

Migratory influx of young people into Catalunya:

a COVID pandemic insight

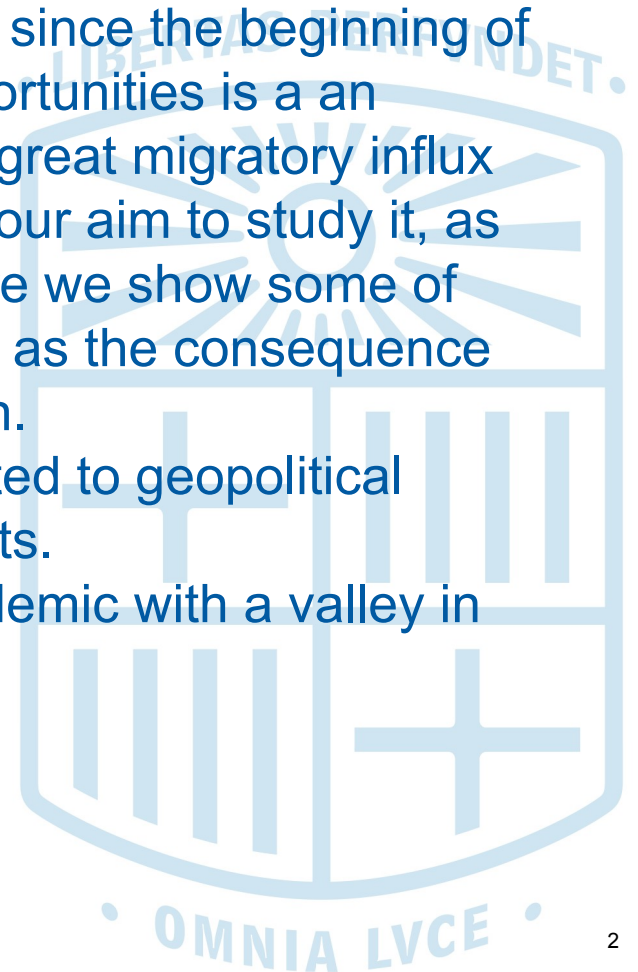
Analysis and Visualization of Big Data

MSc Physics of Complex Systems and Biophysics

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Abstract

Migration has been present amongst humanity since the beginning of the times. Seeking abroad new and better opportunities is a an ambition everyone can relate to. Nowadays, a great migratory influx is observed towards our territory, and it will be our aim to study it, as the COVID pandemic had an effect over it. Here we show some of the migratory peaks in the recent years as well as the consequence of the ongoing pandemic and the first lockdown. We found that the migration peaks can be related to geopolitical phenomena in the place of origin of the migrants. Also, we could relate the beginning of the pandemic with a valley in the migratory influx in 2020.



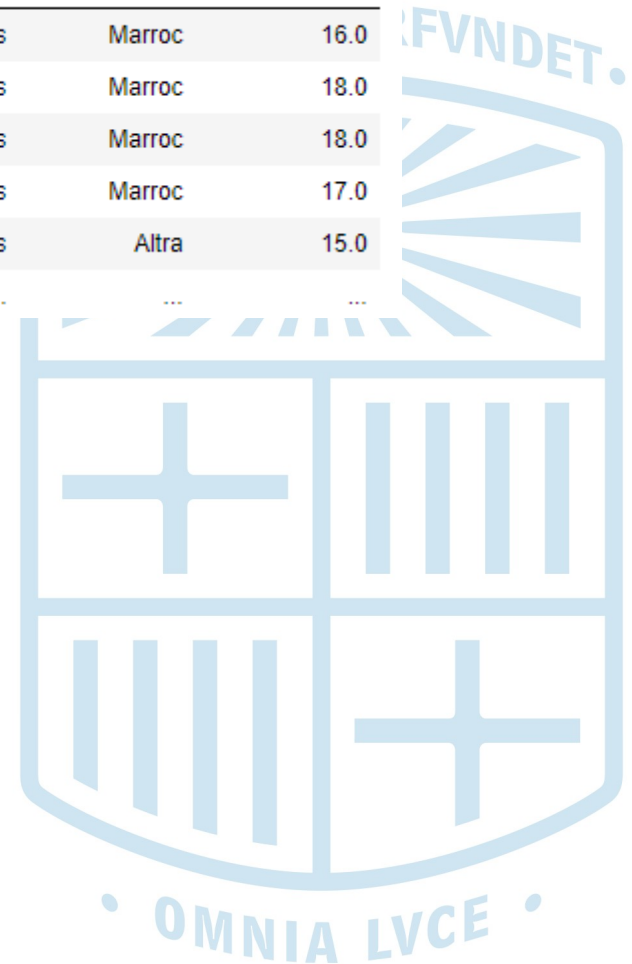
Data Management Plan

Data summary	The data collects all the new cases of migrant children and young people who have arrived in Catalunya since 2015 and hosted by “sistema català de protecció a la infància i l'adolescència”. The data contain the migrant birth date, the year of entry, the origin, the destination, and the gender.
FAIR data	We provide two datasets. The first one consists in the raw data. The second one has been cleaned up sorting up the ages and using a correct format to the dates. Both are freely available in pandas dataframe format. Data is not interoperable because it consists of migration from Marroc, Magreb, Africa subsahariana or Others towards Catalunya, the migration form different origins or to different destinations should differ.
Allocation resources	The infrastructure is organized from “sistema català de protecció a la infància i l'adolescència” through different groups such as police, schools, hospitals, psychologists, and families (all financed by the Government of Catalunya).
Data security	The clean data should be useful for future investigations and migration comparisons. It is stored in a github repository and in different hard disks. There is no personal information in the clean data. The raw data is stored locally in our devices.
Ethical aspects	Each child has an ID number that is not related to any personal information, is just a control parameter. The exact destination and origin of the migrant remains unknown both in raw data and clean data.

