## **UNEP's International Methane Emissions Observatory** (IMEO): Bringing together policy-relevant methane emissions data

Robert Field¹, Stephen Harris¹, Daniel Zavala-Araiza², Stefan Schwietzke², Andreea Calcan¹, Cynthia Randles¹, Meghan Demeter¹, Itziar Irakulis Loitxate¹, Luis Guanter², Jarosław Nęcki⁴, Justyna Swolkień⁴, Paweł Jagoda⁴, Jakub Bartyzel⁴, Eric Förster⁵, Heidi Huntrieser⁵, Michael Lichtenstern⁵, Falk Pätzold⁶, Lutz Bretschneider⁶, Astrid Lampert⁶, David Holl², Quentin Taupin⁶, Dirk Schüttemeyer⁶, Marianne Girard⁶, Marvin Knapp¹₀, André Butz¹₀, Gerrit Kuhlmann¹¹, Jakob Borchardt¹², Sven Krautwurst¹², Konstantin Gerilowski¹², Oke Huhs¹², Josua Schindewolf¹², Heinrich Bovensmann¹², Martin Kumm¹³, Andrew McGrath¹⁴,¹⁵, Shakti Chakravarty¹⁴, Wolfgang Junkermann¹⁴, Jorg Hacker¹⁴,¹⁵, Mei Bai¹⁶, Bryce Kelly¹², Hartmut Bösch¹², John Burrows¹², Anke Roiger⁵, Manfredi Caltagirone¹, and Steven P. Hamburg²

- ¹UNEP's International Methane Emissions Observatory, United Nations Environment Program, Paris, France
- <sup>2</sup>Environmental Defense Fund, Office of the Chief Scientist, Utrecht, Netherlands
- <sup>3</sup>Research Institute of Water and Environmental Engineering (IIAMA), Universitat Politècnica de València (UPV), Valencia, Spain
- <sup>4</sup>AGH-University of Krakow, Kraków, Poland
- <sup>5</sup>German Aerospace Center, Institute of Atmospheric Physics, DLR-Oberpfaffenhofen, Wessling, Germany
- <sup>6</sup>Technische Universität Braunschweig, Institute of Flight Guidance, Braunschweig, Germany
- <sup>7</sup>University Hamburg, Institute of Soil Science, Hamburg, Germany
- <sup>8</sup>European Space Research and Technology Centre, European Space Agency, Noordwijk, Netherlands
- <sup>9</sup>GHGSat, Inc., Montréal, Canada
- <sup>10</sup>Institute of Environmental Physics, Heidelberg University, Heidelberg, Germany
- <sup>11</sup>Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland
- 12University of Bremen, Institute of Environmental Physics, Bremen, Germany
- <sup>13</sup>Jade University of Applied Sciences, Wilhelmshaven, Germany
- 14ARA Airborne Research Australia, Parafield, SA, Australia
- 15Flinders University, College of Science and Engineering, Bedford Park, SA, Australia
- 16The University of Melbourne, School of Agriculture, Food and Ecosystem Sciences, Parkville, Victoria, Australia
- <sup>17</sup>School of Biological, Earth and Environmental Sciences, The University of New South Wales, Sydney, NSW, Australia

The International Methane Emissions Observatory (IMEO) was launched in 2021 at the G20 summit by the United Nations Environment Program (UNEP). UNEP's IMEO exists to provide open, reliable, public, policy-relevant data to facilitate actions to reduce methane emissions. UNEP, through IMEO, aims to fill gaps in knowledge and refine global understanding of the location and magnitude of methane emissions across different anthropogenic sectors. As countries and industry establish ambitious mitigation targets, accurate and measurement-based emission estimates are critical to accelerate emission reductions and assess progress by tracking changes in emissions over time. UNEP's IMEO is collecting and integrating diverse methane emissions data streams, including from satellites, science studies and measurement-based industry reporting to establish a global, centralized public record of empirically verified methane emissions. In this presentation, we will provide insights from measurement campaigns across the world with a focus upon coal mine methane studies. Preliminary results will be presented from the evaluation of methane emissions from underground coal mining in Poland and surface coal mining in Australia.