

**FORMATO EUROPEO  
PER IL CURRICULUM  
VITAE**



**INFORMAZIONI PERSONALI**

Nome  
Indirizzo  
Telefono  
Fax  
E-mail

sonia.giovinazzi@canterbury.ac.nz

Nazionalità

Italiana

Data di nascita

05 MAGGIO 1974

**ESPERIENZA LAVORATIVA**

- Date (da – a)
- Nome e indirizzo del datore di lavoro
- Tipo di azienda o settore
- Tipo di impiego
- Principali mansioni e responsabilità

Da gennaio 2007 ad oggi  
University of Canterbury  
Private Bag 4800 Christchurch, New Zealand  
Istruzione, Ricerca e Sviluppo  
Ricercatrice

Coordinatrice e ricercatrice principale per diversi progetti di ricerca incentrati sulla valutazione della vulnerabilità e del rischio sismico. Coordinatrice, tra gli altri, del progetto di ricerca "Projecting Damage and Losses for Buildings and Infrastructure from the Canterbury Earthquake Sequence" relativo all'analisi della vulnerabilità e del danno indotto a edifici e infrastrutture di Christchurch (Nuova Zelanda), a seguito della sequenza sismica del 2010-2011

- Date (da – a)
- Nome e indirizzo del datore di lavoro
- Tipo di azienda o settore
- Tipo di impiego
- Principali mansioni e responsabilità

Da ottobre 2007 ad oggi  
Fondazione Prato Ricerche  
Via Galcianese 20/H, Prato, Italia  
Ricerca e Sviluppo  
Consulente

Analisi della vulnerabilità e valutazione di scenario di danno a scala territoriale per fornire alle autorità locali della Toscana gli strumenti per la definizione di piani di gestione dell'emergenza e strategie di mitigazione; in collaborazione con ENEA.

- Date (da – a)
- Nome e indirizzo del datore di lavoro
- Tipo di azienda o settore
- Tipo di impiego
- Principali mansioni e responsabilità

Da giugno 2012 a luglio 2012  
Canterbury Earthquake Recovery Authority  
Private Bag 4999, Christchurch 8140, New Zealand  
Ente governativo nazionale  
Consulente

Identificazione e analisi critica di strumenti e software per il supportare il processo decisionale per la ricostruzione dopo la sequenza sismica di Canterbury (Nuova Zelanda) del 2010-2011

- Date (da – a)
- Nome e indirizzo del datore di

Da marzo 2010 a settembre 2010  
AMRA Analysis and Monitoring of Environmental Risk

*Sonia Giovinazzi*



**CAPACITÀ E COMPETENZE  
PERSONALI**

MADRELINGUA

ITALIANA

ALTRE LINGUA

**INGLESE**

- Capacità di lettura
- Capacità di scrittura
- Capacità di espressione orale

eccellente  
eccellente  
eccellente

**FRANCESE**

- Capacità di lettura
- Capacità di scrittura
- Capacità di espressione orale

buono  
elementare  
elementare

**CAPACITÀ E COMPETENZE  
RELAZIONALI**

Attitudine al lavoro di squadra - acquisita grazie alla collaborazione con ricercatori e professionisti di diverse organizzazioni e settori lavorativi e disciplinari; e grazie alle attività lavorative e di volontariato in collaborazione con i responsabili decisionali e le comunità colpite durante il processo di ricostruzione a seguito dei terremoti di Canterbury (Nuova Zelanda).

Attitudine alla creazione e facilitazione di relazioni interpersonali e lavorative - acquisita nell'ambito lavorativo promuovendo la creazione di network e facilitando lo scambio di conoscenze tra ricercatori di diverse discipline e tra i ricercatori, professionisti e utenti.

Attitudine a operare in ambienti multiculturali e multi-linguistici - maturata grazie alla mia esperienza lavorativa all'estero e alla collaborazione costante con colleghi di tutto il mondo.

Ottime capacità di comunicazione sia in italiano sia in inglese

**CAPACITÀ E COMPETENZE  
ORGANIZZATIVE**

Leadership - responsabile e coordinatrice di ampi gruppi di lavoro;

Capacità di gestione e amministrazione di progetti - pluriennale esperienza nella coordinazione di importanti progetti di ricerca;

Competenze organizzative - ideatrice, promotrice e organizzatrice per tre anni (nel 2011 e 2013 a Christchurch e nel 2015 a Roma) di una serie di eventi noti come " Lifeline Week: Resilient Infrastructure for Resilient Communities" che hanno avuto grande rilevanza e eco a livello nazionale e internazionale. Membro del comitato organizzatore per diverse altre conferenze nazionali e internazionali

**CAPACITÀ E COMPETENZE  
TECNICHE**

Valutazione della vulnerabilità macrosismica e meccanica per edilizia ordinaria e monumentale

Valutazione e analisi del rischio per eventi naturali e antropici

Valutazione di scenario di danno e di impatto

Definizione di strategie di riduzione del rischio, incluse strategie di mitigazione, gestione delle emergenze e di valorizzazione della resilienza

Supporto ai processi decisionali post-disastro

**CAPACITÀ E COMPETENZE  
INFORMATICHE**

Programmi di Microsoft: ottima conoscenza

Geographic Information Systems (QGIS; ArcGIS; MapInfo): ottima conoscenza

IBM Statistics SPSS: ottima conoscenza

**ALTRE CAPACITÀ E COMPETENZE**

Abilitazione all'esercizio della professione di Ingegnere e iscrizione all'Ordine degli Ingegneri di Genova

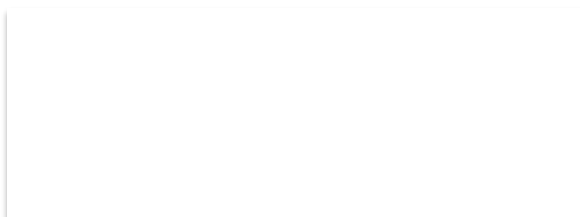
PATENTE O PATENTI

Patente tipo B – Mezzo proprio

**ALLEGATI**

Elenco delle pubblicazioni

**Sonia Giovinnazzi**  
**CURRICULUM VITAE**



**EDUCATION**

- 2005      Ph.D in *Risk Management of Natural and Anthropogenic Hazards on the Built Environment* at the Technical University of Braunschweig (Germany), Civil Engineering Department and University of Florence (Italy), Civil and Environmental Engineering Department. Thesis: *“The Vulnerability Assessment and the Damage Scenario in Seismic Risk Analysis”*
- 1999      Laurea\* in Civil, Geotechnical, Engineering at the University of Genoa (Italy)  
Thesis: *“Models for the seismic vulnerability analysis of churches”*  
(\*5 years degree, equivalent to BE+ME plus thesis).
- 1993      High School Diploma from the Scientific Lyceum “Giordano Bruno” Albenga (Italy)

