1st International Conference
Geomatics and Restoration
Conservation of Cultural Heritage in the Digital Era
22-24 May 2017
Caserma Redi, Via Cherubini 5, Florence, IT

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SCIENTIFIC PROGRAMME

http://geores2017.geomaticaeconservazione.it
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## Monday

### Registration
9:00 - 10:00

### Opening Ceremony - Greetings from the Authorities
10:00 - 11:00
Ministry of Cultural Heritage Activities and Tourism
Regione Toscana
Municipality of Florence
Commission for the Architectural and Landscape Heritage
University of Florence
Gianfranco Rossi, IGM Commander
Stefano F. Musso, SIRA President
Antonio Vettore, AUTEC President
Grazia Tucci, GEORES2017 Conference Chair

### Coffee Break
11:00 - 11:30

### Key Notes
11:30 - 13:00

**Harnessing Digital Workflows for Conserving Historic Places**
Santana Quintero Mario
Survey and Restoration

**The Acquisition, Production and Dissemination of Geospatial Data for Emergency Management and Preservation of Cultural Heritage**
Santoro Enzo

### Lunch
13:00 - 14:00

### Technical Session - Risk and Resilience
14:00 - 17:30
Chaired by Musso S.F. and Sguerso D.

<table>
<thead>
<tr>
<th>Title</th>
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<tr>
<td>Multiscale documentation and monitoring of L’Aquila historical centre using UAV photogrammetry</td>
<td>Dominici D., Alicandro M., Rosciano E., Massimi V.</td>
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<tr>
<td>Survey methods for seismic vulnerability assessment of historical masonry buildings</td>
<td>Ballarin M., Balletti C., Faccio P., Guerra F., Saetta A., Vernier P.</td>
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<td>The 2012 earthquake: an abacus of surveys and interventions in Mantua churches</td>
<td>Fregonese L., Campera A., Scala B., Adami A.</td>
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<tr>
<td>Use of UAS for the conservation of historical building in case of emergencies</td>
<td>Fagandini R., Federici B., Ferrando I., Gagliolo S., Pagliari D., Passoni D., Pinto L., Sguerso D.</td>
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### Coffee Break
16:00 - 16:15

<table>
<thead>
<tr>
<th>Title</th>
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<tr>
<td>Impact of land use change to the soil erosion estimation for cultural landscapes: case study of Paphos district in Cyprus</td>
<td>Cuca B., Agapiou A.</td>
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### SHOW CASES, INSTRUMENTAL EXIBITION and POSTER

**17:30 - 18:15**

**Chaired by A. Adami**

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<tr>
<td>The use of GIS for the application of the phenomenological approach to the seismic risk analysis: the case of Italian fortified architecture</td>
<td>Lenticchia E., Coisson E.</td>
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<td>Geomatic 3D modeling of a statue (also) for structural analysis and risk evaluation: the example of San Giovannino Martelli in Florence</td>
<td>Spangher A., Visintini D., Tucci G., Bonora V.</td>
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<tr>
<td>The common evolution of geometry and architecture from a geomatic point of view</td>
<td>Bellone T., Fiermonte F., Mussio L.</td>
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<td>Design and ‘restoration’: the roots of architecture project for the built</td>
<td>Campanella C.</td>
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<td>3D modelling of two louteria fragments by image-based approach</td>
<td>Burgio A., Ebolese D., Lo Brutto M.</td>
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<tr>
<td>3d modelling of archaeological small finds by a low-cost range camera: methodology and first results</td>
<td>Ravanelli R., Nascetti A., Di Rita M., Nigro L., Montanari D., Spagnoli F., Crespi M.</td>
</tr>
<tr>
<td>Geomatics as a survey tool to document and enhance the cultural and landscaped heritage of the monumental complexes in the mountains of Abruzzo</td>
<td>Palestini C., Basso A.</td>
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<tr>
<td>Digital photogrammetry combining RGB and thermal images from UAV</td>
<td>Bonora V., Gulec Korumaz A., Rosina E., Tucci G.</td>
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### Geomatics and Restoration

