













Course Schedule

7-8-9 June 2016 | Poppi, Tuscany (Italy)

Tuesday, June 7, 2016

	Registration and networking time with coffee, tea and snack	8:00-9:00	
	A.1 Welcome and Introduction	9:00-9:20	John Dunicliff & Paolo Mazzanti
	A.2 Overview of Monitoring – Part 1 <ul style="list-style-type: none"> – Why do we need to “monitor”? – What do we measure? 	9:20-9:40	John Dunicliff
	A.3 Overview of Monitoring – Part 2 <ul style="list-style-type: none"> – Remote vs contact monitoring – Long term vs short term monitoring – Continuous vs periodic monitoring – Monitoring equipment vs monitoring network 	9:40-10:00	Paolo Mazzanti
	A.4 Introduction of Participants and Exhibitors	10:00-10:30	John Dunicliff (moderator)
	Coffee Break	10:30-11:00	
	A.5 Welcome Addresses from Supporters	11:00-11:15	Paolo Mazzanti (moderator)
	A.6 Systematic Approach to Planning Monitoring Programs, Illustrated by a Deep Excavation in a City	11:15-12:20	John Dunicliff
	B.1 Introduction to Contact Systems <ul style="list-style-type: none"> – Paper on your memory stick – What the lectures will cover – Sources of information 	12:20-12:45	John Dunicliff
	Lunch Break	12:45-14:00	
	B.2 Vibrating Wire Piezometers: Guidelines and Lessons Learned <ul style="list-style-type: none"> – Overview – Installation methods – Installation demonstration – Data reduction – Troubleshooting – Lessons learned – 5 minutes Q&A 	14:00-14:45	Tony Simmonds & Joel Swenson

 Sessions “A”: Basic Concepts of Geotechnical and Structural Monitoring

 Sessions “B”: Contact Monitoring

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- ▶ B.3 Monitoring, Load, Strain and Total Stress: Guidelines and Lessons Learned
 - Load cells
 - Surface strain gauges
 - Embedment strain gauges
 - Hydraulic total pressure cells
 - Membrane total pressure cells
 - Innovative sensors for total pressure monitoring
 - Case histories & Lessons learned
 - 5 minutes Q&A

14:45-15:30

Giorgio Pezzetti



Coffee Break

15:30-16:00

- ▶ B.4 Fiber Optics - Distributed Strain Sensors and Fiber Bragg Grating
 - Introduction
 - Point sensors
 - Distributed sensors
 - Applications: choice of technology and hardware
 - Landslides/pipelines
 - Boreholes, Piles and Suctures

16:00-16:30

Michael Iten

- ▶ B.5 Fiber Optics - Distributed Temperature and Long Gauge Sensors
 - Distributed temperature sensing
 - Leak detection for pipelines applications
 - Seepage evaluation in dams, dykes and levees
 - Long gauge sensors (SOFO)
 - Pile load test
 - Alkali silica reaction monitoring
 - Fiber optic piezometers (Fabry-Perot)
 - Tailings dam monitoring
 - Hydraulic tomography

16:30-17:00

Daniele Inaudi

- ▶ NT.1 New Trends in Contact Monitoring
 - Monitoring aging concrete infrastructure in harsh environment with extensometer immune to corrosion, temperature variation, and drift over time
 - Counter-acting Rotation Effects in Sloped Boreholes
 - Pipeline integrity monitoring and bridge load monitoring with new MS-03 strain sensor
 - Multiparametric and in place, the geotechnical continuous monitoring with DMS columns.

17:00-17:45

Charles Leduc

Lee Danisch

Gabor Patassy

Mario Lovisolo



Welcome Party

18:00-22:00









▶ Sessions "B": Contact Monitoring

▶ Sessions "NT": New Trends in Monitoring


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	Networking and exhibition with coffee, tea and snack	8:00-9:00	
	C.1 Introduction to Remote Systems <ul style="list-style-type: none"> - Basic principles and criteria for remote monitoring - Overview of existing remote systems - How to effectively choose a remote system - Sources of information 	9:00-9:15	Paolo Mazzanti
	C.2 Monitoring of Displacements by Topographic and GNSS Systems <ul style="list-style-type: none"> - Levelling - Total stations - GNSS - Reflectorless total stations - Advantages and limitations - Examples of applications - 5 minutes Q&A 	9:15-10:00	Martin Beth
	C.3 Monitoring of Displacements by Laser Scanner <ul style="list-style-type: none"> - Terrestrial Laser Scanner - Examples of applications 	10:00-10:20	Sarah Owen
	Coffee Break	10:20-10:50	
	C.4 Monitoring of Displacements by Radar Systems <ul style="list-style-type: none"> - Basic principles of radar systems - Radar Interferometry - Satellite SAR monitoring - Terrestrial SAR and RAR monitoring systems - Examples of application - 5 minutes Q&A 	10:50-11:50	Paolo Mazzanti
	D.1 Fundamentals of Vibration Monitoring – Things to Consider <ul style="list-style-type: none"> - Principles of vibration analysis - Vibration measurements and monitoring - Vibration sensors - How to analyze the data - Examples of vibration monitoring - 5 minutes Q&A 	11:50-12:40	Andrea Bellino
	Lunch Break	12:40–13:55	

 Sessions "C": Remote Monitoring

 Sessions "D": Vibration Monitoring, Offshore Monitoring and Data Transmission and Management