**EMPLOYEMENT**

- 2014-Present      **Senior Research Fellow** at the Department. of Civil and Natural Resources Engineering, University of Canterbury, New Zealand
- 2009-2015      **Lecturer** at the Department of Civil and Natural Resources Engineering, University of Canterbury, New Zealand
- 2007-2013      **Research Fellow** at the Department of Civil and Natural Resources Engineering, University of Canterbury, New Zealand
- 2005-2007      **Research Fellowship/Lecturer position** at the Department of Structural and Geotechnical Engineering, University of Genoa, Italy
- 2002-2004      **Ph.D. Student** at Doctoral program jointly organized by the Technical University of Braunschweig (Germany) and by the University of Florence (Italy)
- 1999-2002      **Research Fellowship** at the Department of Structural and Geotechnical Engineering, University of Genoa, Italy

## RESEARCH TOPICS

### **Multi-hazard risk analysis for portfolio of buildings and distributed infrastructures**

- Probability and Statistics
- Monte Carlo simulations
- Fuzzy-set theory and Logic
- Fault Tree and System Analysis
- Geographical Information Systems
- Earthquake-induced site effect amplifications and geotechnical secondary hazards (e.g. liquefaction): simplified approaches for modeling for inclusion into probabilistic and deterministic hazard analysis
- Inventory databases and tools for data collection including remote sensing
- Fragility models for classes of buildings and components of distributed infrastructures: mechanical-based (i.e. analytical); observational-based (i.e. empirical) and expert-opinion based approaches
- Procedures for cross-correlation and calibration of different fragility models and vulnerability approaches
- Consequence and impact models
- Functionality restoration models and resilience curves

### **Support to decision-making processes**

- Cost-benefit analysis;
- Multi-criteria decision analysis, MCDA;
- Casual-loop diagrams;
- Input-Output, I-O economics and Computable General Equilibrium, CGE, models (basics)

### **Risk management and mitigation strategies**

- Real-time damage scenario,
- Emergency management plans
- Scenarios for assessing and comparing alternative strategies (e.f. structural, non-structural risk-transferring strategies, etc.)
- Risk awareness and communication of risk to end-users and communities

### **Assessment, analysis and retrofit for existing structures**

- Nonlinear Static and Dynamic Procedures for assessing the seismic vulnerability of single structures
- Lumped plasticity and macro-element approaches for modeling the seismic behavior of structures
- Damping factors and definition of equivalent SDOF systems for modeling the seismic behavior of masonry buildings
- Kinematic and partial collapse mechanisms for modeling the seismic behavior of monumental buildings
- In-situ diagnosis tests for existing structures
- Feasibility and practical implementation of retrofit solutions for existing buildings
- Development of guidelines for the empirical vulnerability assessment of existing buildings
- Development of survey forms for assessing of seismic damage for heritage and monumental buildings (i.e. contribution to the synthetic survey form that has been officially adopted by the National Civil Protection Department and by the Fine Art Italian Ministry, Gazzetta Ufficiale n. 55, 7 March 2006).

## RESEARCH PROJECTS

### Research projects granted and carried out as Principal Investigator

- **Principal Investigator (PI)** of the project *“Linking building properties and damage to earthquake-induced business’ downtime”* funded by the QuakeCoRE, NZ Centre for Earthquake Resilience - NZ\$ 28,400 (1 year project from Jan 2016 - Dec 2016)
- **Principal Investigator (PI)** of the project *“Performance of the Telecommunication Network during the Canterbury Earthquake Sequence”* funded by the QuakeCoRE, NZ Centre for Earthquake Resilience - NZ\$ 13,700 (1 year project Jan 2016 - Dec 2016)
- **Principal Investigator (PI)** of the project *“Decision Support System for Post-Earthquake Rehabilitation of Sewerage Systems: A Project Management Perspective”* funded by the Earthquake Commission of New Zealand (EQC) - NZ\$ 50,000 (2 years project from 2014-2016)
- **UoC Principal Investigator (PI)** and Senior Scientist of the project *“Vulnerability Analysis of Unreinforced Masonry Churches”* funded by the Earthquake Commission of New Zealand, EQC - NZ\$ 19,200- (3 years project from 2013 to 2015)
- **UoC Principal Investigator (PI)** and Senior Scientist of the project *“Economics of Resilient Infrastructure”* funded by the Minister of Business, Innovation and Employment, MBIE - NZ\$ 105,708 (4 years project from 2012 to 2016)
- **UoC Principal Investigator (PI)** and Co-Principal Investigator of the joined UoC-GNS Science project *“Projecting Damage and Losses for Buildings and Infrastructure from the Canterbury Earthquake Sequence”* funded by Natural Hazard Research Platform, NHRP, of New Zealand - NZ\$ 219,130 (3 years project from 2012 to 2015)
- **Principal Investigator (PI)** of the project *“Earthquake-flood Multihazard Impacts on Lifeline Systems Following the Canterbury Earthquake Sequence 2010-2011”* funded by Natural Hazard Research Platform, NHRP, of New Zealand and co-funded by multiple private stakeholders organizations including asset managers and local authorities - NZ\$ 64,000 (2 years project from 2012 to 2014)
- **Principal Investigator (PI)** of the project *“Recovery of Lifelines”* funded by Natural Hazard Research Platform, NHRP, of New Zealand - NZ\$ 130,000 (6 months project from May to November 2011)
- **Principal Investigator (PI)** of the project *“Temporary Housing Issues”* funded by Natural Hazard Research Platform, NHRP, of New Zealand - NZ\$ 31,000 (6 months project from May to November 2011)
- **Principal Investigator (PI)** of the project *“Hospital Services and Functions”* funded by Natural Hazard Research Platform, NHRP, of New Zealand - NZ\$ 20,000 (6 months project from May to November 2011)
- **Principal Investigator (PI)** of the project *“Enhancing the seismic performance of lifelines systems through resilience allocation and optimization”* funded by Royal Society of New Zealand”, ISAT, Joint EU/NZ Annual Research Project (from 2009 to 2010)