**Conservation of Cultural Heritage in the Digital Era**

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<thead>
<tr>
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<tr>
<td>Documentation for restoration: terrestrial laser scanning and UAV photogrammetry integration for cultural and archaeological area documentation</td>
<td>Gulec Korumaz A., Korumaz M.</td>
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<tr>
<td>San Carlo dei Barnabiti: restoration and reinforcement of the roofing of a Florentine baroque masterpiece</td>
<td>Mastrodicasa C., Montecchi S., Tucci G., Conti A., Fiorini L.</td>
</tr>
<tr>
<td>Historic BIM: a new repository for structural health monitoring</td>
<td>Banfi F., Barazzetti L., Previtali M., Roncoroni F.</td>
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<tr>
<td>3D geomatics techniques for an integrate approach to cultural heritage knowledge: the case of San Michele in Acerboli’s church in Santarcangelo di Romagna</td>
<td>Bitelli G., Dellapasqua M., Girelli V.A., Sanchini E., Tini M.A.</td>
</tr>
<tr>
<td>Point cloud management through the realization of the intelligent cloud viewer software</td>
<td>Costantino D., Angelini M. G., Settembrini F.</td>
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<tr>
<td>Pansharpening techniques to detect mass monument damaging in Iraq</td>
<td>Baiocchi V., Bianchi A., Maddaluno C., Vidale M.</td>
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<tr>
<td>Learning geomatics for restoration: ICOMOS summer school in Ossola Valley</td>
<td>Achille C., Fassi F., Marquardt K., Cesprini M.</td>
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### WELCOME COCKTAIL

from 18:15
TECHNICAL SESSION - The use of digital images in visible and not-visible ranges
parallel session 9:00 - 11:00
Chaired by E. Rosina and T. Luhmann

Title: The tomb of Seti I (KV17) in the Florence Egyptian museum. Integrated non-invasive methods for documentation, material history and diagnostics
Authors: Coppola M., Bracci S., Cantisani E., Magrini D.

Title: Evaluate the capability of Landsat-8 operational land imager for shoreline change detection/inland water studies
Authors: Pervez W., Khan S.A., Hussain E., Amir F., Maud M.A.

Title: Integration of infrared thermography and photogrammetric surveying of built landscape
Authors: Scaioni M., Rosina E., L’erario A., Diaz Vilarino L.

Title: For a conscious fruition of the cultural heritage of ancient Noto (Sicily). Efian project as opportunity for valorisation
Authors: Barone Z., Nuccio G.

Title: Geospatial (big) data. The new challenge to create value from aerial images
Authors: Ferrari P.

TECHNICAL SESSION - Thematic data documenting pathologies, materials, decay, data georeferencing
parallel session 9:00 - 11:00
Chaired by G.B. Marino and M. Santana Quintero

Title: The MAXXI Museum in Rome: an integrated survey experience for the restoration of contemporary architecture
Authors: Versaci A., Cardaci A.

Title: Documentation and detection of color changes of bas relieves using close range photogrammetry
Authors: Malinverni E.S., Pierdicca R., Sturari M., Colosi F., Orazi R.

Title: The case of Capogrossi in Rome: collecting data with different technologies on a contemporary mural painting
Authors: Mezzadri P., Russo J.

Title: From excavation to web: a GIS for archaeology
Authors: D’Urso M., Corsi E., Nemeti S., Germani M.

Title: The 4DILAN project (4th dimension in landscape and artifacts analyses)
Authors: Chiabrando F., Naretto M., Sammartano G., Sambuelli L., Spanò N., Teppati, Losè L.

Title: The complex point cloud for the knowledge of the architectural heritage. Some experiences
Authors: Aveta C., Salvatori M., Vitelli G.P.

