

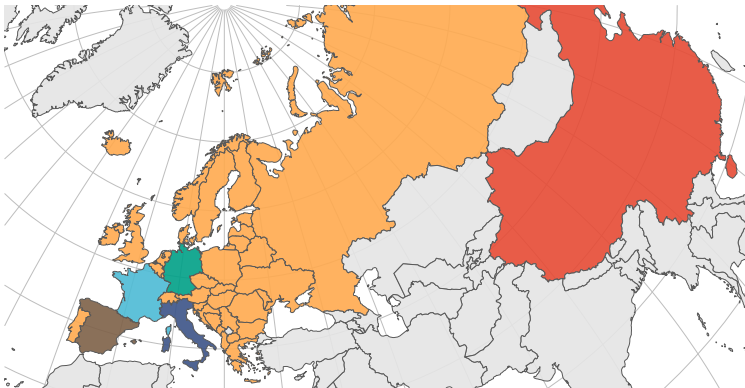
Trajectory Mapping Results

Analysis Europe10c

Cecilia Valenzuela

04 February, 2021

Deme configuration



deme	division	country	region	exclude_country	min_date	max_date
China		China	Asia		2019-12-24	2020-01-23
France		France	Europe		2020-01-23	2020-03-08
Germany		Germany	Europe		2020-01-28	2020-03-08
Italy		Italy	Europe		2020-01-29	2020-03-08
OtherEuropean			Europe	France,Germany,Italy,Spain	2020-01-29	2020-03-08
Spain		Spain	Europe		2020-02-24	2020-03-08

ECDC Case count data

Table 2: Total number of cases reported to ECDC
18th March

deme	cumvalue	pop	ECDCcas100
China	80768	1439323.8	5.6
France	613	65273.5	0.9
Germany	684	83783.9	0.8
Italy	4636	60461.8	7.7
OtherEuropean	1561	491362.0	0.3
Spain	764	46754.8	1.6

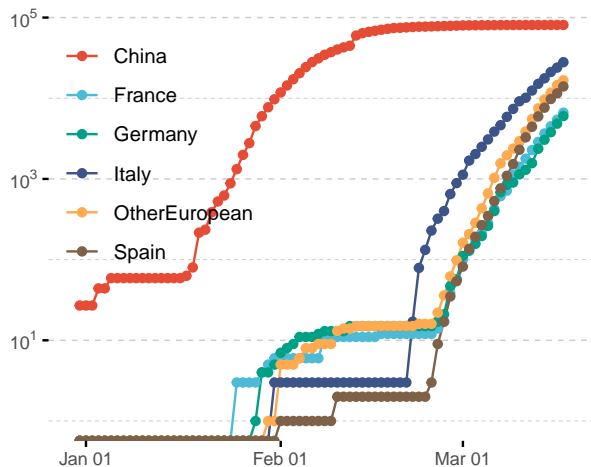


Figure 1: ECDC case counts for each deme from the beginning of the pandemic to March 18

Epidemic trajectory data

From the Stochastic Trajectory Mapping analysis, we obtain one epidemic trajectory per set of parameters + typed node tree.

The processing of the trajectory data includes the generation of two different datasets:

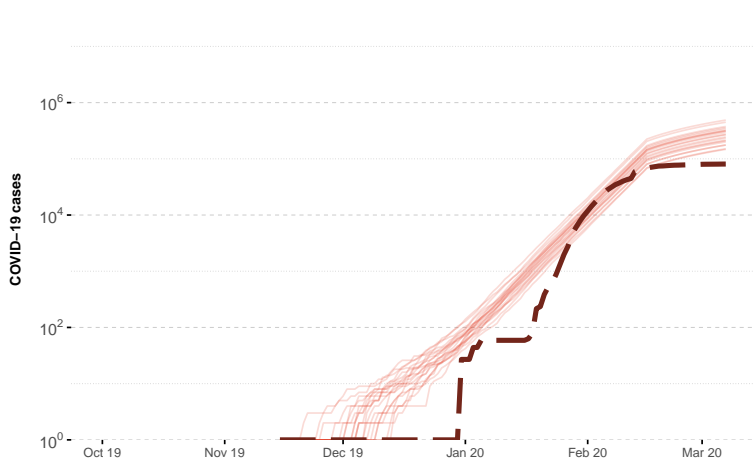
- **states:** We have the total number of inferred cases by trajectory, deme and time.
- **events:** We have each event that happened in a epidemic trajectory, with its type (origin, birth, death or migration), the source/destination deme and time.

