Using Digital Footprint Data to Measure and Monitor Human Mobility

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Welcome

This website hosts the materials for the workshop *"Using Digital Footprint Data to Measure and Monitor Human Mobility"*. This training workshop was designed and is delivered by Prof. Francisco Rowe, Dr. Carmen Cabrera-Arnau, Dr. Miguel González-Leonardo, Ruth Neville and Andrea Nasuto.

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Overview

Description

This workshop offers an introduction to the use of digital footprint data from Meta-Facebook to analyse internal population movements. We will cover how to location data collected via digital technology are used to develop data products to analyse human mobility. We will also illustrate how these data can be used to create statistical indicators and geographic data visualisations to extract insightful information, monitor mobility trends and identify key areas of origin and destination. The workshop will use an applied, hands-on approach in R via computational notebooks.

Structure

Time	Activity
9.00-9.30	Registration and welcome coffee
9.30-10.30	Digital Footprint Data overview
10.30-10.40	Comfort break
10.40-11.40	Meta-Facebook data introduction
11.40-12.15	Software installation and preparation for practical session
12.15-13.15	Lunch break
13.15-14.30	Exploring temporal patterns of human mobility
14.30-15.00	Coffee break
15.00-16.30	Exploring spatial patterns of human mobility
16.30-17.00	Q&A

Before the workshop

> **!** Important
>
> Please ensure to download and install the most recent version of R, RStudio and Quarto on the computer that you will be using during the workshop, and install the indicated libraries - see detailed instructions below.

> **i** Note
>
> All three software packages are open and free to use.

R

You can download R from here. Make sure you select the appropriate version for your Operating System: Windows, MacOS (Apple silicon M1/M2 or older intel Macs). For example, if you use a macOS laptop with an M1 processor, click on 'Download R for macOS' and then, click the link to download the installer file (.pkg extension for macOS) under the header 'For Apple silicon (M1/M2) Macs'. You can then open the installer and follow the instructions that you will be prompted with. For Windows users, click on "install R for the first time" and follow the prompts.

RStudio

You will also need to download RStudio Desktop, which is an integrated development environment to help you write code in R more easily. To download RStudio, follow this link and scroll down to the section titled 'All Installers and Tarballs'. Download the appropriate installer file according to your Operating System. Then, open the installer and follow the installation instructions that you will be prompted with.

Quarto

Download Quarto from this website. On "Step 1" on the website, download the version of Quarto that matches your Operating System. Open the installer file, run it and follow the prompts.

R libraries

Once you have installed R, you will need to install some R extensions, known as packages, that will be useful for the applications explored in this workshop. The packages you need to install are:

- `tidyverse`
- `ggthemes`
- `patchwork`
- `viridis`

- `tmap`
- `sf`
- `sp`
- `stringr`
- `RColorBrewer`

To install packages, open RStudio. On the console window (normally at the bottom left), write the following command: `install.packages("name of package")`. Make sure you replace `"name of package"` by the actual name of the package that you want to install e.g. `install.packages("tidyverse")`. Then, press enter and repeat this process until you have installed all the packages in the list. Please note that we might ask you to install more packages on the day that this workshop is taking place.

> **i** Note
>
> We might ask you to install more packages on the day that this workshop is taking place.

During the workshop

All the workshop material will be made available on this website which is currently under construction. Instructions on how to download the material will be given during the workshop.