# Investigating Urban Changes and Environmental Impacts in Italy

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## Introduction

The supplement of this paper includes two figures and one table. The first figure (Figure S1) shows various components and activities of the PO PLain EXperiment (POPLEX) field campaign. The second figure (Figure S2) describes the Florence area as an extension of POPLEX. The table (Table S1) contains information of satellite sensors from which data were used to plan for and to support POPLEX.

**1. Figure S1**: Extended version of figure 1 in the main paper. The background image is obtained by superimposing a translucent QuikSCAT-Dense Sampling Method (DSM) backscatter image over a three-dimensional terrain representation of the study area from Google Earth Pro. The figure shows the POPLEX itinerary (black path) and contains larger inset photos and graphs. The top-left graph shows the relationship between nitrate concentration in a monitoring well and the DSM-based urbanization in the up-gradient area, the top-right graph compares air quality measured in ground stations with OMI satellite observations, while the bottom-right graph shows river discharge measurements derived from Global Change Observation Mission – Water 1 AMSR2 satellite data. Coordinates refer to CGS WGS 1984.

**2. Figure S2**: Translucent QuikSCAT-DSM backscatter image overlaid on the 3-arcsec NASA's Shuttle Radar Topography Mission Digital Elevation Model of the Florence area. The POPLEX itinerary is traced with the black path. At the lower left corner is an image of the Florence urban area from the Italian National Geoportal (corresponding to the grey box in the center of the figure). The associated aerial photograph from Google Earth Pro (figure with a white border) gives the detail of an area with large buildings, corresponding to the highest backscatter value pixel highlighted by a small white square within the grey box in the center of the figure. This figure includes photographs showing the urban area and some representative details of its surroundings. Coordinates refer to CGS WGS 1984.

**3. Table S1**: List of satellite sensors from which data were used to plan for and to support POPLEX.

3.1 Column "Satellite" for names of satellites.

3.2 Column "Sensor" for names of satellite remote sensors.

3.3 Column "Acronym" for acronyms of satellite sensors.

3.4 Column "Product" for remote sensing products derived from satellite data.