



## Earth Observing Systems XXIX (OP420)

*Conference Chairs:* **Xiaoxiong (Jack) Xiong**, NASA Goddard Space Flight Ctr. (United States); **Xingfa Gu**, Institute of Remote Sensing and Digital Earth, CAS (China); **Jeffrey S. Czaplá-Myers**, Wyant College of Optical Sciences (United States)

*Program Committee:* **Amit Angal**, Science Systems and Applications, Inc. (United States); **Julia A. Barsi**, NASA Goddard Space Flight Ctr. (United States); **Armin Doerry**, Sandia National Labs. (United States); **Christopher N. Durell**, Labsphere, Inc. (United States); **Bertrand Fougne**, EUMETSAT (Germany); **Joel McCorkel**, NASA Goddard Space Flight Ctr. (United States); **Vijay Murgai**, Raytheon (United States); **Thomas S. Pagano**, Jet Propulsion Lab. (United States); **Jeffery J. Puschell**, Northrop Grumman Corp. (United States)

Despite the continuing challenges of a global pandemic in recent years, the Earth Observing Systems XXVIII conference was successfully held in August 2023 in an in-person format; and the Earth observing missions continued to be launched, are awaiting launch or are in development. For example, missions recently launched include but are not limited to the NASA/NOAA Joint Polar Satellite System-2 (JPSS-2) on November 10, 2022, the ESA/EUMETSAT Meteosat Third Generation – Imager 1 (MTG-I1) on December 13, 2022, the NASA/CNES/Canadian Space Agency (CSA)/UK Space Agency Surface Water and Ocean Topography (SWOT) mission on December 16, 2022, the NASA Tropospheric Emissions: Monitoring of Pollution (TEMPO) on April 7, 2023, the China Meteorological Administration (CMA) Fengyun 3G (FY-3G) satellite on April 16, 2023 and 3F (FY-3F) satellite on August 4, 2023. Earth remote sensing missions projected for launch in late 2023-2025 timeframe include: the ESA/EUMETSAT Meteosat Third Generation Sounder (MTG-S1) satellite (2024 launch) and Sentinel-3C (2024 launch), the ESA BIOMASS satellite (2024 launch) and the FLuorescence EXplorer (FLEX) satellite (2025 launch), the CMA Fengyun 3H (FY-3H) satellite (2025 launch) and 4C (FY-4C) satellite (2025 launch), the JAXA Global Observing SATellite for Greenhouse gases and Water cycle (GOSAT-GW) (2024 launch) and Advanced Land Observing Satellite-4 (ALOS-4) (2024 launch), the ESA/JAXA Earth Cloud, Aerosol, and Radiation Explorer (EarthCARE) mission (2024 launch), the NOAA GOES-U satellite (2024 launch), the NASA Plankton, Aerosol, Cloud, Ocean Ecosystem (PACE) satellite (2024 launch), the CLARREO Pathfinder (CPF) instrument (2024 launch), the Total and Spectral Solar Irradiance Sensor-2 (TSIS-2) (2025 launch), and the NASA/Indian Space Research Organisation (ISRO) NISAR (2024 launch).

On an international scale, these missions have or will join the impressive number of Earth observing satellite systems currently operating on-orbit with active and passive instruments producing remote sensing data—from the ultraviolet through the radar/microwave wavelength region. This proliferation of satellite instruments requires calibration and validation of the quality of the data they produce through a combination of careful pre-launch testing, on-orbit monitoring, and on-orbit inter-instrument comparisons of measurements made by other on-orbit assets and by airborne, balloon-borne, and ground-based remote sensing instrumentation.

Advances in electro-optic technologies and data acquisition and analysis techniques by commercial, academic, and governmental research institutions have promoted the successful on-orbit operation of hyperspec-

tral Earth remote sensing instruments and enabled the development of lower-cost, miniature satellite sensors with specific areas of performance equal to or better than those of traditional systems.

Lastly, space agencies continue to formulate and/or refine their long-term mission plans. For example, the 2017-2027 U.S. National Research Council's Decadal Survey on Earth Science and Applications from Space continues to serve as the guide for the science and application objectives of future US space-based observations of Earth in terms of instruments and missions. NASA continues its development of its Earth Venture missions. ESA and EUMETSAT continue instrument formulation and launch planning for their future Earth Explorers, follow-on Copernicus Sentinel Missions, Meteosat Third Generation (MTG), and Polar System-Second Generation (EPS-SG) programs.

In summary, the Earth Observing Systems XXIX conference welcomes the submission of papers over a wide range of remote sensing topics. Papers are solicited in the following general areas:

- Earth-observing mission studies including new system requirements and plans
- commercial system designs
- electro-optical sensor designs and sensitivity studies
- ultraviolet through thermal infrared, microwave, radar, and lidar remote sensing systems
- hyperspectral remote sensing instruments and methodologies
- instrument sub-system and system level pre-launch and on-orbit calibration and characterization
- vicarious calibration techniques and results
- satellite instrument airborne simulators
- techniques for enhancing data processing, reprocessing, archival, dissemination, and utilization
- conversion from research to operational systems
- on-orbit instrument inter-comparison techniques and results
- enabling technologies (optics, antennas, electronics, calibration techniques, detectors, and models)
- sensor calibration traceability, uncertainty, and pre-launch to on-orbit performance assessments
- lunar radiometry and photometry
- remote sensing data acquisition and analysis.