- **Co-principal Investigator** of the project “*Benchmarking the readiness of Road Controlling Authorities to meet their obligations under the CDEM Act 2002*” funded by Land Transport New Zealand (LTNZ) – (2 years project from 2008 to 2010)
- **Principal Investigator (PI)** “*Vulnerability models for seismic risk analysis: GIS implementation and validation on the basis of historical data*”, Annual Research Project funded by University for Young Researcher (from January 2001 to December 2001)

### Collaboration in research projects

- **Research Collaborator** of the project “*APhoRISM: Advanced procedures for volcanic and seismic monitoring*” funded by the *European Commission* under the theme FP7-SPACE-2013-1 (3 years project from 2013 to 2016)
- **Project Scientist** of the project “*R6 - Reti di distribuzione e utilità (i.e. Distribution networks and services)*” funded by ReLuiS Network of Seismic Engineering University Laboratories, Italian Department of Civil Protection – (3 years project from 2014 to 2018)
- **Research Collaborator** of the project “*SYNER-G: Systemic Seismic Vulnerability and Risk Analysis for Buildings, Lifeline Networks and Infrastructures Safety Gain*” funded by the *European Commission* under the framework FP7 (3 years project from 2009 to 2012)
- **Project Scientist** of the project “*A diagnosis of Transit NZ decision-making during emergency events*”, *annual Research Project*” funded by Land Transport New Zealand, LTNZ, former Transit New Zealand - (1 year project from 2008 to 2009)
- **Research Collaborator** of the project “*Definition and development of databases for the evaluation and the planning of risk and for the emergency management*”, funded by the ReLuiS Network of Seismic Engineering University Laboratories – Italian Department of Civil Protection – (3 years project from 2005 to 2007)
- **Research Collaborator** of the project “*Resilient Organisation Programme*” funded by the Foundation of Research Science and Technology (FRST) – (6 years project from 2004 to 2010)
- **Assistant Project Scientist** of the project “*Definition of the seismic input on the basis of the expected displacements*”, funded by the National Institute of Geophysics and Vulcanology, Department of Civil Protection (ProCiv-INGV 2004-06) – (2 years project from 2004 to 2006)
- **Assistant Project Scientist** of the project “*Earthquake scenario in Western Liguria, Italy, and strategies for the preservation of historic centres*” funded by the National Institute of Geophysics and Vulcanology, Italian Department of Civil Protection - (2 years project from 2002 to 2004)
- **Assistant Project Scientist** of the project “*Risk-UE: An advanced approach to earthquake risk scenarios with applications to different Europeans towns*” funded by the *European Commission* under: FP5-EESD – (3 years project from 2001 to 2004)
- **Assistant Project Scientist** of the project “*GE.RIA Project: Environmental Risk Management*”. Biannual INTERREG France–Italy funded by the *European Commission* - (2 years project from 2000 to 2002)

## SCOLARSHIPS, FELLOWSHIPS and AWARDS

2010 - **Visiting Researcher** at Analysis and Monitoring of Environmental Risks, AMRA, Scarl Research Institute, Naples, Italy

2006 - **Visiting Researcher** for three month periods at the Department of Civil and Natural Resources Engineering, University of Canterbury, New Zealand

2006 - **Award** for “*Excellent Contributions to Young Scientists*” for the work “*SCENARIO SISMICO: a tool for seismic risk analysis and real time damage scenarios implementation*”, ECEES, Europe.

2004 - **Internship** at Munich Re Company, Munich, Germany

2002 - **Receipt of Ph.D Scholarship** from Italian Ministry for Education, based on CV, plus written and oral exams

## MEMBERSHIPS

2015 - **Selected Member** of the *2015 FRIENZ delegation*. FRIENZ, Facilitating Research and Innovation co-operation between Europe and New Zealand, is a joint initiative between the New Zealand Ministry of Business, Innovation and Employment (MBIE) and the European Commission (EC) through the seventh research Framework Programme (FP7)

2014 - **Leader** of the New Zealand team for the *Geotechnical Extreme Event Reconnaissance, GEER*, after the 4th March flooding events in Christchurch in 2014

2013 - **New Zealand Member** for the reconnaissance held by the *Global Facility for Disaster Reduction and Recovery, GFDRR*, and the World Bank in Christchurch in 2013 in the framework of the 'Learning from Earthquakes, LFE' initiative supported by the Earthquake Engineering Research Institute, EERI

2013 to Present - **Member** of the *Infrastructure Resilience Division IRD*, Technical Group of the American Society of Civil Engineering, ASCE

2013 to Present - **Founder** partner and **Member** of the “*ERGO Multi-Hazard Assessment, Response and Planning*” Consortium

2009 to Present - **Member** of the *NZ Society of Earthquake Engineering, NZSEE*

2009 to Present - **Member** of the *NZ Society for Risk Management, NZSRM*

## ORGANIZATION OF CONFERENCES

2011-2013-2015, **Organizer** and **Chair** for “*Lifeline week: Resilient Infrastructures for Resilient Communities*” one week-long workshop events to foster research uptake, connections, two-way discussions on infrastructure resilience among researchers, stakeholders, decision-makers, and the wider community. (Christchurch, in 2011 and 2013; Rome Italy, in 2015). <https://sites.google.com/site/resilientinfrastructures/home>

2008, **Co-Organizer** for “*4<sup>th</sup> International I-Rec Conference on Building Resilience, achieving effective post-disaster reconstruction*” (Christchurch, New Zealand, April/May 2008)

2004, **Member of the organizing committee** for “*XI ANIDIS, Italian Conference on Earthquake Engineering*” (Genoa, Italy, January 2004)

2004, **Member of the organizing committee** for the Italian Conference on “*Seismic Risk, Built-up environment and Historical Centers*” (Sanremo, Italy, July 2004)



## INTERNATIONAL JOURNAL REVIEWER (selected)

- Earthquake Spectra
- Soil Dynamics and Earthquake Engineering
- Earthquake Engineering and Structural Dynamics
- Bulletin of Earthquake Engineering
- Journal of Earthquake Engineering
- Policy Sciences
- Sustainable and Resilient Infrastructure
- International Journal of Project Management
- Scientific Research and Essays

## PROFESSIONAL/CONSULTING ACTIVITIES

2000-present **Chartered Professional Engineer in Italy**

2007/2016 **Consultant** for **Fondazione Prato Ricerche**, Research Institute, Italy, in collaboration with **ENEA**, Italian National Agency for New Technologies, Energy and Sustainable Economic Development

Vulnerability analysis and damage scenario assessment for different municipalities in the Tuscany Region, Italy; to inform the definition of emergency management plans and mitigation strategies.