Data Management Plan: data base

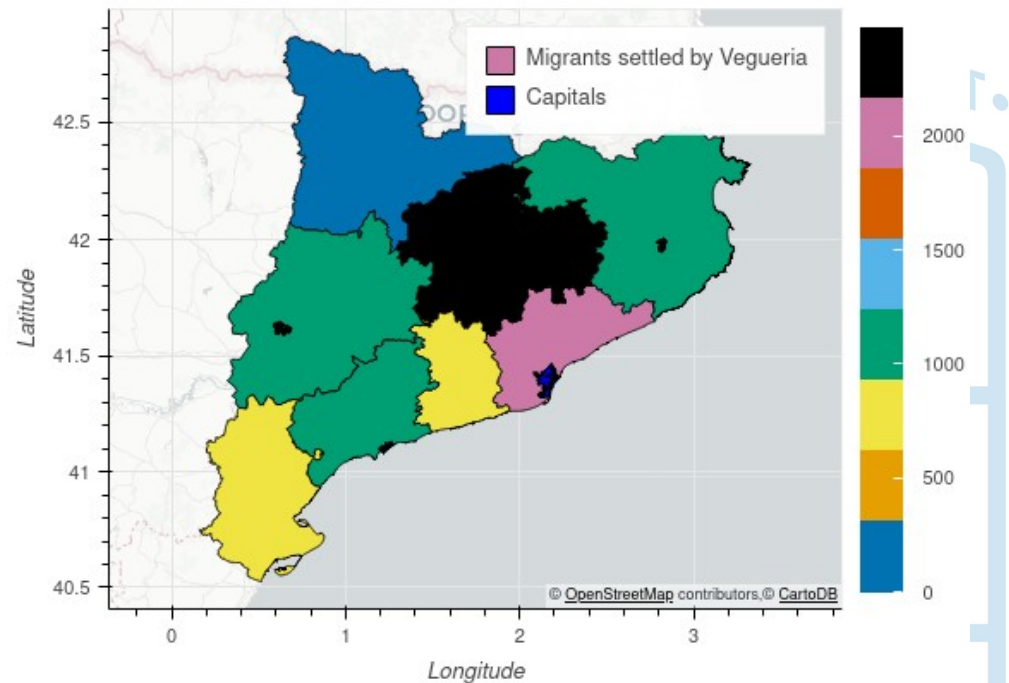
	id_infant_jove	data_entrada_sistema	servei_territorial_gestio	sexe_infant	origen_infant	Edat_arribada
0	132056	2019-10-20	Terres de l'Ebre	Nois	Marroc	16.0
1	131373	2019-09-27	Tarragona	Nois	Marroc	18.0
2	131850	2019-10-11	Àrea Metropolitana BCN	Nois	Marroc	18.0
3	119521	2018-10-14	Barcelona comarques	Nois	Marroc	17.0
4	132138	2019-10-23	Barcelona ciutat	Nois	Altra	15.0
...

- Catalunya Open Data
- Possible bias

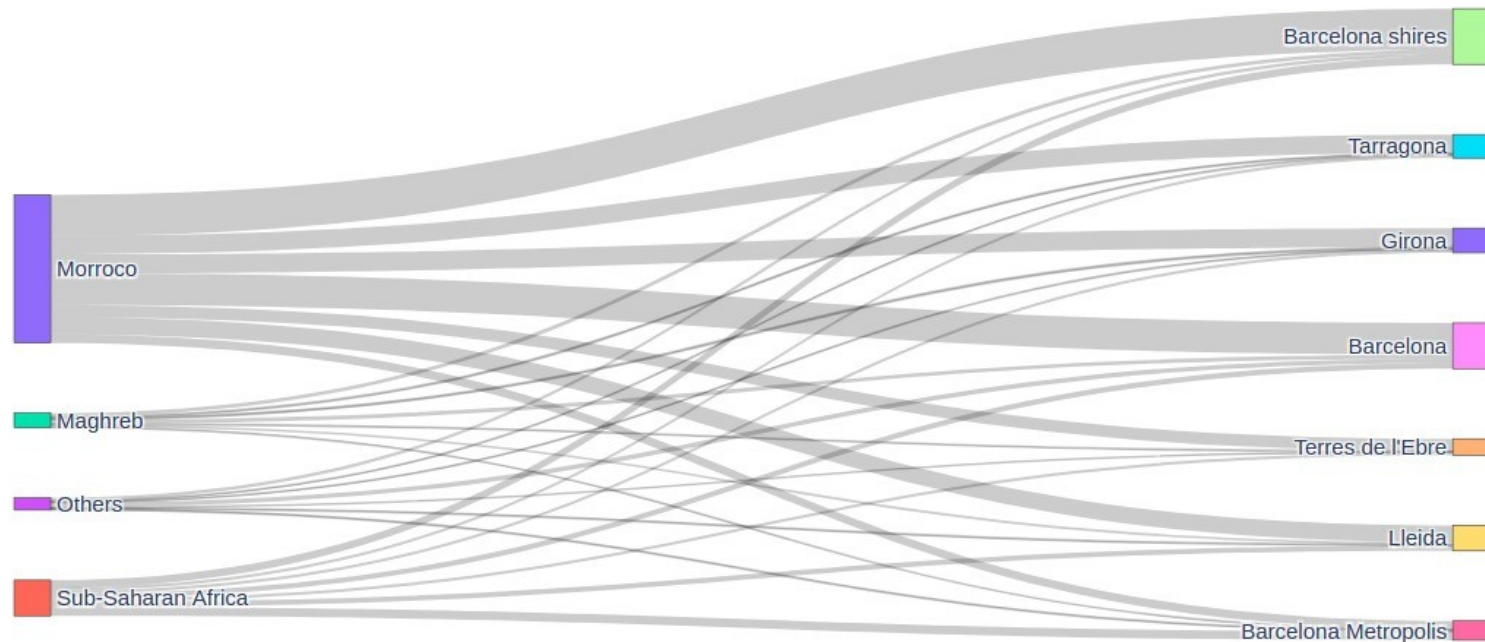


How we can see migration in Catalunya?

