (Italy), from November 14 to 17, 2011 plus a few additional papers on the same topic.

The GNGTS was established in 1978 as an offshoot of the Italian "Consiglio Nazionale delle Ricerche" to promote, develop, and coordinate research in the field of solid Earth geophysics. The GNGTS comprised various sections: seismology, geodesy and gravimetry, geothermy, crustal geophysics, mining and environmental geophysics as well as seismic exploration. In these past years, in spite of its limited budget, the GNGTS financed several research activities and sponsored multi-disciplinary projects, mainly devoted to the study of the Earth's crust. About 500 researchers refer to the GNGTS and meet yearly in Autumn for a national assembly: a point of reference in the life of the Italian geophysics. Although the institution closed in December 2000, the annual conference continued to be held reaching its silver anniversary in 2006. The peer-reviewed proceedings of the national conferences have been published since 1997 in special volumes, and on CD-Roms, mainly in Italian. These documents are also available at the GNGTS web site (www2.ogs.trieste.it/gngts). Since the year 2000, it has been decided to publish selected papers from these conferences, in an international geophysical journal, for a better dissemination of information about GNGTS activities with a view to an international audience.

This volume consists of 15 papers dealing with different aspects of seismic hazard, vulnerability of critical structures, expected damage, and related countermeasures.

In particular, after an introduction to the subject developed by Grimaz and Slejko (2014), general and specific aspects of seismic hazard are covered, respectively, by Barani *et al*. (2014), contributing with a review on probabilistic approaches for seismic hazard assessment (SHA), and Chioccarelli and Iervolino (2014), analysing directivity effects in probabilistic SHA.

The geological contribution to SHA is considered by Sboras *et al*. (2014) and Carafa and Kastelic (2014) for whole of Greece and the External Dinarides, respectively.

The seismic analyses for critical structures, for timber buildings, and for the embankments of the Po River is developed by DeLuca *et al*. (2014), Sancin *et al*. (2014), and Martelli *et al*. (2014), respectively.

The last block of papers refers specifically to nuclear power plants (NPPs), which can be perhaps considered the most dangerous critical facilities and for which specific studies have been, and are presently, developed. The SHA that interested NPPs in France, Switzerland and the UK is illustrated in the papers by Scotti *et al*. (2014), Renault (2014), and Musson (2014). This section ends with two studies that interest the NPP of Krško, in Slovenia. In the first one mentioned, Sirovich *et al*. (2014) describe the general background of the geophysical knowledge on this installation, while in the second one, Accaino *et al*. (2014) point out the geological information obtained from specific seismic surveys in the region of the NPP.

The last section of the volume focus on the vulnerability of industrial equipment, that is treated in the paper of Lanzano *et al*. (2014) and the possible industrial accidents that can interest specifically Italy; this last aspect is considered in the paper by Grimaz (2014).

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