COFFEE BREAK
11:00 - 11:30
Geomatics and Restoration
Conservation of Cultural Heritage in the Digital Era

SHORT PRESENTATIONS

11:30 - 13:00
Chaired by D. Visintini

Title: The main portal of the Cathedral of Monreale: first geometric analysis and interpretive assessment of architectural features
Authors: Lo Brutto M., Dardanelli G., Ebolese D., Milazzo G., Pipitone C., Sciortino R.

Title: A webgis for the knowledge and conservation of the historical wall structures of the 13th - 18th centuries
Authors: Vacca G., Pili D., Fiorino D., Pintus V.

Title: The seaplane base Ivo Monti at S. Nicola Varano (FG): a monument of military archeology, between history and protection
Authors: Mariano F., Saracco M., Petetta L.

Title: Cultural heritage documentation in SIS environment: an application for “Porta Sirena” in the archaeological site of Paestum
Authors: Pepe M., Parente C.

Title: Survey of the pagoda timber roof in Derneburg castle
Authors: Perria E., Sieder M., Hoyer S., Krafczyk C.

Title: “Banca del fare” summer school in alta langa: «the ruins to be rebuilt will be our classrooms». Knowledge from artisans to new generations, from ancient skills to new building techniques
Authors: Villata M.

Title: Archaeological mapping with UAV fixed wings
Authors: Bravi, F.

Title: From the road sign to the map: 3D modeling in support of the urban and rural road conditions
Authors: Palummo A.

Title: Generating accurate 3D models of architectural heritage structures using low-cost camera and open source algorithms
Authors: Zacharek M., Delis P., Kedzierski M., Fryskowska A.

Title: An integrated approach based on traditional archaeological surveys, digital recording techniques and historical documentation for the assessment of threats related to the climate-sensitive territorial context
Authors: Stanga C., Valente R., Previtali M.

Title: Shape and construction of brick vaults. criteria, methods and tools for a possible catalogue
Authors: Brumana R., Condoleo P., Grimoldi A., Landi A.

Title: Palmyra as it once was: 3D virtual reconstruction and visualization of an irreplaceable lost treasure
Authors: Denker A.

Title: Laser scanning and modelling of barely visible features: the survey of the Grotto of the Animals at the Villa of Castello (Florence)
Authors: Tesi V., Tucci G., Bonora V., Fiorini L., Conti A.

Title: Clima platform: an interactive webgis for risk assessment in cultural heritage
Authors: Di Iorio A., Salvi M.C.

LUNCH

13:00 - 14:00

TECHNICAL SESSION - HBIM for management and maintenance
Relationship between recording and design processing

14:00 - 17:15
Chaired by S. Della Torre, R. Brumana

Title: Challenges and opportunities for the implementation of H-BIM with regard to historical infrastructures: a case study of the Ponte Giorgini in Castiglione della Pescaia (Grosseto – Italy)
Authors: Donato V., Biagini C., Bertini G., Marsugli F.

Title: Building information models for heritage buildings: from conservation practice to predictive simulations
Authors: Bryan P., Grau-Bove’ J., Pocobelli D.
Geomatics and Restoration
Conservation of Cultural Heritage in the Digital Era

Title: Metric survey and BIM technologies to record decay conditions
Authors: Lo Turco M., Mattone M., Rinaudo F.

Title: Conservation process model (CPM): a twofold scientific research scope in the information modelling for cultural heritage
Authors: Fiorani D., Acierno M.

Title: Survey, HBIM and conservation plan of a monumental building damaged by earthquake
Authors: Oreni D., Brumana R., Della Torre S., Banfi F.

Title: Critical issues and key points from the survey to the creation of the historical building information model: the case of Santo Stefano Basilica
Authors: Castagnetti C., Dubbini M., Ricci P.C., Rivola R., Giannini M., Capra A.

Title: 3D modelling in the registration and restoration of a megalithic tomb

Title: From virtual to material restoration. A proposal for the reassembly of the altar of the Holy Hearth of Mary in the Cathedral of Santa Maria Assunta in Gerace (Reggio Calabria, Italy)
Authors: Prampolini F., Oteri A.M., Caporale S., Mazzeo S., Muschera’ F.