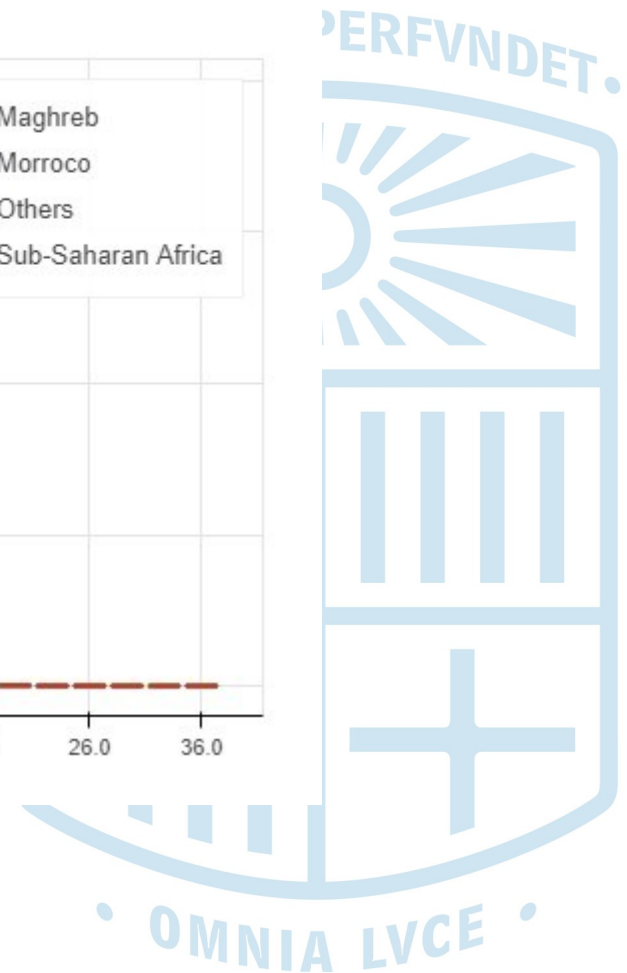
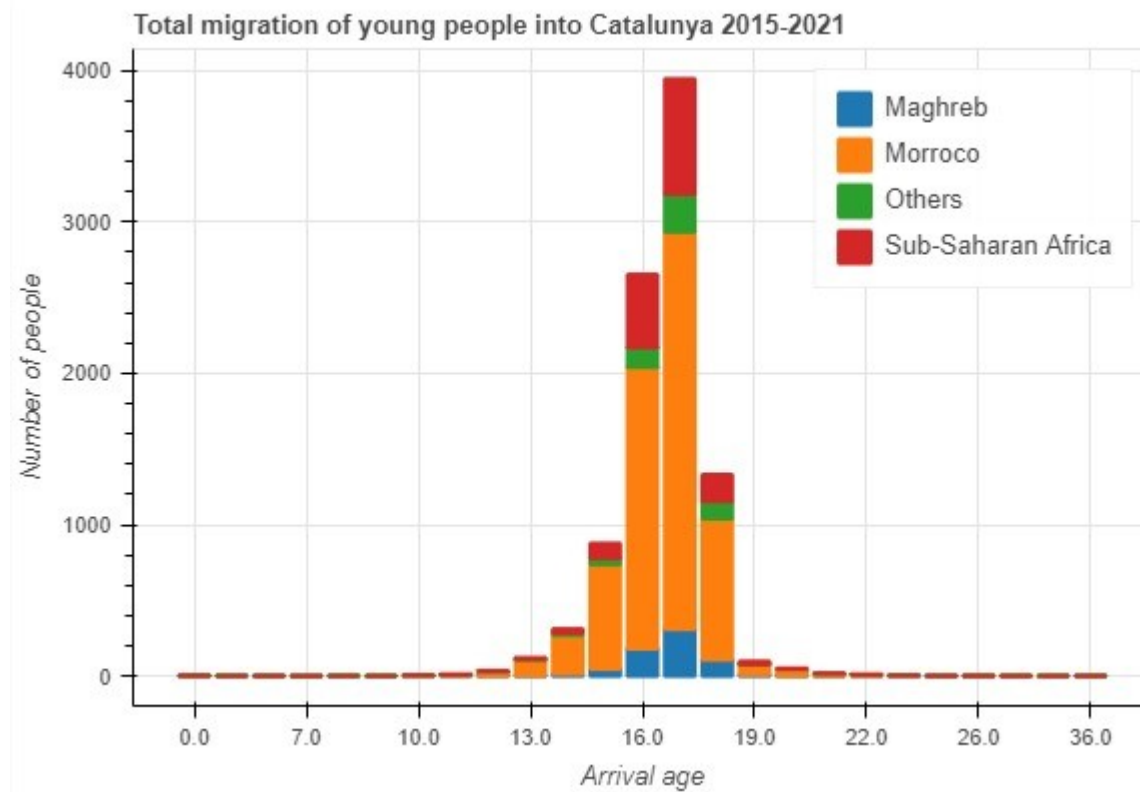
- Great influx to regions with Capital cities
- Connecting regions with more migrants
- Rural areas with less influx
- Unusual territorial division
> Mismatched regions



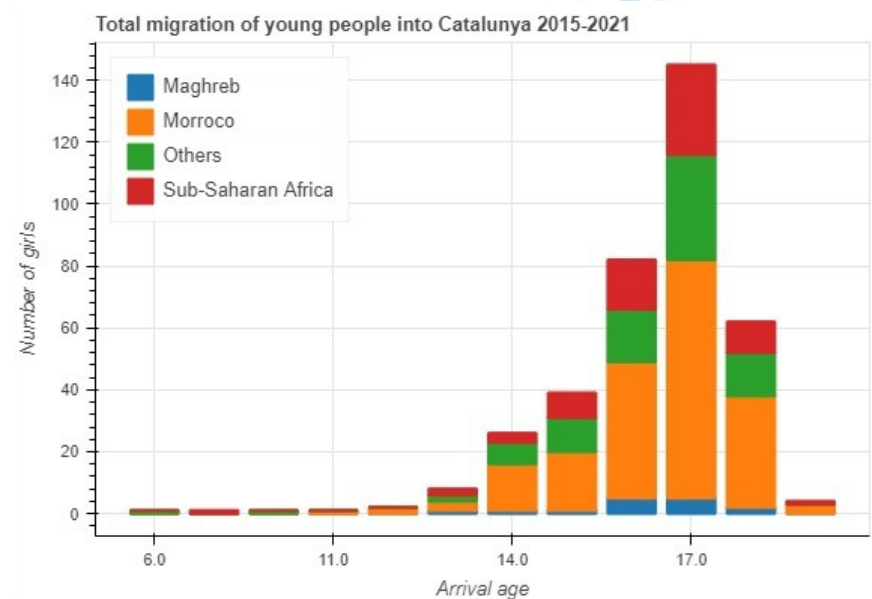
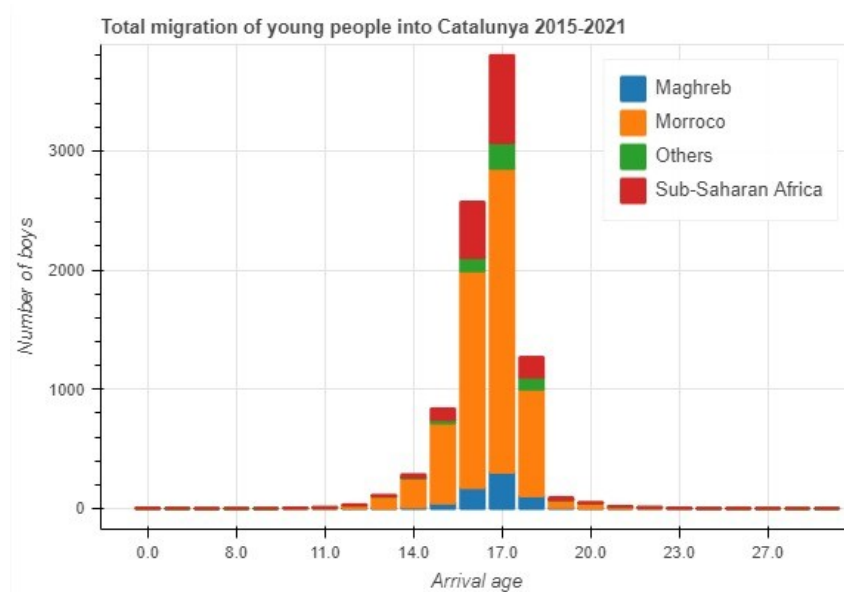
How we can see migration in Catalunya?