Epidemic trajectory data

To have a feasible time of analysis of the epidemic trajectories we take a random subsample of 500 trajectories.

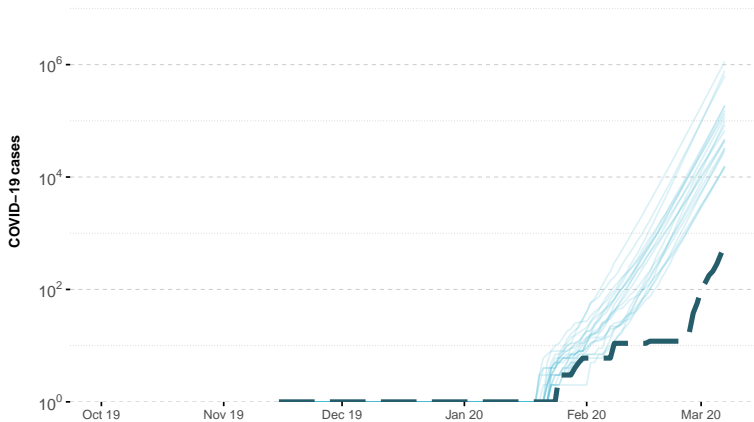
To facilitate visualization and summarise the results, we take a grid time of 1 day and summarise the number of events that day as the sum of the events in the corresponding time interval; and the number of inferred cases as the maximum of the interval.

Inferred case counts - China



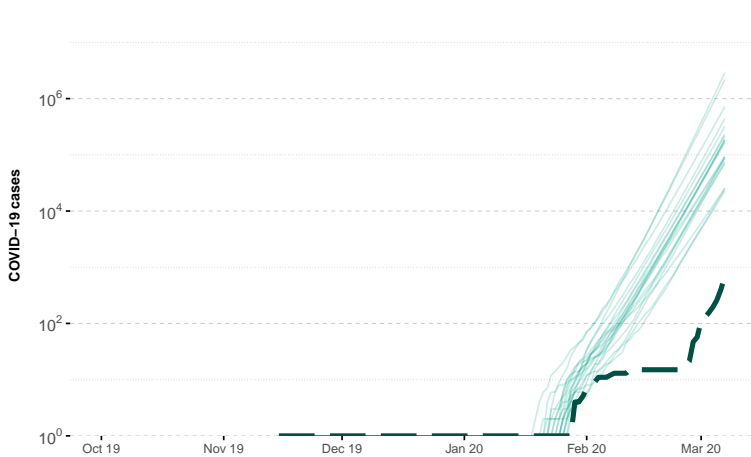
<i>lmean</i>	313793.5
<i>lmedian</i>	126620
<i>llow</i>	16835.95
<i>lhigh</i>	1957635
<i>value</i>	43
<i>cumvalue</i>	81063
<i>pop</i>	1439324
<i>ECDCCas100</i>	5.63
<i>fc</i>	0.64
<i>lfc</i>	0.04
<i>hfc</i>	4.81
<i>rc</i>	1.56
<i>lrc</i>	0.21
<i>hrc</i>	24.15
<i>mcas100</i>	8.8

