Preface: Proceedings of the FOSS4G Europe 2025 Academic Track - Mostar, Bosnia-Herzegovina

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This is the preface of the proceedings of the Academic Track of the Free and Open Source Software for Geospatial (FOSS4G) Europe 2025 conference, which took place in Mostar, Bosnia and Herzegovina, from July 14 to 20, 2025. FOSS4G Europe is the European extension of the global FOSS4G event organised by the Open Source Geospatial Foundation (OSGeo). The global FOSS4G takes place once a year in any country of the world: every time its location falls outside Europe, the annual FOSS4G Europe conference is organised in parallel to still offer the European FOSS4G community a chance to gather. The European country hosting the event changes every year, following the FOSS4G spirit inspired by values of sharing and cooperation, collaboration and advancement of open source geospatial software. While helping strengthen the established relationships across European FOSS4G developers, researchers and practitioners, changing the annual conference location also helps establish and nurture new endeavours.

The event in Mostar was the 16th international FOSS4G conference happened in Europe. The series began in 2002 with the Open Source Free Software GIS – GRASS users conference 2002, the predecessor to FOSS4G events. Europe hosted the global FOSS4G in 2006 (Lausanne), 2010 (Barcelona), 2013 (Nottingham), 2016 (Bonn), 2019 (Bucharest), 2022 (Firenze) and 2023 (Prizren). The first European conference was organised in 2012 in Prague as FOSS4G in Central and Eastern Europe, and the same format was replicated the following year in Bucharest. Afterwards, the pan-European FOSS4G Europe event was coined: the first, successful edition happened in 2014 (Bremen), followed by those in 2015 (Como), 2017 (Marne-la-Vallée), 2018 (Guimarães) and 2024 (Tartu). The 2020 edition planned in Valmiera was cancelled due to the Covid-19 pandemic.

After the 2023 global event held in Kosovo, 2025 marks the second edition of a FOSS4G event in the Balkans, with Bosnia and Herzegovina also being a first-time host country of such a conference. This confirms how the region has been recently undergoing a rapid evolution, with innovation being a key driver of its growth. Bosnia and Herzegovina is becoming a hub for geospatial innovation. Its emerging and active community around open source geospatial software, open geospatial data and standards was instrumental to the creation of a comprehensive ecosystem encompassing governmental organisations, industries, researchers and practitioners of all kinds.

As an established component of FOSS4G conferences, the Academic Track acts as a platform for academics, researchers and scientists utilising open source geospatial software in their activity to learn about the latest FOSS4G advancements, trends, and breakthroughs, showcase their work, exchange ideas with their peers, leverage networking opportunities and discuss achievements and needs with the broader community. Following the tradition, the Academic Track was organised by the International Society for Photogrammetry and Remote Sensing (ISPRS), in particular its Intercommission Working Group (ICWG) IV/III/II "Openness in Geospatial Science and Remote Sensing". In this regard, we express our gratitude to ISPRS for making this possible and in particular to Lena Halounova (ISPRS President), Sisi Zlatanova, Maria Brovelli and Hao Wu (President, Vice-President and Secretary of ISPRS Technical Commission IV) for actively supporting the publication of this volume.

The proceedings feature 33 papers, all presented at the conference and selected through a rigorous peer-review process conducted by the Scientific Committee, which began with over 50 submissions. Overall, these prove how wide is the range of domains where open source software can empower research and applications and provide concrete support to policy. These include first environmental and climate studies, with use cases focusing on urban heat islands, hydrological modelling, monitoring of glaciers, sea level change and water quality, water and natural resources management, land use and land cover change, analysis of vegetation biodiversity and landslide susceptibility, monitoring of terrain deformation and geohazards management. Several papers address urban-related challenges such as monitoring urbanisation, urban walkability, network analysis for electricity and electric vehicle charging stations, management of photovoltaic systems, and even autonomous driving. A bunch of papers describe applications around humanitarian mapping and citizen-generated data for disaster preparedness and response, while some others focus on challenges in sharing geospatial data as well as research powered by geospatial data. The diversity of application domains, disciplinary content, software tools, and computational approaches underscores the extraordinary adaptability and maturity achieved by the FOSS4G ecosystem and the value of the Academic Track in bringing together users, developers, researchers and academics. Most of the research published in the proceedings included the development of new software released as open source, which is explicitly mentioned in the papers to maximise research reproducibility and reuse/improvement of the code by the community.

Overall, the 33 papers published in the proceedings were written by 98 unique authors, affiliated with organisations located in 14 countries, all European except Nigeria. A significant percentage (40%) of the papers were co-authored by researchers from more

than one organisation, while 18% of the paper had co-authors affiliated in different countries. These figures confirm that science, even more when grounded on open technologies and principles, knows no borders, transcending geographical, cultural, and linguistic differences.

We extend our gratitude to all the authors of the published papers as well as to the reviewers and members of the FOSS4G Europe 2025 Scientific Committee from across Europe, listed below.

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