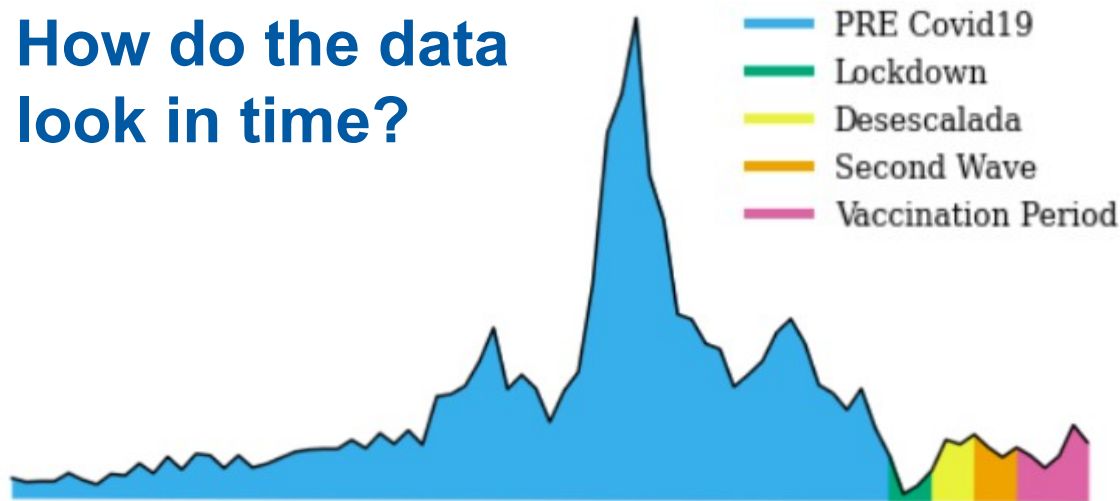
How are this data distributed?



Distribution by age and gender



How do the data look in time?