Inferred case counts - France



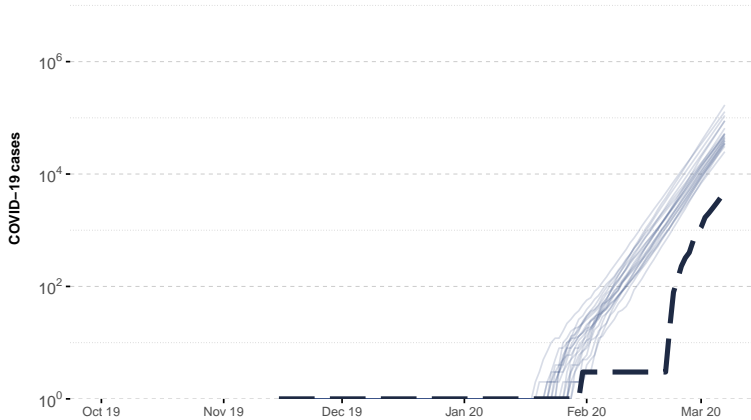
<i>lmean</i>	75305.25
<i>lmedian</i>	73401.5
<i>llow</i>	40557.73
<i>lhigh</i>	127666.8
<i>value</i>	1210
<i>cumvalue</i>	6633
<i>pop</i>	65273.51
<i>ECDCCas100</i>	10.16
<i>fc</i>	0.09
<i>lfc</i>	0.05
<i>hfc</i>	0.16
<i>rc</i>	11.07
<i>lrc</i>	6.11
<i>hrc</i>	19.25
<i>mcas100</i>	112.45

Inferred case counts - Germany



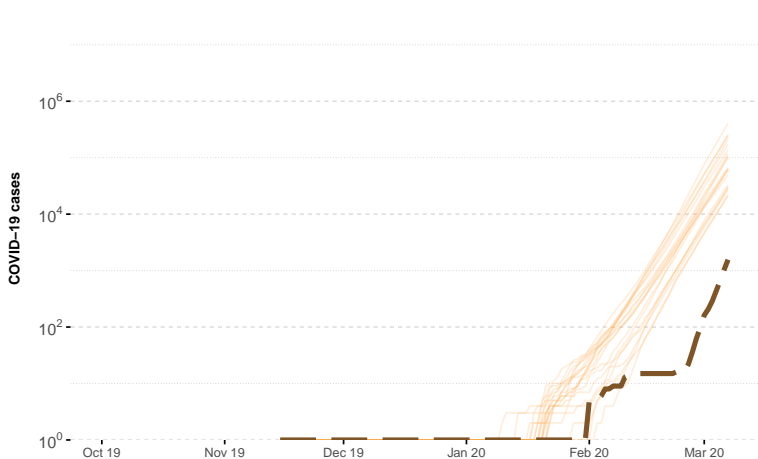
<i>lmean</i>	146493.1
<i>lmedian</i>	55349.5
<i>llow</i>	11091.65
<i>lhigh</i>	742405.6
<i>value</i>	1174
<i>cumvalue</i>	6012
<i>pop</i>	83783.95
<i>ECDCCas100</i>	7.18
<i>fc</i>	0.11
<i>lfc</i>	0.01
<i>hfc</i>	0.54
<i>rc</i>	9.21
<i>lrc</i>	1.84
<i>hrc</i>	123.49
<i>mcas100</i>	66.06

Inferred case counts - Italy



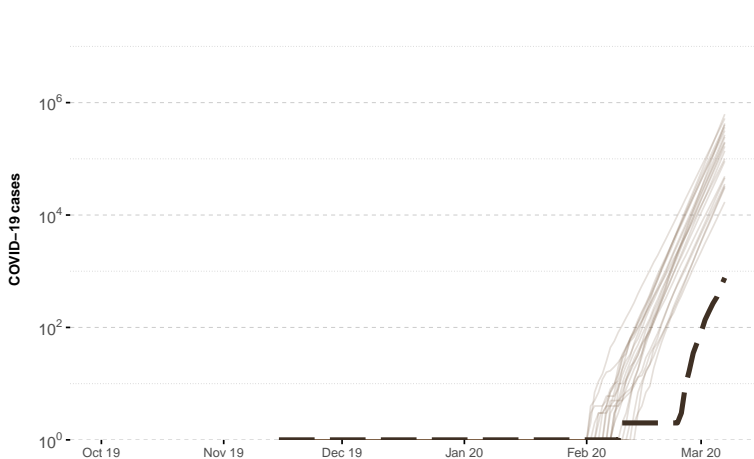
<i>lmean</i>	42724.25
<i>lmedian</i>	31751
<i>llow</i>	18959.78
<i>lhigh</i>	105428.9
<i>value</i>	4000
<i>cumvalue</i>	27980
<i>pop</i>	60461.83
<i>ECDCCas100</i>	46.28
<i>fc</i>	0.88
<i>lfc</i>	0.27
<i>hfc</i>	1.48
<i>rc</i>	1.13
<i>lrc</i>	0.68
<i>hrc</i>	3.77
<i>mcas100</i>	52.51

