

Developments, Technologies and Applications in Remote Sensing
ISPRS TC III Mid-Term Symposium
May 7 -10, 2018 Beijing China

ISPRS Technical Commission III mid-term Symposium will be held in Beijing, China in May 2018. The aim of the Symposium is to attract scientists, researchers, practitioners, and students working in the field of Remote Sensing, from all over the World, to attend, share and present their latest developments in Remote Sensing. The symposium is focusing on three main themes: Developments, Technologies, and Applications. Scientific topics and research related to the TC Working groups will be considered for publication.

1. **Thematic Information Extraction (Organized by WG III/1):** This session will address key areas of thematic information extraction, including new technologies and methodologies of thematic information extraction with emphases on the diachronic, multi-scale and multi-sensor approaches, data architecture tackling with big data and crowd sourcing data for thematic information and its dynamics, virtual reality for thematic information demonstration, etc.
2. **Radar remote sensing for a changing world (Organized by WG III/2) :** Radar remote sensing is widely used in many application areas all over the world. This session will address many areas of radar remote sensing, from instrumentation including satellite, aircraft, and ground based radar sensors, to advanced data processing methods such as SAR polarimetry, polarimetric SAR interferometry or SAR tomography, as well as their applications, e.g. ocean wind speed retrieval, oil spill detection, amplitude and coherent change detection, forest height maps, and 3-D imaging.
3. **SAR-based Surface Generation and Deformation Monitoring (Organized by WG III/3):** This session will focus on generation and accuracy assessment of DEM from SAR imagery, object extraction from InSAR data, differential SAR Interferometry and Persistent Scatterer Interferometry, and ground based SAR Interferometry.
4. **New trends in Hyperspectral Image Processing (organized by WG III/4):** Recent development in sensing technology has facilitated easy access to hyperspectral image materials. The development of new, low-cost miniaturized hyperspectral sensors operable for example using drones/UAVs has especially opened a completely new field for hyperspectral imaging research. In addition, advance in machine learning, object oriented analysis and classification techniques are also enabling new innovative algorithm development and applications. This session calls for papers related to all phases of hyperspectral data processing chain.
5. **Information Extraction from LiDAR Intensity Data (WG III/5):** This session will focus on non-topographic applications of LiDAR data, geophysical parameters retrieval, laser intensity-based classification and segmentation, multi-source data synergy exploitation, applications of multi-wavelength LiDAR, processing of full-wave form LiDAR, exploiting intensity data from terrestrial laser scanning sensors, bathymetric LiDAR, LiDAR applications to cope with societal challenges , etc.
6. **Remote Sensing Data Fusion (Organized by WG III/6):** The scopes of the session will include algorithms and methodologies for multi-source, multi-modal and multi-temporal

data fusion; data assimilation; Image and data mining from multi-platform, multi-source, multi-scale, multi-temporal data sets; data fusion applications in geographic-related fields.

7. **Change Detection of Landuse & Landcover for updating spatial databases (Organized by WG III/7):** The sessions are co-organized by ISPRS and ICA. It is seeking new methods for updating spatial data bases. It will focus on automated procedures, methods, techniques, algorithms and protocols newly devised for this matter. Discussions on the different approaches to LU and LC updating are also sought as much as change detection and other parameters and indicators supporting the updating processes. Data fusion, image-to-image & image-to-vector comparison approaches in addition to modelling in parametric spaces will be given priority in the peer review for oral presentations.
8. **Remote Sensing and Synergic Analysis on Atmospheric Environment (Organized by WG III/8):** The sessions are dedicated to recent advances in the remote sensing of aerosols and gases, from algorithmic developments, satellite products validation, and data analysis to applications in atmospheric environment research.
9. **Challenges and solutions in changing cryosphere and hydrosphere for sustainable developments (Organized by WG III/9):** The cryosphere and hydrosphere are important components of the earth system consisting of snow, ice, and water that are on, beneath and above the surface of the earth. The earth's climate is changing, and multiple lines of evidence suggest significant warming in the cryosphere, hydrosphere and atmosphere. The changes impact both biological and physical systems on different spatial and temporal scales. The theme of the WG sessions in the symposium is to improve our understanding of the cause of changes in the cryosphere and hydrosphere using remote sensing and spatial information techniques. The sessions will focus on capabilities to monitor and model the rapidly changing cryosphere and hydrosphere and develop mitigation and adaptation strategies for sustainable development of human civilization.
10. **Climate Change and its Impact to Agriculture and Natural Ecosystem (Organized by WG III/10):** Vegetation is a foremost sentinel of climate change. From natural ecosystems to agriculture areas, vegetation is observable from space. A shift in climate dynamics is reflected in changes in the ecosystems' dynamic equilibrium, triggering a direct or indirect response in vegetation. Earth observation (EO) via remote sensing provides the ideal tool for monitoring this phenomena; in this sense, sessions in our WG welcome contributions related to analysis of vegetation in both natural ecosystems and agricultural scenarios.
11. **Planetary remote sensing, planetary photogrammetry and robotic vision, planetary cartography and GIS (Organized by ICWG III/II):** The sessions focus on new methodologies, algorithms, and applications related to remote sensing and mapping of extra-terrestrial planetary bodies. The latest developments in this field will be exchanged, and data from recent planetary missions will be discussed. International cooperation on cross-validation and integrated processing of remote sensing data from multiple missions for science applications will also be presented.
12. **Disaster Assessment, Monitoring and Management (Organized by ICWG III/IVa):** The scopes of this session will include generation of vulnerability and hazard zone maps for different type of disasters; integrate remotely sensed observations and communication strategies with enhanced predictive modelling capabilities for disaster detection, early warning, monitoring, damage assessment and response; development of disaster management plans for pre, during and post disaster situations and enhance support for early warning systems, emergency events mitigation and decision making, etc.

