Special Session S1: Challenges and opportunities of remote sensing for climate change

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The session opens with a keynote presentation by a representative from ENEA, setting the scientific context of climate change, with a focus on the challenges of its characterization and the role of global and regional climate models.

The session will then explore how state-of-the-art remote sensing technologies are being used to detect and monitor the impacts of climate change and to support mitigation strategies. Particular attention will be paid to climate-related risks affecting the exposed built environment, including buildings, roads, bridges, parks and key infrastructure systems such as transport, water and energy networks. Urban areas located in riverine or coastal zones are particularly vulnerable to sea level rise and its associated effects, such as flooding and erosion. These phenomena are often interrelated with other environmental stressors, including land subsidence and aquifer depletion. Contributions showcasing the integration of multi-sensor remote sensing data with geospatial analysis are especially welcome, as they provide valuable insights into the complex interdependencies of these processes and enable the assessment of cascading impacts.

The session will also highlight applications in the field of cultural and natural heritage, including the monitoring of archaeological sites, cultural and geological landscapes, and water resources.

Finally, the session will present updates on upcoming satellite missions, such as NASA-ASI Surface Biology and Geology (SBG) mission, aimed at providing comprehensive data on terrestrial and aquatic emissions for climate, ecological, and geological applications. Presentation on ongoing developments based on IRIDE system towards will be also welcome.