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

Special Issue on
“Integrated Sensing and Communications for Geoscience and Remote Sensing”

High resolution imaging synthetic aperture radars (SAR) and interferometric SARs (InSAR) with their all-weather and day/night operation capabilities have been playing important roles in Geoscience and remote sensing applications. The earth observation data collected from these systems should be effectively processed for accurate decision making to better understand and model the earth's geological and meteorological properties. This makes the wireless communications system a crucial part of the overall remote sensing and decision making architectures. Recently, integrated sensing and communications (ISAC) has been envisioned as a key enabling technology for the next generation communications systems aiming to combine the radar sensing and communications hardware in a single platform to reduce the cost and scarce spectrum access problems. Thus, operation at higher frequencies increases the ability of the wireless communication network to also operate as a sensor, obtaining and communicating information about the environment. As a result, imparting ISAC to the Geoscience and remote sensing systems can alleviate the overall system performance in terms of both processing the earth observations, remote sensing and wireless communications. Therefore, this special issue seeks novel contributions on ISAC from the Geoscience and remote sensing perspective.

The topics of interest are but not limited to:

- Integration of communications with radar, sonar and lidar systems
- Coexistence of passive sensing or active radar with communication systems
- RFI mitigation in meteorological radars, impact of RFI on remote sensing receivers
- Coexistence of weather radars and telecommunications
- Data transmission protocols and storage in integrated communications and earth observation sensing
- Interference management in integrated satellite communications and sensing systems
- ISAC-enabled space-air-ground integrated networks
- Spectrum access and management for geoscience and remote sensing
- Spectrum sharing between cellular wireless communications and UAV/satellite-borne radars, passive sensing systems, e.g., radiometers and radio astronomy systems
- Communications-aided and dual-function synthetic aperture radars
- Position, timing, and navigation with ISAC
- Radio dynamic zones and RF data factory for ISAC
- Centralized/distributed machine learning for ISAC
- Radio spectrum coexistence between terrestrial communications and earth-observation satellite systems
- Testbed development for ISAC and coexistence experimentation

Schedule

Dec 1, 2023: Submission system opening

May 31, 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 “**Integrated Sensing and Communications 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). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions. Please note that as of Jan. 1, 2020, IEEE J-STARS has become a fully open-access journal charging a flat publication fee \$1,250 per paper.

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