2012 - **Consultant** for **Canterbury Earthquake Recovery Authority**, National Government Agency, New Zealand.

Identification and critical analysis of modelling tools to support post-disaster reconstruction decision-making process for: allocation and prioritisation of resources; integration of analysis; clear visualisation (GIS based) to articulate issues and alternative strategies.

2012 – **Consultant** for **Resilient Organisations** - Research Organisation, New Zealand

Contribute to the input paper prepared for 2015 Global Assessment Report on Disaster Risk Reduction and the United Nation Office for Disaster Risk Reduction (UNISDR) on “Lessons from the 2011 Christchurch earthquake and Great Eastern Japan earthquake and tsunami”

2008 – **Consultant** for **GNS Science**, and **Earthquake Commission EQC**, respectively Research Institute and National Government Agency in New Zealand

Contribute to the assessment of “Multi-hazards performance of geographically distributed systems”, to provide the FRST- funded “RiskScape” platform with an engineering basis upon which the losses incurred by selected geographically distributed lifeline systems can be assessed under the action of different natural hazards.

2004/2005 - In-situ tests and technological survey for the static safety and the seismic vulnerability assessment of the public schools in Savona (Italy) municipality

2003/2004 - Damage and vulnerability survey of heritage and monumental buildings after April 2003 Piemonte (Italy) and December 2004 Salò, Brescia (Italy) earthquakes

1997 - Damage and vulnerability survey of residential buildings in the historical centre of Roccanolfi di Preci (Perugia, Italia) after September 1997 Umbria-Marche earthquake

## DEVELOPED SOFTWARE

2005 - **SCENARIO SISMICO** end-user software package to evaluate real-time damage scenarios following an earthquake event. *Intellectual Property* - Lagomarsino, A. Balbi, A. Galasco, S. **Giovinazzi**, S. Parodi, University of Genoa.

2000 - **PROGRAMMA CHIESE** end-user software for the vulnerability analysis for heritage or monumental buildings. *Intellectual Property* - Lagomarsino S., Brun S., **Giovinazzi S.**, Resemini S., Rossi B., Idri C., Panetta M., Penna A., Podestà S, Toselli F., University of Genoa.

## PUBLICATIONS

### Journal articles (peer-reviewed)

Lagomarsino, S., and **Giovinazzi**, S., (2006). Macro seismic and Mechanical Models for the Vulnerability assessment of current buildings. *Bulletin of Earthquake Engineering*. 4(4):415-443. DOI:10.1007/s10518-006-9024-z.

Giovinazzi, O., and **Giovinazzi**, S., (2008). Guidelines for a Sustainable Planning of Urban Waterfront after Disasters, PORTUS 16, RETE Editor. ISSN.88-317-8632-6.

**Giovinazzi**, S., (2009). Geotechnical Hazard Representation for Seismic Risk Analysis, *Bulletin of the New Zealand Society for Earthquake Engineering*. 42 (3):211-234.

Dolce, M., **Giovinazzi**, S., Iervolino, I., Nigro, E., Tang, A., (2009). Emergency management for lifelines and rapid response after L'Aquila earthquake. *Progettazione Sismica. Seismic Design Journal*. 3:215-223. IUSS PRESS Editor. ISSN 1973-7432.

Ferreira F., Dantas, A. Seville, E. **Giovinazzi** S. (2010). Extreme Events Decision Making in Transport Networks: A Holistic Approach Using Emergency Scenarios and Decision Making Theory. *Journal of the Eastern Asia Society for Transportation Studies*. 8:70-85. ONLINE ISSN: 1881-1124

**Giovinazzi**, S., Wilson, T., Davis, C., Bristow, D., Gallagher, M., Schofield, A., Villemure, M., Eidinger, J., Tang, A., (2011). Lifelines Performance and management following the 22 February 2011 Christchurch Earthquake, New Zealand: Highlights of Resilience. *Bulletin of the New Zealand Society for Earthquake Engineering*. 44 (4), pp.402-417.

Esposito, S., **Giovinazzi**, S., Elefante, L., Iervolino, I., (2013). Performance of the L'Aquila (central Italy) gas distribution network in the 2009 (Mw 6.3) earthquake. *Bulletin of Earthquake Engineering*. 11(6). DOI:10.1007/s10518-013-9478-8

Liu, M., **Giovinazzi**, S., MacGeorge, R., Beukman P. (2013). Wastewater network restoration following the Canterbury (NZ) Earthquake sequence: Turning post-earthquake recovery into resilience enhancement. *Technical Council on Lifeline Earthquake Engineering Publications and Monographs No.38: International efforts in lifeline earthquake engineering. (P)*, Published by American Society of Civil Engineering ASCE. 38:160-167. ISBN 978-0-7844-1323-4.

Jacques, C. C., McIntosh, J., **Giovinazzi**, S., Kirsch, T. D., Wilson, T., Mitrani-Reiser, J., (2014). Resilience of the Canterbury Hospital System to the 2011 Christchurch Earthquake. *Earthquake Spectra*. 30(1):533-554. DOI:10.1193/032013EQS074M

Brown, C., Stevenson, J., **Giovinazzi**, S., Seville, E., Vargo, J., (2014). Factors influencing impacts on and recovery trends of organisations: Evidence from the 2010/2011 Canterbury earthquakes. *International Journal of Disaster Risk Reduction*. 14(1):56-72. DOI:10.1016/j.ijdr.2014.11.009

Kongar, I., Esposito, S., **Giovinazzi**, S., (2015). Post-earthquake assessment and management

for infrastructure systems: learning from the Canterbury (New Zealand) and L'Aquila (Italy) earthquakes. *Bulletin of Earthquake Engineering* 05/2015; DOI:10.1007/s10518-015-9761-y.

Bocchini, G. M., **Giovinazzi**, S., Pomonis, A., Pampanin, S., Ingham, J., King, A., (2015). New Zealand contributions to the Global Earthquake Model's Earthquake Consequences Database (GEMECD). *Bulletin of the New Zealand Society for Earthquake Engineering* 12/2015; 48(4):245-263.

