

Preface: Proceedings of the FOSS4G2026 Academic Track – Hiroshima, Bridging Geospatial Technology and Humanity

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In this volume of *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, we are honoured to present the proceedings of the *Academic Track of the Free and Open Source Software for Geospatial international conference (FOSS4G 2026)*, organized jointly by the Open Source Geospatial Foundation (OSGeo) and the International Society for Photogrammetry and Remote Sensing (ISPRS).

Since the first international conference, originally held in Bangkok, Thailand, in 2004 under the title The Free/Libre and Open Source Software (FOSS) for Geoinformatics: GIS-GRASS Users Conference, the FOSS4G movement has grown into a truly global event. From its inception, the conference has benefited from strong contributions from Japan, including the commitment and leadership of Dr. Venkatesh Raghavan and many other members of the Japanese FOSS4G community. Since then, a global conference has been organized almost every year in different parts of the world, fostering collaboration, innovation, and the development of open geospatial technologies. More than two decades after the first event, it is a great pleasure and a historic milestone to welcome the global FOSS4G conference to Japan for the first time. The Japanese OSGeo chapter, founded in 2006, was among the first to take shape within the global OSGeo network, and its members have long been active in advancing open-source geospatial tools. With this event, the conference also returns to Asia for the first time since FOSS4G 2015 in Seoul, a moment of real significance for the Asian, open-source, and geospatial communities alike.

FOSS4G 2026 carries the theme "Bridging Geospatial Technology and Humanity." It asks how technical progress can be applied to the social, environmental, and humanitarian problems that societies now confront. Hiroshima is known around the world as a city of peace and recovery, and its history gives the conference theme added weight. This prompts a direct question: How can technology support empathy, inclusion, sustainable development, and cooperation among nations? The city is a fitting place to ask this question. Open geospatial technologies play a real part in some of the most pressing problems people face today, and this conference brings researchers together to examine that role while working openly and across disciplinary boundaries. The international community's interest was broad. The Scientific Committee received and reviewed 93 abstracts, accepted 72 for presentation, and 52 of these were completed as full papers for this volume.

The papers in this volume illustrate the interdisciplinary character of current FOSS4G research along several topics. The first and most enduring is a commitment to reproducible workflows built on open-source software, open data, and transparent methods; many authors deliberately release their pipelines, analytical frameworks, and processing environments so that others can reuse and build upon them. The second thread focuses on artificial intelligence and large language models, which are now firmly settled among the field's central concerns. Alongside work that incorporates advanced AI methods into geospatial analysis, several studies have focused on uncertainty quantification and reliability, indicating that trustworthy and explainable Geo-AI is drawing steadily more attention. Remote sensing and earth observation remain pivotal, with studies drawing on Sentinel-2, hyperspectral imagery, GEDI, satellite-derived land surface temperature time series, and other newer data sources, and pushing forward methods for multi-sensor integration, time-series analysis, and foundation models. The fourth group gathers applications in urban planning, accessibility, disaster risk reduction, and community resilience, often grounded in open data and volunteered geographic information (VGI); these range from public-transport accessibility and walkability to Geo-AI based disaster analysis and augmented-reality tools for preparedness, and the prominence of disaster-related work stands out, mirroring the rising social stakes of these technologies. Finally, several papers reach into historical landscapes, cultural heritage, and place-based humanities, tying spatial methods to archaeological, historical, and cultural questions and, in the process, widening the reach of FOSS4G.

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