CALL FOR PAPERS

IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
Special Issue on "Noise-Aware Remote Sensing: Modeling, Mitigation and Utilization"

With the large-scale deployment of optical, hyperspectral, thermal-infrared and SAR sensors, remote-sensing imagery has entered the petabyte-scale "big-data era". Yet from acquisition through transmission to processing, these images are persistently degraded by atmospheric scattering, sensor drift, lossy-compression artefacts, speckle and other noise sources. As a consequence, key visual tasks—object detection, change detection, semantic segmentation and physical-parameter inversion—still suffer from missed detections, high false-alarm rates and unquantified uncertainty in complex scenes.

Recent cross-disciplinary studies further reveal that noise is not merely a contaminant to be removed: under controlled conditions it can serve as an excitation signal or explicit prior that improves model performance. Positive-incentive noise sharpens decision boundaries; intentional noise injection promotes privacy protection and adversarial robustness; and noise statistics can support uncertainty quantification and material discrimination. However, existing research typically tackles only isolated stages, lacking a systematic "mitigation–excitation–utilization" framework and the theoretical underpinnings needed for explainable, transferable and deployable remote-sensing models.

To solve these problems, we invite researchers from academia and industry to publish original research on the technologies and applications related to noise-aware remote sensing. The purpose of this special issue is to provide a platform to share the latest research results, methods and best practices, and to promote the development of noise-aware remote sensing.

The broad topics include (but are not limited to):
- Noise-mechanism modeling for multi-source remote sensing data
- Remote-sensing image denoising and quality enhancement
- Noise excitation and active noise-injection learning
- Noise-robust object recognition, detection, segmentation, etc.
- Noise-aware generative models and open benchmarks
- Applications of noise processing in other remote-sensing tasks

Schedule
November 1, 2025 Submission system opening
May 31, 2026 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 "**Noise-Aware Remote Sensing: Modeling, Mitigation and Utilization**" 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 since Jan. 1, 2025, IEEE J-STARS, as a fully open-access journal, is charging a flat publication fee $1,800 per paper.

Guest Editors
Xuelong Li, China Telecom, China (xuelong_li@chinatelecom.cn)
Junyu Gao (Managing Guest Editor), Northwestern Polytechnical University, China (junyugao@nwpu.edu.cn)
Zhiyuan Zhao, The Institute of Artificial Intelligence (TeleAI), China Telecom, China (tuzixini@gmail.com)
Chuang Yang, The Hong Kong Polytechnic University (PolyU), Hong Kong (c1yang@polyu.edu.hk)
Cong Zhang, The Chinese University of Hong Kong, Hong Kong (polyuzhangcong@gmail.com)