Marotta, A., Goded, T., **Giovinazzi**, S., Lagomarsino, S., Liberatore, D., Sorrentino, L., Ingham, J., (2015). An Inventory of Unreinforced Masonry Churches in New Zealand. *Bulletin of the New Zealand Society for Earthquake Engineering* 09/2015; 48(3):170-189.

Liu, M., Giovinazzi, S., Beukman, P. (2015). Post-earthquake performance indicators for sewerage systems. *Proceedings of the Institution of Civil Engineers - Municipal Engineer*. ISSN 0965-0903 | E-ISSN 1751-7699. DOI: 10.1680/jmuen.15.00028

Cavaliere F., Franchin P., **Giovinazzi** S. (2016). Earthquake-Altered Flooding Hazard Induced by Damage to Storm Water Systems. *Sustainable and Resilient Infrastructure*. Taylor & Francis, ISSN 2378-9689 (DOI:10.1080/23789689.2016.1178560).

**Giovinazzi** S., Brown C., Seville, E., Stevenson, J., Hatton T., Vargo J., (2016). Criticality of Infrastructures for Organisations Accepted for publication on *International Journal of Critical Infrastructures*, Inderscience Publisher

Akaa, O. U., Abu, A., Spearpoint, M., and **Giovinazzi**, S. (2016) Group-AHP Decision Analysis for the selection of applied fire protection to steel structures. Accepted for publication on *Fire Safety Journal*, Elsevier.

### Book Chapters (peer-reviewed)

**Giovinazzi**, S., Kongar, I., Bocchini, G. M., Ottonelli, D., (2014). *Damage to Buildings: Modeling*, pp:1-20. In book: *Encyclopedia of Earthquake Engineering*, Publisher: Springer, Editors: Michael Beer, Ioannis A. Kougiumtzoglou, Edoardo Patelli, Ivan Siu-Kui Au. DOI: 10.1007/978-3-642-36197-5\_357-1.

Kongar, I., **Giovinazzi**, S., (2014). *Damage to Infrastructure: Modeling*, pp:1-14. In book: *Encyclopedia of Earthquake Engineering*, Publisher: Springer, Editors: Michael Beer, Ioannis A. Kougiumtzoglou, Edoardo Patelli, Ivan Siu-Kui Au. DOI: 10.1007/978-3-642-36197-5\_356-1.

Stevenson, J., **Giovinazzi**, S., Seville, E., Brown, C., Chang-Richards, Y., Suzanne Wilkinson, S., (2015). *From Disaster to Opportunity: Reviving Urban Function after the Canterbury Earthquakes*. In book: *Cities at Risk: Planning for and recovering from natural disasters*. Editors: Pierre Fillion, Gary Sands and Mark Skidmore. Ashgate, UK, 2015. 97-137.

### Technical Reports

Ferreira Pedroso, F., Teo, J., Seville, E., **Giovinazzi**, S., Vargo, J., (2015). Post-Disaster Challenges and Opportunities: Lessons from the 2011 Christchurch earthquake and Great Eastern Japan earthquake and tsunami. *Input paper prepared for 2015 Global Assessment Report on Disaster Risk Reduction and the United Nation Office for Disaster Risk Reduction*.

Brown, C., Seville, E., Stevenson, J., **Giovinazzi**, S., Vargo, J. (2015). Developing the Business Behaviours Module within MERIT. *ERI Research Report 2015/02*.

Seville, E., Stevenson, J., Brown, C., **Giovinazzi**, S., Vargo, J., (2014). Disruption and Resilience: How Organisations coped with the Canterbury Earthquakes. *ERI Research Report 2014/002*.

- Allen, J., Davis, C., **Giovinazzi**, S., Hart, D.E., (Eds.) (2014). Geotechnical & flooding reconnaissance of the 2014 March flood event post 2010-2011 Canterbury earthquake sequence, New Zealand. *Technical report prepared for the Geotechnical Extreme Events Reconnaissance. GEER Association, Report No. GEER035*. 134pp
- Giovinazzi**, S., (2012). CERA modeling tools. *Technical Report prepared for the Canterbury Earthquake Recovery Authority, CERA, of New Zealand*.
- Esposito S, **Giovinazzi** S., Iervolino I., (2011). Definition of system components and the formulation of system functions to evaluate the performance of gas and oil pipeline. *Deliverable D2.4, WP2. Project: Systemic Seismic Vulnerability and Risk Analysis for Buildings, Lifeline Networks and Infrastructures Safety Gain, SYNER-G*. Project funded by the European Commission: N°: 244061, Call N°: FP7-ENV-2009-1.
- Dantas, A., **Giovinazzi**, S., (2010). Benchmarking the readiness of Road Controlling Authorities to meet their obligations under the CDEM Act 2002. *New Zealand Transport Agency Research Report 409*. 2010/10. 90pp. ISBN 978-0-478-36453-8; ISSN 1173 3756.
- Dantas, A., **Giovinazzi**, S., Seville, E. and Ferreira, F., (2010). A Diagnosis of State Highway Organisations' Decision-Making During Extreme Emergency Events. *Resilient Organisations. ResOrgs Reports*. 2010/02. 102pp
- Giovinazzi** S. (2009). Multi-hazards performance of geographically distributed systems. *Technical Report prepared for GNS Science and the Earthquake Commission, EQC of New Zealand*.
- Seville, E., Fenwick, T., Brunsdon, D., Myburgh, D., **Giovinazzi**, S., Vargo J., (2009). Resilience Retreat: Current and future resilience issues. Resilient Organisations, *ResOrgs Research Report 2009/05*.
- Balbi, A., **Giovinazzi**, S., Lagomarsino, S., (2004). Guidelines to increase the public administrators awareness of the seismic risk issues and to support them for the management of seismic risk” (In Italian, French and Catalan). *Monograph realized in the framework of RINAMED (Natural Risk Mediterranean Area) EC founded Project in collaboration with Liguria Ricerche s.r.l. and Civil Protection Department of Liguria Region* (available on [www.rinamed.net/docs/result/lg\\_It.pdf](http://www.rinamed.net/docs/result/lg_It.pdf)).
- Faccioli E. Frassine L., Finazzi D., Pessina V., Cauzzi C., Lagomarsino S. **Giovinazzi** S., Resemini S., Curti E., Podestà S. (2004). Synthesis of the application to Catania city. *Final report to Work Package 11. Risk-UE Project “An Advanced Approach to Earthquake Risk Scenarios With Application to Different European Towns”* funded by the European Commission. Project reference: EVK4-CT-2000-00014, Funded under: FP5-EESD
- Lagomarsino S., **Giovinazzi** S., Podestà S., Resemini S. (2003). “Vulnerability assessment of historical and monumental buildings”. *Final report to Work Package 5 Risk-UE Project “An Advanced Approach to Earthquake Risk Scenarios With Application to Different European Towns”* funded by the European Commission. Project reference: EVK4-CT-2000-00014, Funded under: FP5-EESD.
- Giovinazzi** S., Lagomarsino S., Lazzoni L., (2002). The seismic risk: hazard assessment, vulnerability analysis and damage scenarios. *Monograph (thematic dossier) realized in the framework GERIA project, Del Moro Editor, Italy*.