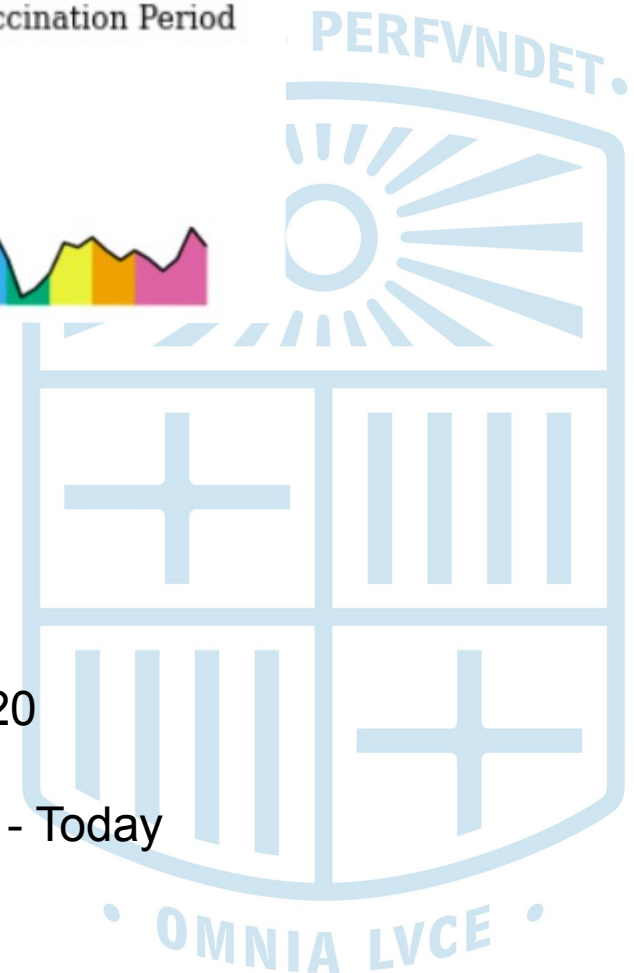
PRE Covid19: 2015-March 2020

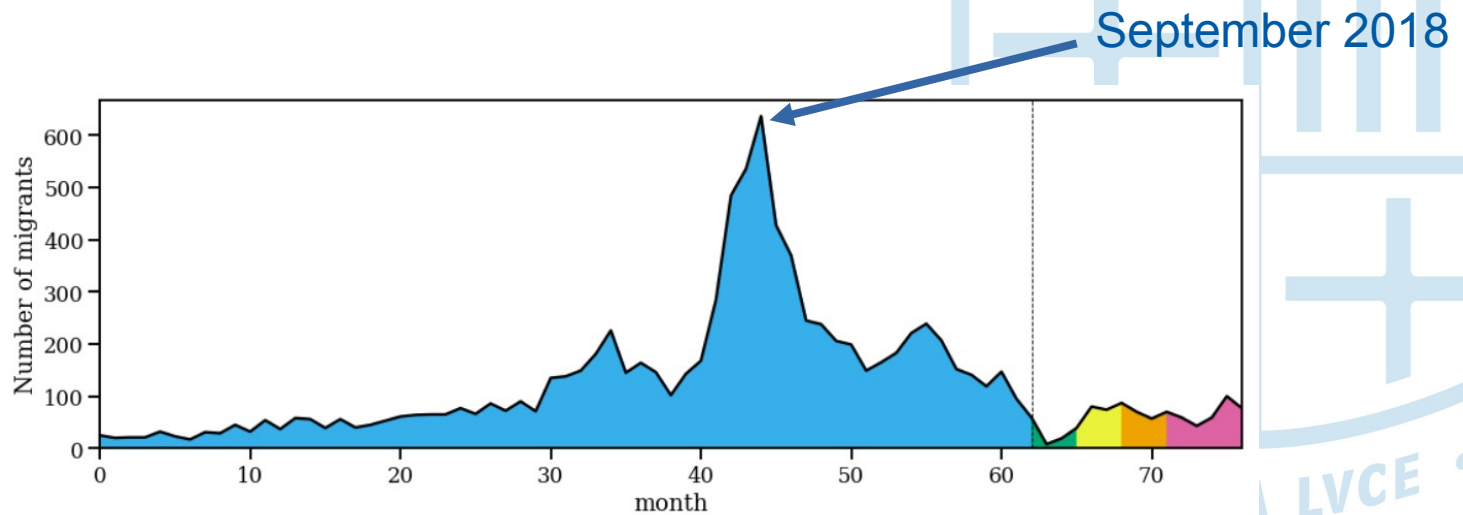
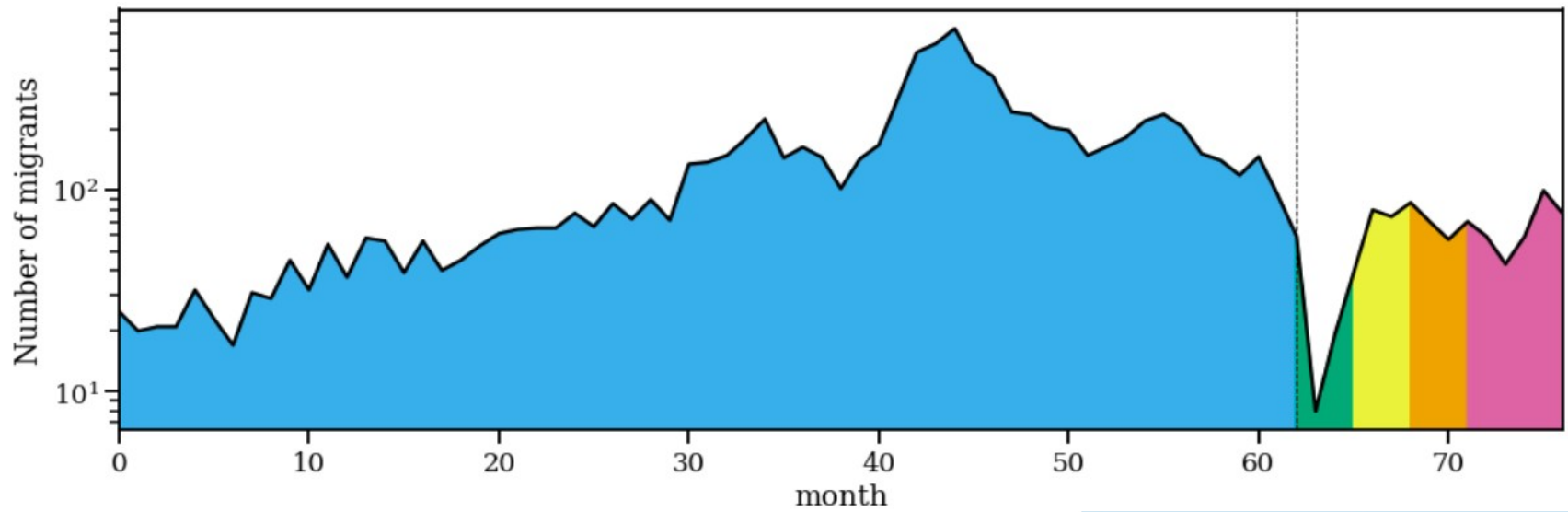
Lockdown: March-May 2020

Desescalada: May-August 2020

Second Wave : August-December 2020

Vaccination Period : December 2020 - Today





What happened in 2018?