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| <p>▶ D.2 Fundamentals of Data Acquisition Systems (Including Wireless Systems): Things to Consider</p> <ul style="list-style-type: none"> – History and Experience – What is a DAS? – Data types and visualisation – Quality Assurance and Verification – Central Components – Instrumentation – Communications – Software – Conclusions | 13:55-14:20 | Iain Oakes-Green |
| <p>▶ D.3 Fundamental of Web-based Data Management for Instrumentation: Things to Consider</p> <ul style="list-style-type: none"> – Main components of web-based data management system – Various methods to input data – Working with data – Configuration – Various reports | 14:20-14:45 | Andres Thorarinsson |
| <p>▶ D.4 Underwater Monitoring</p> <ul style="list-style-type: none"> – Environmental conditions to be aware of – Some practical advice when being under water – Where is the challenge, in shallow or deep waters? – Differences in approach for direct monitoring solutions above and under water – Methods for remote monitoring under water – Wireless under water – Lessons learned and some case histories – 5 minutes Q&A | 14:45-15:35 | Per Magnus Sparrevik |



Coffee Break

15:35-16:05

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| <p>▶ NT.2 New Trends in Remote Monitoring</p> <ul style="list-style-type: none"> – Water discharge measurements at Three Gorges Test Dam with the MetaSensing's FastGBSAR. – Innovation in GPS technology for geotechnical monitoring applications. – "Photomonitoring": A cost effective tool for geotechnical and structural monitoring. | 16:05-16:40 | Linda Corucci |
| | | Alex Neuwirt |
| | | Paolo Mazzanti |

▶ Sessions "D": Vibration Monitoring, Offshore Monitoring and Data Transmission and Management

▶ Sessions "NT": New Trends in Monitoring

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NT.3 New Trends in Offshore Monitoring and Data Transmission and Management	16:40-17:35	
– MOSE and ENI Projects - Submarine Hydraulic Profile Gauge.		Franco Robotti
– Wireless sensors for the monitoring of Geotechnical and Civil infrastructure.		Juan Pérez
– Metro C Line. New Web GIS Remote Monitoring System for the Hystorical heritage of Rome - monitoring the Coliseum.		Ottavio Tripoli
– A Submarine full of Mercury – Monitoring a consolidation of a counter fill under water		Per Magnus Sparrevik
– IT challenges for online monitoring		Pieter Devolder

— Sessions "NT": New Trends in Monitoring

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Thursday, June 9, 2016


	Networking and exhibition with coffee, tea and snack	8:00-9:00	
	E.1 Case Histories and Lessons Learned – the Role of Monitoring for the Control of Geotechnical Construction and for the Assurance of Safety and Performance	9:00-9:45	John Burland
	<ul style="list-style-type: none"> – Monitoring control of the Big Ben Clock Tower during and after compensation grouting – Monitoring control of the Pisa Tower during and after stabilisation by soil extraction – Assurance monitoring of a highly sensitive medical facility during nearby diaphragm wall construction 		
	E.2 Case Histories and Lessons Learned by Users with Presentations by Participants:	9:45-10:55	
	<ul style="list-style-type: none"> – Controlling shock waves and vibrations during large and intensive blasting operations under Stockholm City. – Monitoring and integrated data management for safe urban tunneling – The Cityringen Copenhagen. – Performance Monitoring at the Transbay Transit Center project in San Francisco. – Detecting geohazards threats along pipeline routes using fiber optic distributed sensing- Case Studies in from Arctic territories to Andean Countries. – Geotechnical monitoring of a trial pit excavation. 		Anders Mejner Peter Berger Dots Oyenuga Fabien Ravet Elke Declercq
	Coffee Break	10:55-11:25	
	E.3 Case Histories and Lessons Learned – Implementation of Monitoring Systems for Mining and Major Infrastructures	11:25-12:00	Martin Dupuis
	<ul style="list-style-type: none"> – Instrumentation and monitoring of a main sewer during major infrastructure work – Challenges of implementing instrumentation in a potash mine shaft 		
	E.4 Workshop on Systematic Planning of a Monitoring Program, for an Embankment on Soft Ground	12:00-13:15	John Dunicliff (moderator)
	Lunch Break	13:15-14:30	

 Sessions "E": Case Histories and Interactive Sessions

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<p>➤ E.5 Case Histories and Lessons Learned by Users with presentations by Participants</p> <ul style="list-style-type: none"> ➤ How do monitoring of the Bududa Landslide, 1st March 2010, Mount Elgon, Uganda? ➤ In-place-inclinometers for landslide and dam monitoring. ➤ Slope monitoring of rainfall-induced landslides: a case study of a coastal hillsides from southern Brazil. ➤ Preliminary results obtained by Automatic Inclinometer System in the high mountain landslide areas. ➤ Combining satellite A-DInSAR and geological-geotechnical models for the characterization of settlement processes in the Fiumicino area (Rome, Italy). 	<p>14:30-15:40</p>	<p>Michael Staudt</p> <p>Daniel Naterop</p> <p>Liamara Paglia Sestrem</p> <p>Paolo Allasia</p> <p>Francesca Bozzano</p>
<p> Coffee Break</p>		
<p>➤ E.6 Case Histories and Lessons Learned – Structural Health Monitoring to Extend the Safe Working Life of Infrastructure</p> <ul style="list-style-type: none"> ➤ Loughbrickland bridge with full B-WiM and WIM system ➤ FlexiArch bridge system: structural health monitoring 	<p>16:10-16:45</p>	<p>Susan Taylor</p>
<p>➤ E.7 Open Forum</p> <ul style="list-style-type: none"> ➤ Questions received from participants during the first two days 	<p>16:45-17:05</p>	<p>John Dunnycliff & Paolo Mazzanti (moderators)</p>
<p>➤ E.8 Closing Remarks</p>	<p>17:05-17:30</p>	<p>John Dunnycliff & Paolo Mazzanti</p>

➤ Sessions "E": Case Histories and Interactive Sessions