### Papers in Conference Proceedings (referred and peer-reviewed)

- Davis, C. A., and **Giovinazzi**, S., (2015). *Toward Seismic Resilient Horizontal Infrastructure Networks*. 6th International Conference on Earthquake Geotechnical Engineering, 1-4 November 2015, Christchurch, New Zealand.
- Davis, C. A., and **Giovinazzi**, S., Hart D. E. (2015). *Liquefaction Induced Flooding in Christchurch, New Zealand*. 6th International Conference on Earthquake Geotechnical Engineering, 1-4 November 2015, Christchurch, New Zealand.
- Giovinazzi**, S., Black, J. R., Milke, M., Brooks, K. A. Craigie, E., Liu, M., and Esposito, S., (2015). *Seismic Vulnerability Assessment of Wastewater Pipelines: Identifying and Ranking Vulnerability Factors after the Canterbury (NZ) Earthquake Sequence 2010-2011*. ASCE: Pipelines Conference 2015, Maryland, U.S, August 22-26, 2015
- Liu, M., **Giovinazzi**, S., and Lee P., (2015). *Seismic Fragility of Sewerage Pipelines*. ASCE: Pipelines Conference 2015, Maryland, U.S, August 22-26, 2015.
- Esposito, E., **Giovinazzi**, S., Cavalieri, F. (2015). *Advanced post-earthquake damage assessment for non-pressurised pipes: learning from the Canterbury (NZ) earthquake sequence 2010-2011*. IF CRASC'15, Forensic Engineering Conference. Rome, 14-16 May 2015.
- Cattari, S., Ottonelli, D., Pinna, M., Lagomarsino, S., Clark, W., **Giovinazzi**, S., Ingham J. M., Marotta, A., Liberatore, D., Sorrentino, L., Leite, J., Lourenco, P. B., Goded, T. (2015). *Damage and vulnerability analysis of URM churches after the Canterbury earthquake sequence 2010-2011*. SECED 2015 Conference: Earthquake Risk and Engineering towards a Resilient World, Cambridge, UK; 07/2015.
- Cattari, S., Ottonelli, D., Pinna, M., Lagomarsino, S., Clark, W., **Giovinazzi**, S., Ingham J. M., Marotta, A., Liberatore, D., Sorrentino, L., Leite, J., Lourenco, P. B., Goded, T. (2015). *Preliminary results from damage and vulnerability analysis of URM churches after the Canterbury earthquake sequence 2010-2011*. New Zealand Society for Earthquake Engineering Technical Conference, NZSEE Conference, Rotorua; 04/2015.
- Ukeni, O. A., Abu, A., Spearpoint, M., **Giovinazzi**, S. (2015). *Balancing Stakeholder Views for Decision Making in Steel Structural Fire Design*. 2nd International Conference on Performance-Based and Life-Cycle Structural Engineering, Brisbane, Australia; 12/2015
- Masi, A., Di Sarno, L., Manfredi, G., Santarsiero, G., **Giovinazzi**, S., Mitrani-Reiser J. (2015). *Seismic risk of Italian hospitals: analysis of assessment results to define criteria for intervention prioritization*. Italian National Conference on Earthquake Engineering, L'Aquila, ANIDIS, L'Aquila (Italy), 13-17 September 2015.
- Rais, A., **Giovinazzi**, S., and Palermo, A., (2015). *Pipelines at Bridge Crossings: Empirical Based Seismic Vulnerability Index*. ASCE: Pipelines Conference 2015, Maryland, U.S, August 22-26, 2015
- Liu, M., **Giovinazzi**, S., and Beukman, P., (2015). *Towards A Decision Support Framework for Post-Earthquake Restoration of Wastewater Systems*. IFME World Congress on Municipal Engineering and IPWEA International Public Works Conference. Institute of Public Works Engineering of Australasia, Rotorua, New Zealand, June, 2015
- Rais, A., **Giovinazzi**, S., Palermo, A., and Lee, P. (2015). *Bridge-Utility Systems: Learning from the Canterbury Earthquakes (2010-11)*. New Zealand Society for Earthquake Engineering, NZSEE Conference, Rotorua, New Zealand, 2015
- Cavalieri F., Franchin P., Ko S. J., **Giovinazzi** S., Deirdre H. (2015). *Probabilistic assessment of increased flooding vulnerability in Christchurch after the Canterbury 2010-2011*