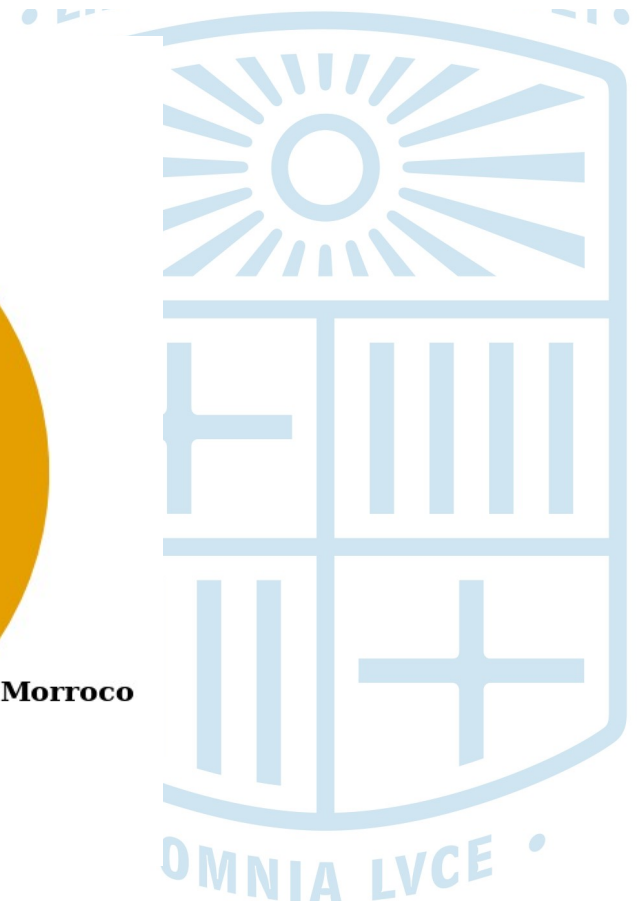
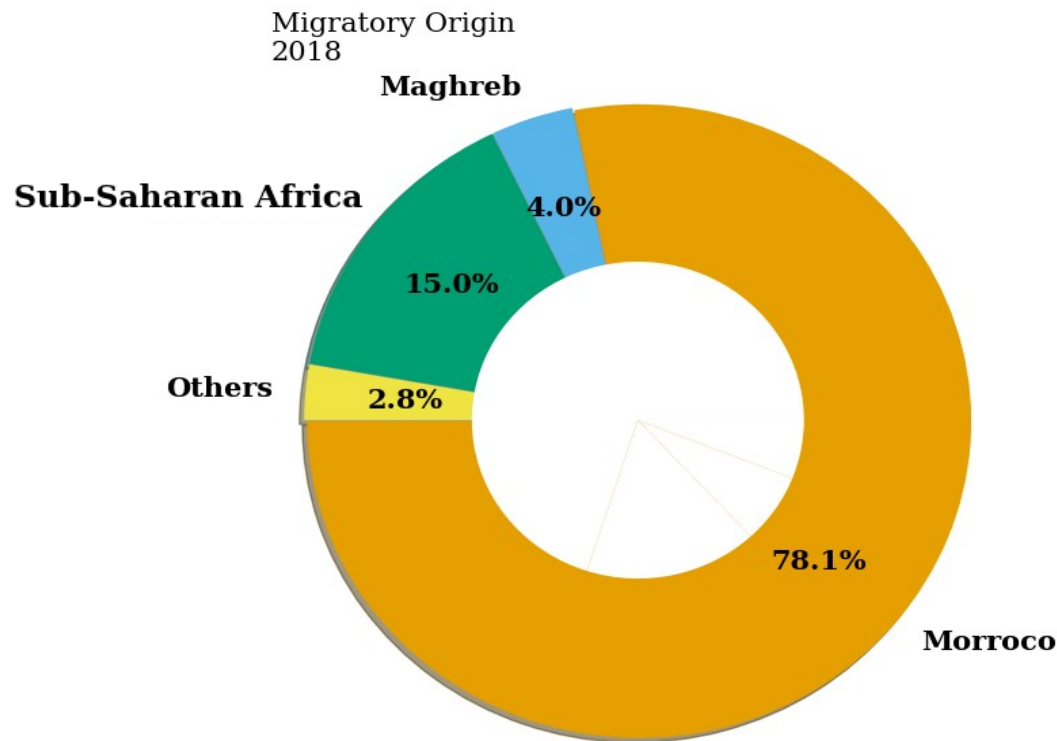
Rècord de pasteres i de morts de migrants el 2018