## Present your research at SPIE Optics + Photonics

Below are abstract submission instructions, the accompanying submission agreement, conference presentation guidelines, and guidelines for publishing in the Proceedings of SPIE on the SPIE Digital Library. Submissions subject to chair approval.

### Important dates

Abstracts due	7 February 2024
Registration opens	April 2024
Authors notified and program posts online	29 April 2024
Submission system opens for manuscripts and poster PDFs*	17 June 2024
Poster PDFs due for spie.org preview and publication	24 July 2024
Manuscripts due	31 July 2024
Advance upload deadline for oral presentation slides**	16 August 2024

\*Contact author or speaker must register prior to uploading

\*\*After this date slides must be uploaded onsite at Speaker Check-In

### What you will need to submit

- Title
- Author(s) information
- Speaker biography (1000-character max including spaces)
- Abstract for technical review (200-300 words; text only)
- Summary of abstract for display in the program (50-150 words; text only)
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (i.e. extended abstract PDF upload for review or instructions for award competitions)

Note: Only original material should be submitted. Commercial papers, papers with no new research/development content, and papers with proprietary restrictions will not be accepted for presentation.

### How to submit your abstract

- Visit the conference page: [www.spie.org/op420call](http://www.spie.org/op420call)
- You may submit more than one abstract but submit each abstract only once
- Click the "Submit An Abstract" button on the conference page
- Sign in to your SPIE account or create an account if you do not already have one
- Follow the steps in the submission wizard until the submission process is completed

### Submission agreement

All presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract:

- Register and pay the author registration fee
- Oral presenters: recording and publication of your onsite presentation (slides synched with voice) for publication in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: submit a poster PDF by the advertised due dates for publication in the Proceedings of SPIE in the SPIE Digital Library; poster PDFs may also be published and viewable in the spie.org program during and immediately after the event. Each poster must have a unique presenter; one person may not present more than one poster per session
- Email messaging for the conference series
- Submit a manuscript by the advertised due date for publication in the Proceedings of SPIE in the SPIE Digital Library
- Obtain funding for registration fees, travel, and accommodations
- Attend the meeting
- Present at the scheduled time

### Review and program placement

- To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content
- Conference chairs/editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations
- Final placement in an oral or poster session is subject to chair discretion

### Publication of Proceedings in the SPIE Digital Library

Increase your professional visibility and publish in the world's largest collection of optics and photonics research. Your peers access approximately 18 million papers, presentations, and posters from the SPIE Digital Library each year.

- Only manuscripts, presentations, and posters presented at the conference and received according to publication guidelines and due dates will be published in the Proceedings of SPIE in the SPIE Digital Library
- Manuscripts, presentations, and posters will be officially published after the event in the SPIE Digital Library
- Conference chairs/editors may require revision before approving publication and reserve the right to reject for publication any manuscript or presentation that does not meet acceptable standards for a scientific publication
- Conference chair/editor decision to accept or reject a manuscript, presentation, or poster for publication is final
- Authors must be authorized to provide a suitable publication license to SPIE; Authors retain copyright of all scientific material
- SPIE retains rights to distribute and market the official SPIE recording of the presentation and/or submitted video/poster
- SPIE partners with relevant scientific databases and indexes to enable researchers to easily find papers published in the Proceedings of SPIE. The databases that abstract and index these papers include Astrophysical Data System (ADS), Ei Compindex, CrossRef, Google Scholar, Inspec, Scopus, and Web of Science
- More publication information available on [SPIDigitalLibrary.org](http://SPIDigitalLibrary.org)

### Contact information

For questions about your presentation, submitting an abstract, or the meeting, contact your [Conference Program Coordinator](#).

### OPTICAL ENGINEERING + APPLICATIONS 2024 PROGRAM TRACK CHAIRS

#### Optical Design

**José Sasián**, Wyant College of Optical Sciences (USA)

#### Optical Alignment, Testing, and Fabrication

**H. Philip Stahl**, NASA Marshall Space Flight Ctr. (USA)

#### Signal, Image, and Data Processing

**Khan Iftekharuddin**, Old Dominion Univ. (USA)

#### Photonic Devices and Applications

**Ruyan Guo**, The Univ. of Texas at San Antonio (USA)

#### Remote Sensing and Atmospheric Propagation

**Stephen Hammel**, Naval Information Warfare Ctr. Pacific (USA)

**Alexander M. J. van Eijk**, TNO Defence, Security, and Safety (Netherlands)

#### X-Ray, Gamma-Ray, and Particle Technologies

**Ali Khounsayr**, Illinois Institute of Technology (USA)

**Ralph James**, Savannah River National Lab. (USA)

## SPIE. DIGITAL LIBRARY

### SPIE WILL PUBLISH YOUR RESEARCH GLOBALLY

[www.SPIDigitalLibrary.org](http://www.SPIDigitalLibrary.org)

Your work will live far beyond the conference room—all proceedings from this meeting will be published in the SPIE Digital Library. Promote yourself, your ideas, and your organization to millions of key researchers from around the world through this web-based repository of the latest technical information.