Title: From daguerreotypes to digital automatic photogrammetry. Applications and limits for the built heritage project
Authors: Fassi F., Campanella C.

Title: From documentation images to restoration support tools: a path following the Neptune fountain in Bologna design process
Authors: Apollonio F.I., Ballabeni M., Bertacchi S., Fallavolita F., Foschi R., Gaiani M.

SHOW CASES, INSTRUMENTAL EXIBITION and POSTER

Title: Accuracy assessment of point clouds geo-referencing in surveying and documentation of historical complexes
Authors: Fryskowska A.

Title: Integrated digital platform for the valorization of a cultural landscape
Authors: Angheluta L., Ratoiu L., Chelmus A., Radvan R., Petculescu A.

Title: Constructing and representing: a new project for 3D surveying of Yazilikaya - Hattusa
Authors: Repola L., Marazzi M., Tilia S.

Title: Main features of a 3D GIS for a monumental complex with an historical-cultural relevance
Authors: Scianna A., La Guardia M.

Title: 3D survey applied to industrial archaeology by TLS methodology
Authors: Monego M., Fabris M., Menin A., Achilli V.

Title: Conservation-oriented HBIM. the BIMexplorer web tool
Authors: Quattrini R., Pietricca R., Morbidoni C., Malinvern E.S.

Title: An integrated monitoring system through 3D laser scanner and traditional instruments for load test on arch bridge
Authors: Pera D., Ferrando I.

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COFFEE BREAK
15:30 - 15:45
**Title:** Laser-scanner survey of structural disorders: an instrument to inspect the history of Parma cathedral’s central nave  
**Authors:** Bruno N., Coisson E., Cotti M.

**Title:** 3D modelling and orthophoto of curved masonries for a multipurpose analysis and assessment  
**Authors:** Sammartano G., Spanò A.

**Title:** The importance of digital methods in preservation of cultural heritage. The example of Zirnikli mansion  
**Authors:** Kan T., Buyuksalih G., Kaya Y., Baskaraca A.P.

**Title:** 3D survey techniques for the architectural restoration: the case of the Chapel of St. Agata in Pisa  
**Authors:** Bevilacqua M. G., Caroti G., Piemonte A., Ruschi P., Tenchini L.

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**GALA DINNER**  
from 20:30  
Restaurant La Loggia, Piazzale Michelangelo, 1

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**TECHNICAL SESSION - Documentation of monumental complexes**  
9:00 - 11:00  
Chaired by A. Gruen and F. Ottoni

**Title:** Virtual archaeodrome for the archaeological site from Ulpio Traiana Sarmizegetusa  
**Authors:** Angheluta L., Radvan R., Chelmus A., Ratoiu L., Cortea I.M., Ghervase L.

**Title:** Computer vision in the temples of Karnak: past, present & future  
**Authors:** Tournadre V., Labarta C., Megard P., Garric A., Saubestre E., Durand B.

**Title:** Geomatic methodologies for the study of Teatro Massimo in Palermo (Italy)  
**Authors:** Dardanelli G., Allegra M., Giannarresi V., Lo Brutto M., Pipitone C., Baiocchi V.

**Title:** The Selimiye Mosque of Edirne, Turkey – an immersive and interactive virtual reality experience using HTC vive  
**Authors:** Kersten T.P., Buyuksalih G., Tschirschwitz F., Kan T., Deggim S., Kaya Y.

**Title:** The Tempio della Consolazione in Todi: integrated geomatic techniques for a monument description including structural damages evolution in time  
**Authors:** Radicioni F., Matracchi P., Brigante R., Brozzi A., Cecconi M., Stoppini A., Tosi G.