Gairebé 160 persones al dia van arribar per mar a Espanya en l'últim any

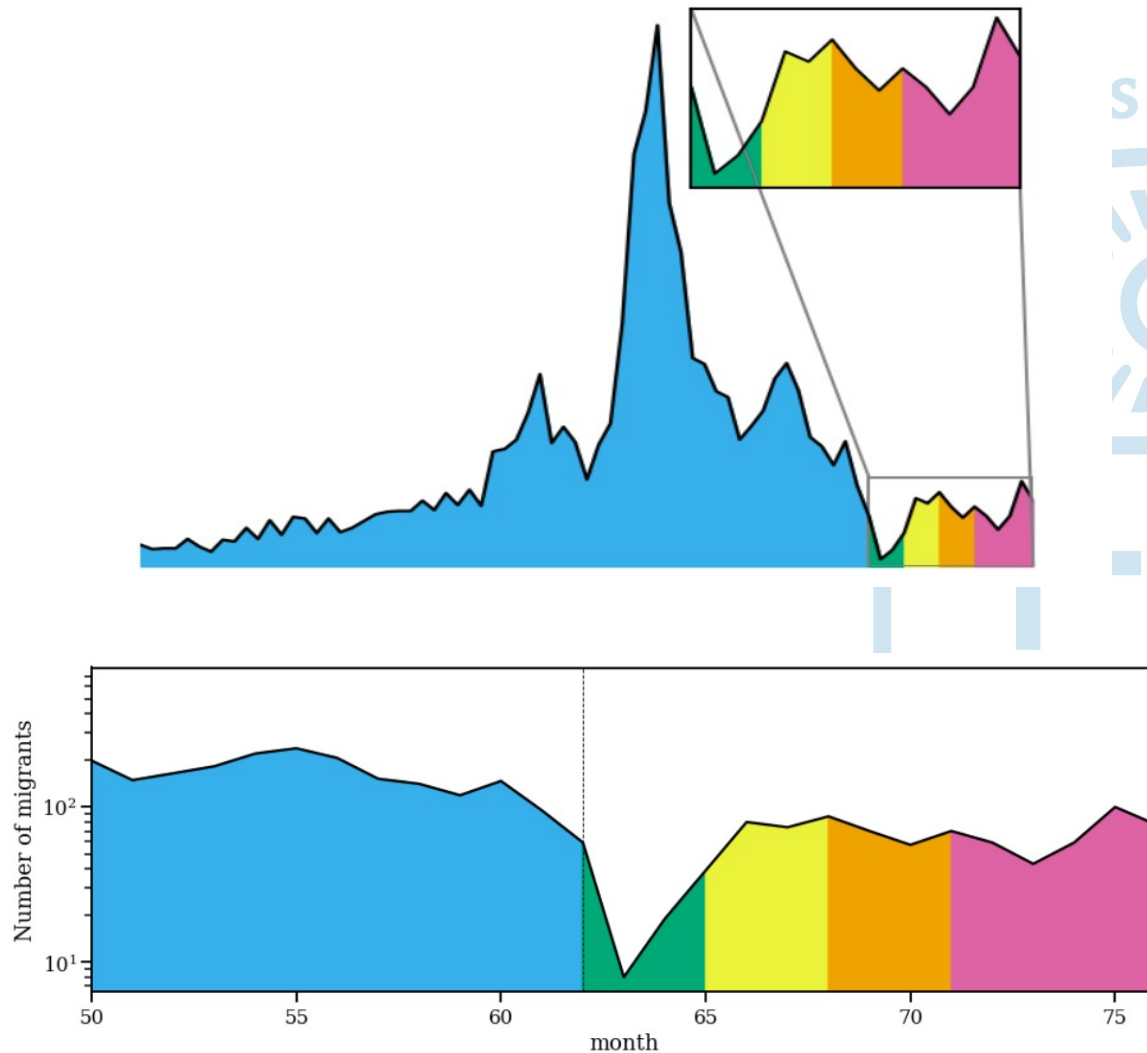


JUANA VIÚDEZ

Madrid - 2 GEN 2019 - 08:08 CET

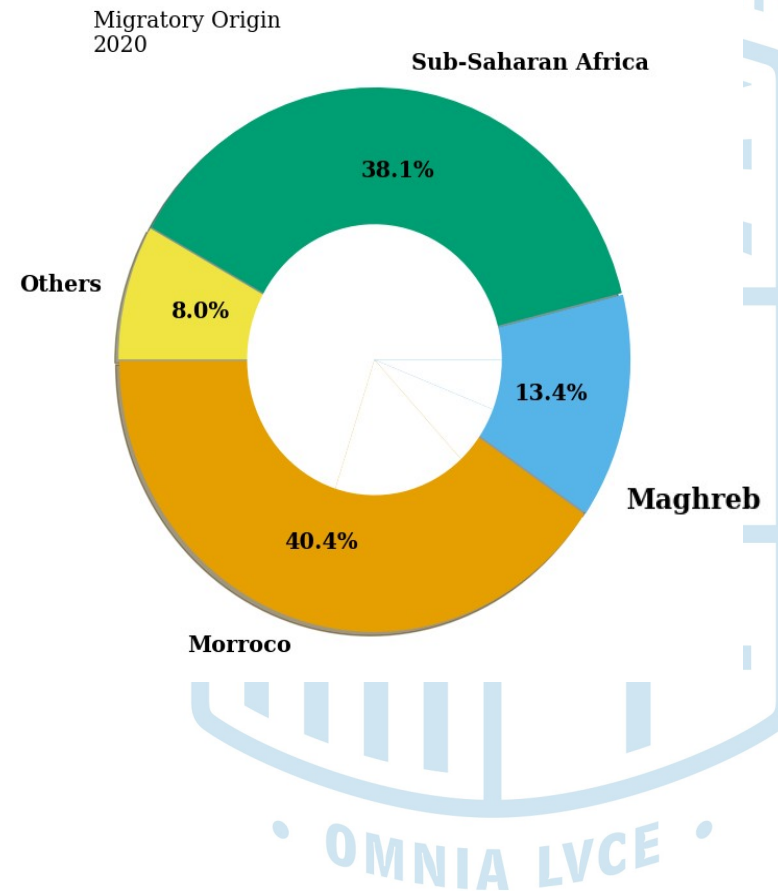


Let's take a look at the pandemic period:

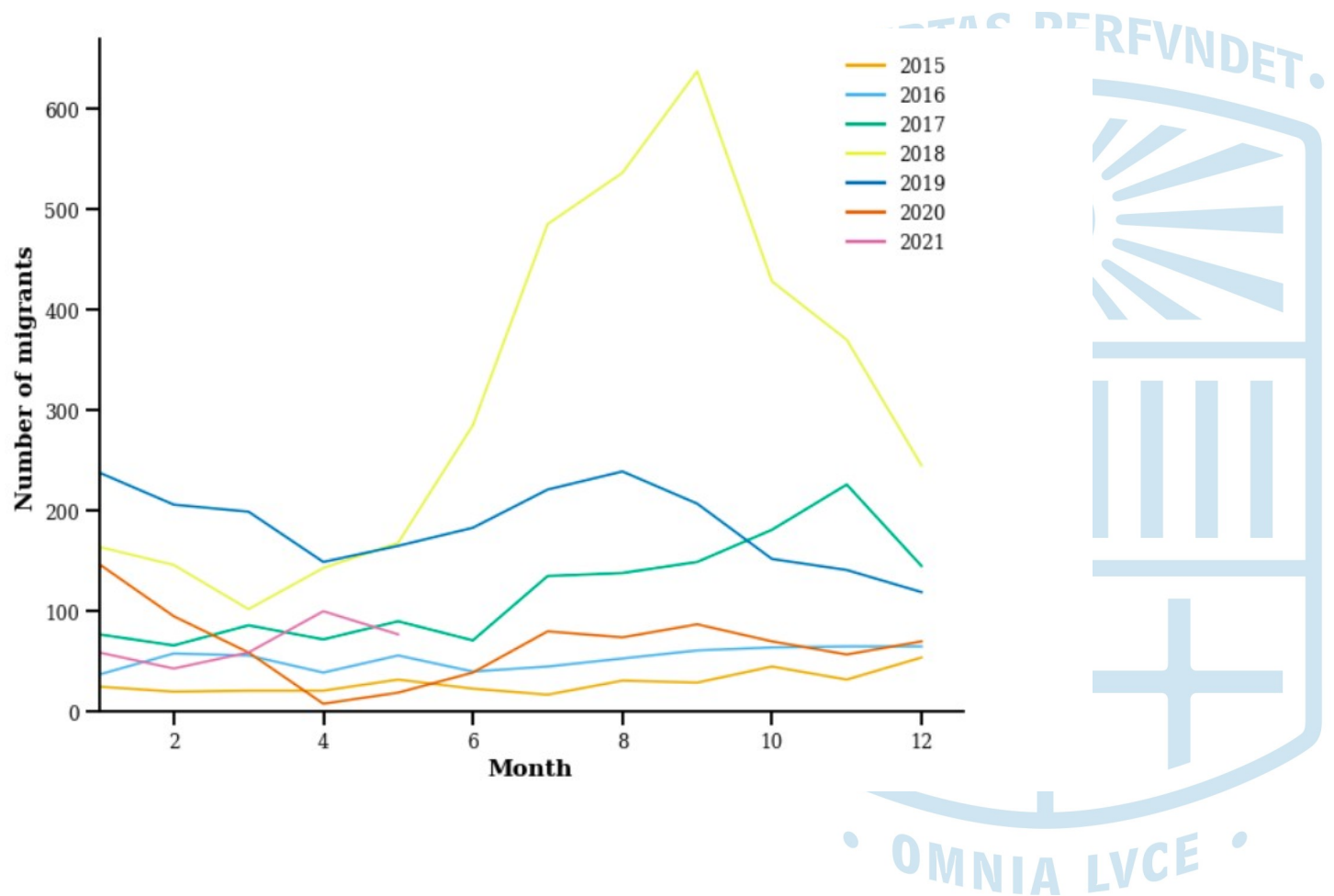


Forward to 2020: the COVID pandemic

- Video

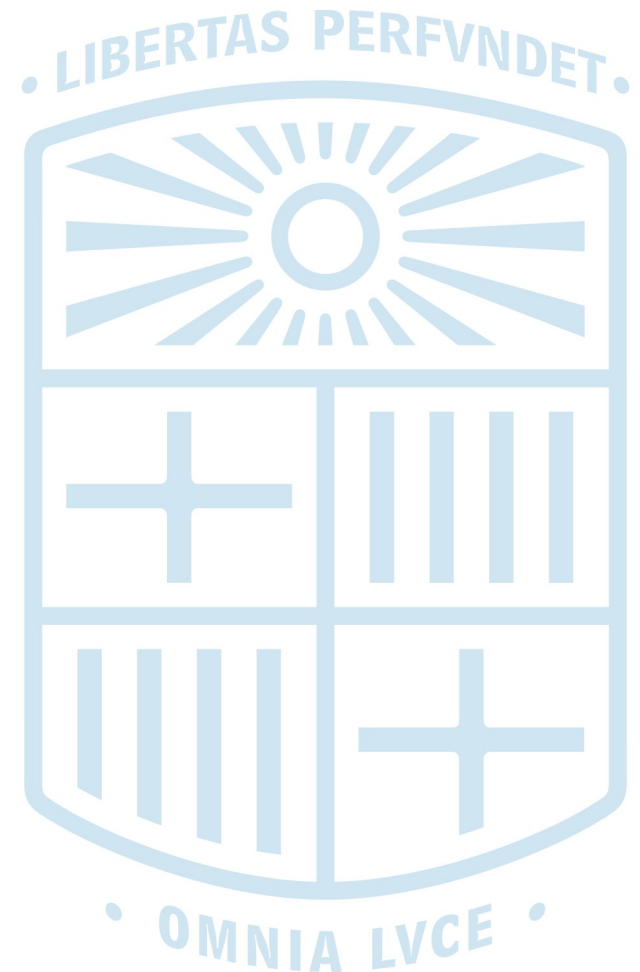


Is there a trend emerging from the data?



Ongoing or proposed questions and future directions :

- How are the results of Catalunya compared to Spain? And Europe?
- Project introducing citizen science
- What would the results look like if we include migrations not only from Africa?
- Gender study
- Are there differences with by sea or by land migrations?



Author contributions - CRediT Contributor Roles Taxonomy

<https://www.elsevier.com/authors/policies-and-guidelines/credit-author-statement>

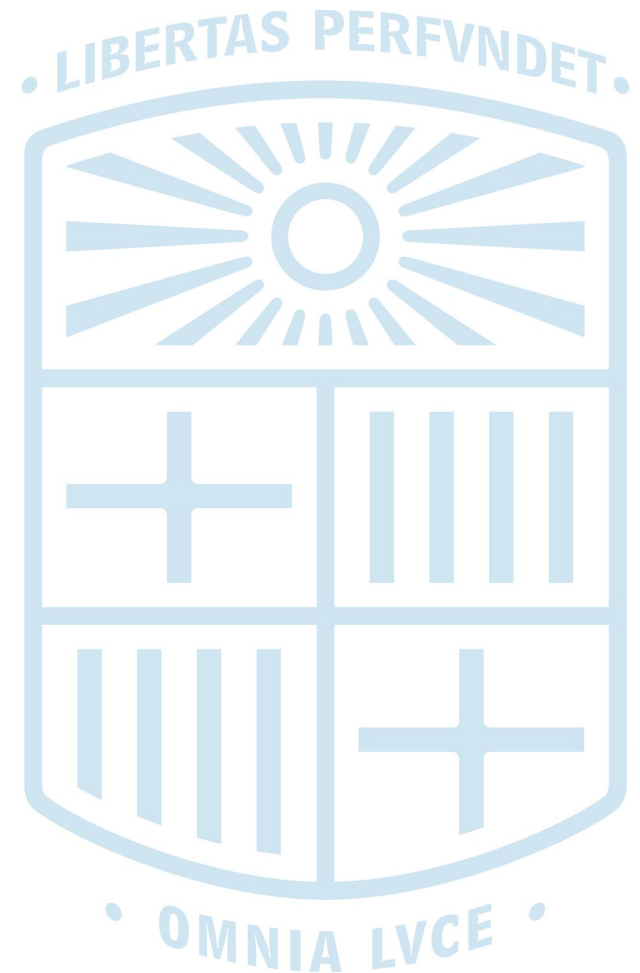
Term	Definition
Conceptualization	Ideas; formulation or evolution of overarching research goals and aims
Methodology	Development or design of methodology; creation of models
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components
Validation	Verification, whether as a part of the activity or separate, of the overall replication/ reproducibility of results/experiments and other research outputs
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools
Data Curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse
Writing - Original Draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation)
Writing - Review & Editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre-or postpublication stages
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/ data presentation
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team

Author contributions

Author	Aleix	Martina	Victor	Roger
Conceptualization	x	x	x	x
Methodology	x		x	
Software		x		x
Validation	x		x	
Formal analysis		x		x
Investigation	x			
Resources	x	x	x	
Data Curation		x		x
Writing - Original Draft			x	
Writing - Review & Editing	x	x	x	x
Visualization				x
Supervision	x	x	x	x

Author contributions

- Time-evolution graphics, sankey plot and dashboard: Martina
- Pie charts, reference search, contextualization: Aleix
- Histograms, DMP: Victor
- Geographic map, abstract and presentation: Roger



Course opinion and critics:

- A huge thank you to Franziska and Josep for their help and dedication
- Useful but too packed: not homogeneous previous knowledge
- The nature of the classes makes it very manageable
- The amount of overall work does not match 3 ECTS
- The idea is good, but there were not enough resources