- sequence*. 12th International Conference on Applications of Statistics and Probability in Civil Engineering, ICASP12, Vancouver, Canada.
- Kongar I., Rossetto T., **Giovinazzi S.** (2015). *Evaluating Desktop Methods for Assessing Liquefaction-Induced Damage to Infrastructure for the Insurance Sector*. 12th International Conference on Applications of Statistics and Probability in Civil Engineering, ICASP12, Vancouver, Canada.
- Kongar I., Rossetto T., **Giovinazzi S.** (2014). *Seismic fragility of Underground electrical cables in the 2010-11 Canterbury (NZ) Earthquakes*. Second European Conference on Earthquake Engineering and Seismology. Istanbul, August 2014.
- Bocchini, G. M., Pomonis, A., So E., King A. B., **Giovinazzi S.** (2014). *The GEM earthquake consequences database and New Zealand's contributions*. New Zealand Society for Earthquake Engineering, NZSEE Conference, Auckland, March 2014.
- Kongar I., Rossetto T., **Giovinazzi S.** (2013). *The Effectiveness of HAZUS and SYNER-G methodologies for predicting substation damage*. Second International Conference on Vulnerability and Risk Analysis and Management (ICVRAM) and the Sixth International Symposium on Uncertainty, Modeling, and Analysis (ISUMA). In: *Vulnerability, Uncertainty, and Risk*: pp. 752-761. DOI: 10.1061/9780784413609.077. Publisher: American Society of Civil Engineers. ISBN (print): 978-0-7844-1360-9.
- Giovinazzi S.**, Wenzel H., Powell D., Lee J. S. (2013). *Consequence-based decision making tools: evidences of needs and initial activities of the m-HARP Consortium*. XV Italian National Conference on Earthquake Engineering, ANIDIS, Padua (Italy), 30 June 4 July 2013.
- Brando M., Lin, S.L., **Giovinazzi S.**, Palermo A. (2012) *Observed and predicted bridge damage following the recent Canterbury earthquakes: toward the calibration and refinement of damage and loss estimation tools*. 6th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2012), Association for Bridge Maintenance And Safety (IABMAS), Stresa, Lake Maggiore, Italy, 8-12 July 2012.
- Mitrani-Reiser J., McIntosh J., Jacques C., **Giovinazzi S.**, Kirsch T.D., Wilson T. (2012). *Response of the Regional Health Care system to the 22nd February 2011, Christchurch Earthquake*, NZ. WCEE 2012, Lisbon, Portugal.
- Giovinazzi S.**, Stevenson J. R., Mason A., Mitchell J., (2012). *Assessing temporary housing needs and issues following Christchurch Earthquakes*. 15 World Conference on Earthquake Engineering, WCEE 2012, Lisbon, Portugal, September 2012.
- Knight, S., **Giovinazzi S.**, Liu, M., (2012). *Impact and Recovery of the Kaiapoi Water Supply Network following the September 4th 2010 Darfield Earthquake, New Zealand*. 15 World Conference on Earthquake Engineering, Lisbon, Portugal, September 2012.
- Giovinazzi S.** and Wilson T. (2012) *"Recovery of Lifelines" following the 22nd February 2011 Christchurch Earthquake: successes and issues*. New Zealand Society for Earthquake Engineering, NZSEE Conference, 2012.
- Lin, S.L. **Giovinazzi S.** and Pampanin S. (2012). *Loss Estimation in Christchurch CBD based on Recent Earthquakes: Validation and Refinement of Current Procedures*. New Zealand Society for Earthquake Engineering, NZSEE Conference, Christchurch April 2012.
- Villemure, M., Wilson, T. M., Bristow, D., Gallagher, M., **Giovinazzi S.**, Brown C., (2012). *Liquefaction ejecta clean-up in Christchurch during the 2010-2011 earthquake sequence*. New Zealand Society for Earthquake Engineering, NZSEE Conference, Christchurch April 2012.

- Esposito, S., **Giovinazzi**, S., Iervolino, I., Elefante, L., (2011). *Addressing ground-shaking-induced damage of the gas distribution network in the 2009 L'Aquila earthquake*. XVI Italian National Conference on Earthquake Engineering, ANIDIS, Bari (Italy), September 2011.
- Esposito, S., **Giovinazzi**, S., Iervolino, I., Elefante, L., (2011). *Post-Earthquake Physical Damage Assessment for Gas Networks*. Ninth Pacific Conference on Earthquake Engineering Building an Earthquake-Resilient Society, Auckland (New Zealand), April 2011.
- Brown, C., Milke, M., Seville E. and **Giovinazzi** S. (2010). *Disaster Waste Management on the Road to Recovery: L'Aquila Earthquake case study*. 14th ECEE European Conference on Earthquake Engineering. Ohrid, Macedonia, 30 August – 03 September 2010.
- Giovinazzi** S. and Nicholson A. (2010). *Transport Network Reliability in Seismic Risk Analysis and Management*. 14th ECEE European Conference on Earthquake Engineering. Ohrid, Macedonia, 30 August – 03 September 2010
- Nicholson A. and **Giovinazzi** S (2010). *Hazard Loss Estimation and Transport Network Reliability*. 4th International Symposium on Transportation Network Reliability. University of Minnesota, July 22-23, 2010.
- Ferreira, F. Dantas, A. Seville, E. **Giovinazzi** S. (2010). *Dynamic Response Recovery Tool for Rooding Organisations*. World Conference on Transport Research. Lisbon, July 2010.
- Dantas A., **Giovinazzi** S., Ferreira F., Seville E. (2010). *A Diagnosis of State Highway Organisations' Decision-Making during Extreme Emergency Events*. IPENZ Transportation Group Conference Christchurch. March, 2010.
- Ferreira, F. Dantas, A. Seville, E. **Giovinazzi** S. (2010). *Organizational Operations Planning and Decision-Making During Extreme Events: The New Zealand State Highway Organizations Case*. 89th Transport Research Board TRB Annual Meeting: Investing in Our Transportation Future – BOLD Ideas to Meet BIG Challenges. Washington, D.C., January 10-14, 2010.
- Ferreira, F. Dantas, A. Seville, E. **Giovinazzi** S. (2010). *Towards an Alternative Approach for Rooding Organizations Emergency Management Training and Research: Exercises Observation and Game-Based Scenario Simulation*. 89th Transport Research Board TRB Annual Meeting: Investing in Our Transportation Future – BOLD Ideas to Meet BIG Challenges. Washington, D.C., January 10-14, 2010.
- Giovinazzi** S., Pampanin S. (2009). *Multi-Criteria Approach For Seismic Risk Mitigation*. WCCE – ECCE – TCCE Joint Conference: Earthquake & Tsunami Analyses. Istanbul.
- Giovinazzi** S. and King A. (2009). *Estimating seismic impacts on lifelines: an international review for RiskScape*. NZSEE 2009 New Zealand Society for Earthquake Engineering Annual Conference, Christchurch, New Zealand.
- Giovinazzi** S. and King A. (2009). *Toward the Seismic Performance Assessment of Lifelines within the Regional RiskScape Model in New Zealand*. XIII Italian National Conference on Earthquake Engineering, ANIDIS, Bologna, Italy, 28 June - 2 July 2009.
- Giovinazzi** S., Ferreira F., Dantas A., Seville E., (2008). *Enhancing the reconstruction process for road networks: opportunities and challenges for using Information Technology*. 4th International I-Rec Conference Building Resilience: achieving effective post-disaster reconstruction. Christchurch, New Zealand, April-May 2008.
- Giovinazzi O., **Giovinazzi** S., (2008). *Waterfront planning: a window of opportunities for post-disaster reconstruction*. 4th International I-Rec Conference Building Resilience:

