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IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on
"Multistatic and Distributed Synthetic Apertures for Geoscience and Remote Sensing"

The widespread use of synthetic apertures (SAs) in signal acquisition and reconstruction—prevalent across different geophysical domains, from the depths of oceans to the upper reaches of the earth's atmosphere—has resulted in unprecedented information gathering capabilities. Furthermore, tremendous advances have been made over the past several decades in computational capabilities that can enable critical inferences about the type and quality of physical structures constituting the scene of interest. The resulting inferences are of potentially vital importance for facilitating scientific advances in the geosciences, and for devising solutions to problems in diverse applications of critical importance to national defense and environmental monitoring. An important problem in this topic area is the formation and exploitation of distributed SAs for both non-coherent and coherent information fusion. Distributed sensing structures have several potential advantages over monostatic systems. Specifically, distributed systems leverage a great degree of angular and spectral diversity when probing a scene or environment which in turn yields rich feature sets for analyzing specific target structures of interest. Furthermore, distributed systems, depending on specific applications, can be more versatile, adaptable and agile compared monostatic counterparts owing to inherent redundancy built into the system as a result of many degrees of freedom. The technological infrastructure involved in distributed SAs is necessary for gathering information from complex dynamically varying scenes in the service of various applications in geoscience and remote sensing. These include, but are not limited to, detection, imaging, tracking and classification of targets and scenes, from distributed sensing platforms, in subsurface mapping, seismic signal processing, earthquake prediction, weather radar, maritime surveillance, and environmental monitoring for agriculture, water resource management, and global warming. To this end, this SI proposal invites novel contributions that address or raise open questions for advancing technologies in distributed SAs in various application domains, or which document important scientific advances in geoscience and remote sensing that are critically dependent on the use of a distributed SA apparatus.

The broad topics include (but are not limited to):

- Synchronization protocols for multistatic sensors
- Coherent Multistatic Imaging and Multiview Image Fusion
- Waveform optimization for multistatic and distributed systems
- Distributed Imaging and classification for multistatic and distributed sensors
- Clutter Cancelation and Target Detection for multistatic and distributed sensors
- Target tracking for multistatic and distributed sensors
- Joint Radar and Communications for multistatic and distributed sensors
- Applications to Weather Radar, Subsurface mapping, Seismic signal processing, and Earthquake prediction
- Applications to Geoscience and Remote Sensing

Schedule
June 01, 2023 Submission system opening
June 30, 2024 Submission system closing

Format
All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on http://mc.manuscriptcentral.com/jstars, using the Manuscript Central interface and select the "**Multistatic and Distributed Synthetic Apertures for Geoscience and Remote Sensing**" special issue manuscript type. Prospective authors should consult the site https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768 for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced).
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