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**COFFEE BREAK**  
11:00 - 11:30
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**TECHNICAL SESSION - Digital and physical replicas - augmented reality, virtual restoration**
11:30 - 13:00
Chaired by D. Fiorani and C. Balletti

- **Title:** Musepick: an integrated technological framework to present the complex of Santissima Annunziata in Ascoli Piceno (Italy)
  **Authors:** Petrucci E., Rossi D.

- **Title:** Digital investigations of an archaeological smart point cloud: a real time web-based platform to manage the visualisation of semantical queries
  **Authors:** Poux F., Neuville R., Hallot P., Van Wersch L., Luczsfalvy Jancsó A., Billen R.

- **Title:** Use of 3D technologies within the conservation of the ancient windows of the Basilica of S. Sabina in Rome. Construction of exhibition stands in carbon composite on a milled structure
  **Authors:** Iaccarino Idelson A., Pannuzi S., Brunetto A., Galanti G., Giovannone C., Massa V., Serino C., Vischetti F.

- **Title:** Historical photogrammetry and terrestrial laser scanning for the 3D virtual reconstruction of destroyed structures: a case study in Italy
  **Authors:** Bitelli G., Dellapasqua M., Girelli V.A., Sbaraglia S., Tini M.A.

- **Title:** Guidelines for a digital reinterpretation of architectural restoration work: reality-based models and reverse modelling techniques applied to the architectural decoration of the Teatro Marittimo, Villa Adriana
  **Authors:** Adembri B., Cipriani L., Bertacchi G.

**LUNCH**
13:00 - 14:00

**TECHNICAL SESSION - Education and Communication/1**
parallel session 14:00 - 15:30
Chaired by A. Ugolini and V. Bonora

- **Title:** Virtual in real. Interactive solutions for learning and communication in the National Archaeological Museum of Marche
  **Authors:** Clini P., Nespeca R., Ruggeri L.

**COFFEE BREAK**
15:30 - 15:45

**TECHNICAL SESSION - Education and Communication/2**
parallel session 15:45 - 17:15
Chaired by A. Bitelli and V. Bonora

- **Title:** Image-based virtual tours and 3d modeling of past and current ages for the enhancement of archaeological parks: the visualversilia 3d project
  **Authors:** Castagnetti C., Giannini M., Rivola R.

- **Title:** The city and the restauration. Recovery activity or restitution of virtual images finalized to the protection of architectural heritage, but also to restoration of the original image of the spaces and the monuments. Alessandro Antonelli and the Baroq
  **Authors:** Giusti F.

- **Title:** Villa Stein-de-Monzie by Le Corbusier (1926-1928). Conservation strategies between research and education
  **Authors:** Balletti C., Di Resta S., Faccio P., Guerra F., Pandolfo M.

- **Title:** Survey and restoration: new ways of interaction
  **Authors:** Battini C., Vecchiattini R.
Hidden in plain sight: the Iris consortium union catalog and the promise of Linked Open Data (LOD)
D’Ambrosio, M.

TECHNICAL SESSION - Documentation of monumental complexes/2
parallel session 14:00 - 17:30
Chaired by A. Rodriguez Miranda and A. Spanò

Arab-Norman heritage: state of knowledge and new actions and innovative proposals
Prescia R., Scianna A.

From “models” to “reality”, and return. Some reflections on the interaction between survey and interpretative methods for built heritage conservation
Ottoni F., Freddi F., Zerbi A.

From survey to FEM analysis for documentation of built heritage: the case study of Villa Revedin-Bolasco

New opportunities of low-cost photogrammetry for culture heritage preservation
Shults R.

Merging geometric documentation with materials characterization and analysis of the history of the Holy aedicule in the church of the Holy Sepulchre in Jerusalem

COFFEE BREAK
15:30 - 15:45

The geomatics contribution for the valorisation project in the Rocca of San Silvestro landscape site
Brocchini D., Chiabrando F., Colucci E., Sammartano G., Spano’ A., Teppati Losè L., Villa A.