- achieving effective post- disaster reconstruction. Christchurch, New Zealand, April-May 2008.
- Giovinazzi S.** and Pampanin S., (2007). *Multi-criteria approaches for regional earthquake retrofit strategies*. 8th Pacific Conference on Earthquake Engineering. Singapore, December 2007.
- Bernardini A., **Giovinazzi S.**, Lagomarsino S., Parodi S., (2007). *The vulnerability assessment of current buildings by a macroseismic approach derived from the EMS-98 scale*, 3rd International Congress of Seismic Engineering, Asociación Española de Ingeniería Sísmica. Girona, Spain, May 2007.
- Giovinazzi S.** and Pampanin S., (2007). *Mitigation Analyses for the Selection of Effective Seismic Retrofit Strategies at a Territorial Scale*. NZSEE 2007 New Zealand Society for Earthquake Engineering Annual Conference. Palmerstone North, New Zealand, March/April 2007.
- Giovinazzi S.** and Cubrinovski M., (2007). *Liquefaction Hazards for Seismic Risk Analysis*. NZSEE 2007 New Zealand Society for Earthquake Engineering Annual Conference. Palmerstone North, New Zealand, March/April 2007.
- Curti E., **Giovinazzi S.**, Lagomarsino S., Resemini S., (2007). *Non-linear analysis of damage local mechanisms for monumental structures*. Proceedings of the XII Italian National Conference on Earthquake Engineering, ANIDIS, Pisa, Italy, 10 - 14 June 2007. (In Italian).
- Giovinazzi S.**, Lemme A. Podestà S., Resemini S., (2007). *Data analysis finalised to the calibration of vulnerability, damage and cost and reconstruction models for residential and strategic buildings*. Proceedings of the XII Italian National Conference on Earthquake Engineering, ANIDIS, Pisa, Italy, 10 - 14 June 2007. (In Italian).
- Giovinazzi S.** (2006). *Geotechnical Hazard representation for damage scenario and seismic risk analysis*. Earthquake Geotechnical Engineering Workshop, Canterbury, November 2006.
- Giovinazzi S.**, Pampanin S., Lagomarsino S., (2006). *Alternative Retrofit Strategies for pre' 70 buildings: vulnerability models and a damage scenarios*. First European Conference on Earthquake Engineering and Seismology. Geneva, Switzerland, September, 2006.
- Balbi A., Galasco A., **Giovinazzi S.**, Lagomarsino S., Parodi S., (2006). *SCENARIO SISMICO: a tool for seismic risk analysis and real time damage scenarios implementation*. First European Conference on Earthquake Engineering and Seismology. Geneva, Switzerland, September, 2006.
- Giovinazzi S.**, Lagomarsino S., Resemini S., (2006). *Equivalent SDOF definition and Damping factors in the performance-based assessment of monumental masonry structures*. 1st European Conference on Earthquake Engineering and Seismology. Geneva, Switzerland, September, 2006.
- Giovinazzi S.**, Lagomarsino S., Resemini S., (2006). *Displacement capacity of ancient structures through non-linear cinematic and dynamic analyses*. V International Conference on Structural Analysis of Historical Construction. New Delhi, India, November, 2006.
- Giovinazzi S.**, Lagomarsino S., Pampanin S., (2006). *Vulnerability Methods and Damage Scenario for Seismic Risk Analysis as Support to Retrofit Strategies: an European Perspective*. NZSEE 2006 New Zealand Society for Earthquake Engineering Annual Conference. Napier, March, 2006.
- Frumento S., **Giovinazzi S.**, Lagomarsino S., Podestà S., (2006). *Seismic Retrofitting of Unreinforced Masonry Buildings in Italy*. NZSEE 2006 New Zealand Society for Earthquake Engineering Annual Conference. Napier, New Zealand, March, 2006.



- Giovinazzi S.**, Lagomarsino S., (2005). *Fuzzy-random approach for a seismic vulnerability model*. Proc. of ICOSSAR - International Conference on Structural Safety and Reliability, Rome, Italy. Millpress Editor, Rotterdam, pp. 2853 – 2861, ISBN 90 5966 040 4.
- Giovinazzi S.**, Lagomarsino S., (2004). *A macroseismic method for the vulnerability assessment of buildings*. Proc. of 13th World Conference on Earthquake Engineering, Vancouver, Canada, August, Paper n.896.
- Balbi A., **Giovinazzi S.**, Lagomarsino S., (2004). A vulnerability method for historical centre building. Proceedings of the IX Italian National Conference on Earthquake Engineering, ANIDIS. 25 - 29 January 2004 (In Italian)
- Cattari S., Curti E., **Giovinazzi S.**, Lagomarsino S., Parodi S., Penna A., (2004). A mechanical model for the vulnerability assessment and damage scenario of masonry buildings at urban scale. Proceedings of the IX Italian National Conference on Earthquake Engineering, ANIDIS. 25 - 29 January 2004 (In Italian)
- Giovinazzi S.**, Lagomarsino S., (2003). *Seismic Risk Analysis: a method for the vulnerability assessment of built-up areas*. Proc. of ESREL 2003 - European Safety and Reliability Conference, Maastricht, Nederland.
- Giovinazzi S.**, Lagomarsino S., (2002). *A methodology for the vulnerability analysis of Built-up Areas*. Proc. of International Conference on Earthquake Loss Estimation and Risk Reduction, Bucharest, Romania, October 2002.
- Lagomarsino S., **Giovinazzi S.**, (2001). *Hazard and vulnerability of the built-up environment: physical vulnerability analysis*. Proc. of the International Conference Result, Remarks and Proposal for a trans-boundary management of natural risks, Mentone, France. Franco Angeli Editions.
- Lagomarsino S., Brun S., **Giovinazzi S.**, Idri C., Penna A., Podestà S., Resemini S., Rossi B., (1999). Models for the seismic vulnerability assessment and mitigation of churches. Proceedings of the IX Italian National Conference on Earthquake Engineering, ANIDIS, Torino, Italy, 20 - 23 September 1999. (In Italian).