Announcement of a Special Issue
*Advances in Space Research*

**Ionospheric Imaging: Recent Advances and Future Directions**

We invite researchers to contribute to a special issue of ASR on "***Ionospheric Imaging: Recent Advances and Future Directions***". Ionospheric imaging is a technique for producing images of the ionosphere using various instruments such as ground-based, space-based, and radio occultation systems. It is a powerful technique for studying the ionosphere and its impact on radio communication and navigation systems. This specialized issue will serve as a platform for researchers and scientists to explore the latest advances in ionospheric imaging techniques. We solicit high-quality original research papers on the following topics, but are not limited to:

- **Validation and improvement of ionospheric imaging techniques:** This includes contributions to new techniques for extracting 2D, 3D, or 4D ionospheric representations from ground-based or space-based observations. We also welcome contributions of ionospheric imaging data used to validate and improve ionospheric models.
- **Ionospheric tomography:** Ionospheric imaging and tomography studies can be used to investigate ionospheric variability and to improve our understanding of the global ionosphere. We also seek papers addressing new developments and applications of the algebraic, statistical, or machine learning-based reconstruction techniques used in computerized ionospheric tomography.
- **Data assimilation for improved ionospheric imaging:** Data assimilation (DA) has the potential to significantly improve the accuracy and performance of ionospheric imaging. This special issue also invites papers on new approaches or advances/validation of standard techniques to DA, and applications of DA to ionospheric imaging for specific purposes.
- **Advances in instrumentation and applied ionospheric imaging:** This also includes contributions to the development of new instruments for ionospheric imaging and how ionospheric imaging is being utilized in practical scenarios. For example, enhancing the reliability and efficiency of radio communication, navigation systems, space weather forecasts, and satellite orbit dynamics.

Contributions to this special issue will present a comprehensive understanding of the current status of the accuracy of ionospheric models. Furthermore, it will highlight the implications of these advancements in ionospheric imaging for various sectors, including space science, atmospheric physics, telecommunications, and navigation systems. Through a collection of insightful articles and research findings, this special topic aims to foster collaboration, disseminate knowledge, and inspire further research in the field of ionospheric imaging.

Papers must be submitted electronically to https://www.editorialmanager.com/AISR. To ensure that all manuscripts are correctly identified for inclusion into the special issue, authors must select **"Special Issue: Ionospheric Imaging"** when they reach the "Article Type" step in the submission process.

The general format for submission of papers can be found on the *ASR* Elsevier web site at

http://www.journals.elsevier.com/advances-in-space-research/

Submitted papers must be written in English and should include full affiliation postal addresses for all authors. Only full-length papers will be considered for publication, subject to peer review by a minimum of two reviewers. There are no page limits although the length of the paper should be appropriate for the material being presented. While the deadline for submissions is **15 January 2025**, papers will be published electronically as soon as they are accepted. The printed issue will be assembled within a reasonable time with late papers being printed in regular issues of ASR. All articles will be typeset at no cost to the author. There is a charge for printing color figures; there is no charge for color figures on the electronic version.

**Dr. Marcio Muella (mmuella@univap.br)** and **Dr. Fabricio Prol (Fabricio.dossantosprol@nls.fi)** are the Guest Editors for this special issue. Questions can be directed to Drs. Muella or Prol or to the Co-Editor for Special Issues, Dr. Peggy Ann Shea (sssrc@msn.com).