# The value of EO data and their potential in socio-economic analyses

## Specific Seminar – Curriculum 7

**2025, July 11, 3:00 p.m.**

## Speaker:

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## Abstract:

Earth Observation (EO) data, particularly from satellites, has rapidly emerged as a powerful tool for socio-economic analysis, offering unprecedented insights where traditional data sources are limited, unreliable, or unavailable. This presentation explores the diverse and evolving applications of EO data across several key 'macro-classes', illustrating its value for understanding and addressing complex socio-economic challenges. The first part of the lecture introduces these broad categories of application, including (1) measuring socio-economic indicators in data-poor environments, (2) validating or complementing existing official statistics, (3) enabling fine-grained spatial analysis, and (4) supporting causal impact evaluations. EO data can serve as a proxy for critical variables such as poverty, GDP, emissions, or exposure to environmental risks—filling gaps in official datasets or replacing them altogether in fragile or under-resourced regions. The second part focuses on selected case studies that highlight the operational relevance of EO-based analytics combined with statistical and econometric methods. Examples include using night-time lights to infer economic growth in areas with scarce or disputed data—such as estimating GDP growth in China—and applying EO data to assess the effectiveness of major infrastructure investments or development aid. Furthermore, high-resolution EO imagery enables the detection of spatial inequality and granular variations in socio-economic outcomes. EO-based methods are also increasingly used in real-time disaster response and ex-post analysis, such as evaluating the socio-economic impacts of natural hazards and extreme weather events. Together, these applications demonstrate the growing importance of EO data as both a complement and an alternative to conventional socio-economic datasets, with implications for policy evaluation, development planning, and global monitoring efforts.

## Online attendance:

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Link di invito: **https://unitn.zoom.us/j/82092822576?pwd=XoOF3ePeAQIlCEaViQKYpb2c288ibD.1**

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