Robotics and virtual reality for cultural heritage digitization and fruition
Calisi D., Cottefoglie F., D’agostini L., Giannone F., Nenci F., Salonia P., Zaratto M., Ziparo V.A.

New methodologies for the documentation of fortified architecture in the state of ruins
Fallavollita F., Ugolini A.

Material/historic reality: catching the transformation. From a case of applied research to the trans-disciplinary approach to preserve architecture
Aveta A., Marino B.G., Amore R.

Scan to BIM for 3D reconstruction of the Papal Basilica of Saint Francis in Assisi in Italy
Angelini M. G., Baiocchi V., Costantino D., Garzia F.

CLOSING CEREMONY
17:30
MEDIARC - FESTIVAL INTERNAZIONALE DI ARCHITETTURA IN VIDEO

The festival is held from 16 years in the Department of Architecture of University of Florence, and foresees two days of vision and reflection on architecture, design and sustainability by video and movies. Mediarc is a journey through the city, starting from the experiences of the Masters of Modern Architecture up to the new visions of the urban landscape.

In 2017 edition the event will focus on this theme: RI-COSTRUENDO, at a time of accelerating consumption of resources, is it feasible to plan the city of the future? The 17th MEDIARC will be dedicated to research on the connection between the conception and realisation of architecture in the present era. The Festival will take place in roundtables, conferences, film screenings, video and visual documents (new or historical), video installations, photographic exhibitions, performances. Participation in Mediarc Festival is free and open to all. The material to send can be of any kind: film, video, short, long etc.

On GEORES2017, MEDIARC makes a special invitation to send videos dedicated to the themes of the event. The Festival will dedicate to these videos a special section of its program and is expected to set up a prize for the best video among those selected for screening at the festival.

All interested parties are therefore invited to participate in their video work, which must be sent by 1 November 2017 at the following address:
Prof. Alberto Di Cintio, Artistic Director MEDIARC, Via San Niccolò 93 - 50125 Florence.
**Programme at a Glance**

**24 Wed**

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<th>Session</th>
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<td>10:00</td>
<td>Coffee break</td>
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<td>10:30</td>
<td>Technical Session (Chair: D. Fiorani and C. Balletti)</td>
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<td>13:00</td>
<td>Lunch</td>
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<td>14:00</td>
<td>Technical Session (Chair: G. Bitelli and V. Bonara)</td>
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<td>14:45</td>
<td>Technical Session (Chair: A. Rodriguez Miranda and A. Spanò)</td>
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<td>17:15</td>
<td>Closing ceremony</td>
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**Honorary Committee**

- Luigi Dei
  - Rector UNIFI
- Carlo Francini
  - UNESCO Florence
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  - CIPA President
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  - Director, Galleria dell’ Accademia, FI
- Sentil Kumar
  - ISPRS TC V, President
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  - ICOMOS ITALIA President
- Stefano F. Musso
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- Gianfranco Rossi
  - IGM Commander
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- Giuseppina Vacca
  - SIFET President
- Antonio Vettore
  - AUTEC President

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- Aldo Aveta
- Valerio Baiocchi
- Caterina Balletti
- Gabriele Bitelli
- Valentina Bonora
- Raffaella Brumana
- Alessandro Capra
- Gabriella Caroli
- Giuseppe Centauro
- Domenica Costantino
- Stefano Della Torre
- Donatella Dominici
- Maria Grazia D’Ursu
- Riccardo Dalla Negra
- Maurizio De Vita
- Francesco Fassi
- Donatella Fiorani
- Pierre Gruisenmeyer
- Francesco Guerra
- José Luis Lerma
- Minna Lonqvist
- Eva Malinverni
- Bianca Gioia Marino
- Andrea Masiero
- Maria Marsella
- Camilla Mileto
- Pietro Matracchi
- Stefano Nicolodi
- Federica Ottoni
A health emergency response team and an ambulance from the CISOM (the Italian Order of Malta - Tuscany Group) will be present during the entire Conference.