13. **Quality issues in remote sensing in the big data era (Organized by ICWG II/IVb):** Remote Sensing data are not necessarily 'big data' in the sense of the big data paradigm because it is structured data, usually provided together with meta-information. Still, these 'big Earth data' create new challenges in terms of data handling and in terms of data quality but they also create tremendous opportunities when organized in interactive portals and allowing for online image retrieval along with some first online analytical capacity for extracting tailored information from ever increasing databases. This session addresses the implementation of quality aspects to assess the reliability of data sources, particularly in the light of new forms of image retrieval through massive data portals.
14. **Environment and Health (Organized by ICWG III/IVc):** This session will focus on advance knowledge in Remote Sensing and other geospatial technologies for applications in Tele-epidemiology, estimating allergen abundance; current applications of tools in estimating air pollutants using remotely sensed and other data; interdisciplinary collaborations to improve our overall health and well-being; mandate, activities and plans related to United Nations Office for Outer Space Affairs (UNOOSA) ; RS applications in estimating environmental exposure risk factor for clinical practices, and in ecosystem, climate change and variability, public health studies.
15. **Pattern Analysis in Remote Sensing (ICWG II/II) :** This session aims at closing the gap between remote sensing and computer vision in pattern recognition and image analysis, focusing on introduction and adaption of new methodologies and algorithms of pattern analysis into the field of remote sensing.
16. **Global Mapping: Updating, Verification and Interoperability (Organized by ICWG IV/III):** Aims to promote the development of advanced methodologies and applications related to the update, verification and interoperability of global land cover databases.

The symposium will act as a forum to participants for knowledge updates, technology transfer and to promote international collaboration. The scientific organizing committee are providing "Young Author Award" (resented to participant who is less than 35 years Old and is the sole author of a high quality paper submitted to Annals) and "Student Best Poster Award" (presented to a participant student for his/her poster design and scientific contents). The two Awards value are \$500 and \$300, respectively with certificate of appreciation. Second place for both competitions will receive \$200 each with certificate of appreciation. The symposium will serve as a contact venue for potential high quality students.

While the symposium will provide unique opportunity for the industry to show their latest technologies in the field of Remote Sensing through the technical exhibition, technical tours to visit Chinese companies working in software/hardware developments will be arranged. In addition, a visit to the Chines National Geomatics Center will be organized to introduce the latest technologies and applications used by the center.

The papers accepted by the Symposium will be published in the The International Annals of ISPRS (by double-blind full paper review) or the The International Archives of ISPRS (by abstract review). Special Issue in the ISPRS Journal of Photogrammetry and Remote Sensing will be organized based on papers from the Annals and Archives.

The Symposium will be held in Beijing, the capital city of the China. With a history of more than 3,000 years, Beijing is not only the nation's political center, but also its cultural, scientific and educational heart as well as a key transportation hub, offering China's most wonderful array of attractions. The city hosted the 2008 Summer Olympics and will host the 2022 Winter Olympics, which will make it the first city to ever host both events. The Symposium venue will be Beijing International Convention Center (BICC), located close to the main venue of 2008 Olympic Games.

On behalf of the symposium organizing committee, we are looking forward to seeing you in Beijing in May 2018.

Symposium Website: <http://www.isprs-tc3.tianditu.com/>

ISPRS Website: www.isprs.org

