Earth Resources and Environmental Remote Sensing/GIS Applications XIV (RS108)

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Satellite remote sensing has become a common tool to investigate the different fields of Earth and environmental sciences. The progress of the performance capabilities of the optoelectronic and radar devices mounted on-board remote sensing platforms have further improved the capability of instruments to acquire information about the Earth and its resources for global, regional and local assessments.

With the advent of new high-spatial and spectral resolution satellite and aircraft imagery new applications for large-scale mapping and monitoring have become possible. The integration with Geographic Information Systems (GIS) allows a synergistic processing of multi-source spatial data. The present conference will be an occasion to outline how scientists involved in the Earth and environmental studies can take advantage of new remote sensing techniques and the advances in spatial technology. Particular subjects are:

**SENSORS AND PLATFORMS**
- new sensor developments
- radiometric calibration studies
- geometric correction approaches
- mobile solutions
- simulation studies.

**PROCESSING METHODOLOGIES**
- fusion of multi-source and multi-scale data
- multitemporal remote sensing
- machine learning methods for remote sensing
- integration of remote sensing and GIS
- analysis of optical and thermal data
- hyperspectral analytical approaches
- 3D techniques: LIDAR and Stereo.

**ENVIRONMENTAL MONITORING CONCEPTS**
- land degradation studies
- natural hazards (floods, landslides)
- landscape modeling
- sustainability and planning
- coastal zone management
- interaction sea-land
- resource management
- global climate change.

**HAZARD MITIGATION GEOLOGIC APPLICATIONS**
- geological hazards, mine waste
- earthquakes and volcanoes
- lithological and mineral mapping
- mineral and petroleum exploration
- structural geology, tectonics
- hydrogeology.

**INFRASTRUCTURES AND URBAN AREAS**
- 3D urban modeling
- change detection
- remote sensing for urban information systems
- virtual city models
- urban feature extraction with high resolution SAR-sensors.

**REMOTE SENSING FOR ARCHAEOLOGY, PRESERVATION OF CULTURAL AND NATURAL HERITAGE**
- discovering hidden archaeologic sites with remote sensing techniques
- generating digital twins of archaeologic monuments and sites
- ground penetrating sensing
- detection and monitoring of wildfires and illegal deforestation.

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Satellite remote sensing is becoming popular for the assessment and the routine monitoring of civil engineering structures and infrastructures, such as buildings, railways, airports and highways and the surrounding environment. The tremendous progress made recently by this technology allows to control their conditions at the network level with a very high inspection frequency and resolution as well as to identify critical sections for an early-stage detection of decays. Parallel to this, ground-based non-destructive testing (NDT) methods have become established in structure, infrastructure, and environmental management systems due to their non-invasiveness, the rapidity of data collection and the provision of reliable information. Within this context, an integration between satellite remote sensing and ground-based NDT technologies (e.g. – but not limited to – GPR, GB-SAR, UAVs, Lidar, FWD and Profilometers) can stand as a step forward in the development of new theoretical, numerical and experimental approaches towards the provision of smarter management systems in civil and environmental engineering.

Submissions related to the above mentioned, describing work in the following and related research topics are invited:

- remote sensing theories and applications in civil and environmental engineering
- medium- and high-resolution SAR sensors in civil and environmental engineering
- advanced assessment, monitoring and interpretation methods for transport infrastructures (roadways, railways, airfields), bridges, tunnels, and buildings
- design and development of new surveying protocols, equipment, and prototypes
- advances in ground-based nondestructive testing (NDT) methods, numerical developments and applications (stand-alone use of existing and state-of-the-art NDTs)
- data fusion, integration and correlation of multi-source, multi-scale, and multi-temporal data outputs for civil and environmental engineering applications.

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Present your research at SPIE Sensors + Imaging

Below are abstract submission instructions, the accompanying submission agreement, conference presentation guidelines, and guidelines for publishing in the Proceedings of SPIE on the SPIE Digital Library. Submissions subject to chair approval.

Important dates

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstracts due</td>
<td>22 March 2023</td>
</tr>
<tr>
<td>Author notified and programme posts online</td>
<td>29 May 2023</td>
</tr>
<tr>
<td>Registration opens</td>
<td>May 2023</td>
</tr>
<tr>
<td>Submission system opens for manuscripts and poster PDFs*</td>
<td>3 July 2023</td>
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<tr>
<td>Poster PDFs due for spie.org preview and publication</td>
<td>9 August 2023</td>
</tr>
<tr>
<td>Manuscripts due</td>
<td>16 August 2023</td>
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<tr>
<td>Advance upload deadline for oral presentation slides**</td>
<td>1 September 2023</td>
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*Contact author or speaker must register prior to uploading
**After this date slides must be uploaded onsite at Speaker Check-in

What you will need to submit

- Title
- Author(s) information
- 250-word abstract for technical review
- 100-word summary for the program
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (for example, some conferences require two- to three-page extended summary for technical review, or have instructions for award competitions)

Note: Only original material should be submitted. Commercial papers, papers with no new research/development content, and papers with proprietary restrictions will not be accepted for presentation.

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All presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract:

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- Submit a manuscript by the advertised due date for publication in the Proceedings of SPIE in the SPIE Digital Library
- Obtain funding for registration fees, travel, and accommodations
- Ensure that all clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor in the USA, allow at least 60 days for clearance
- Attend the meeting
- Present at the scheduled time

Review and program placement

- To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content
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- Final placement in an oral or poster session is subject to chair discretion.

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