Inferred case counts - OtherEuropean



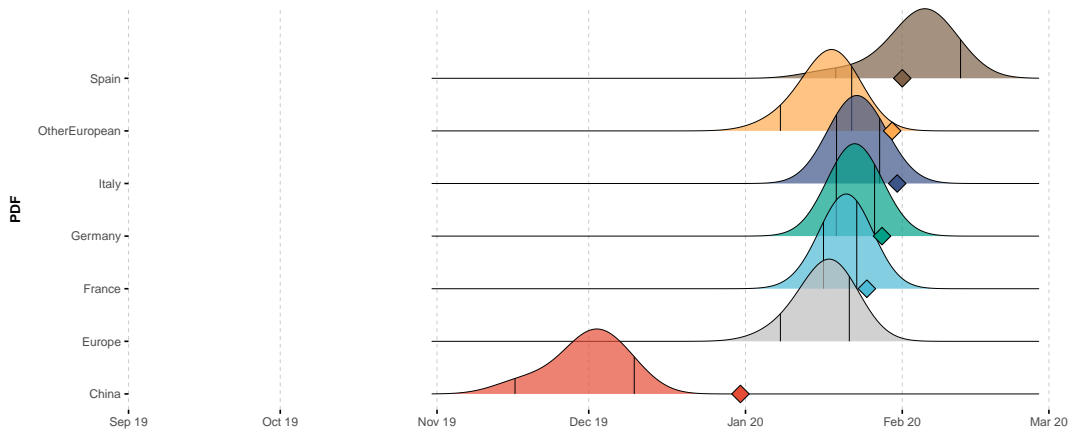
<i>lmean</i>	79841.9
<i>lmedian</i>	45055.5
<i>llow</i>	15218.4
<i>lhigh</i>	243544
<i>value</i>	2110
<i>cumvalue</i>	16685
<i>pop</i>	491362
<i>ECDCcas100</i>	3.4
<i>fc</i>	0.37
<i>lfc</i>	0.07
<i>hfc</i>	1.1
<i>rc</i>	2.7
<i>lrc</i>	0.91
<i>hrc</i>	14.6
<i>mcas100</i>	9.17

Inferred case counts - Spain



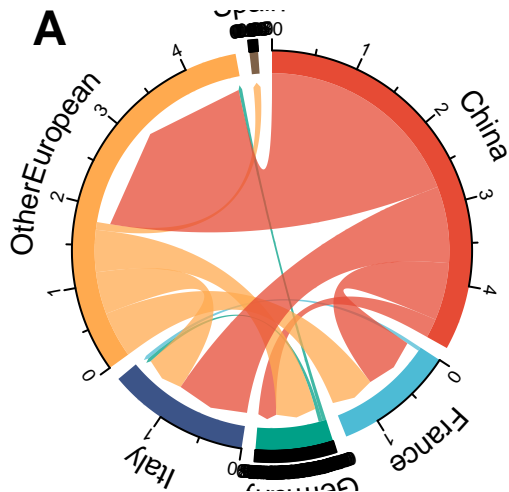
<i>lmean</i>	167278.6
<i>lmedian</i>	141628
<i>llow</i>	18429.68
<i>lhigh</i>	450935.7
<i>value</i>	2503
<i>cumvalue</i>	13994
<i>pop</i>	46754.78
<i>ECDCCas100</i>	29.93
<i>fc</i>	0.1
<i>lfc</i>	0.03
<i>hfc</i>	0.76
<i>rc</i>	10.12
<i>lrc</i>	1.32
<i>hrc</i>	32.22
<i>mcas100</i>	302.92

First introduction



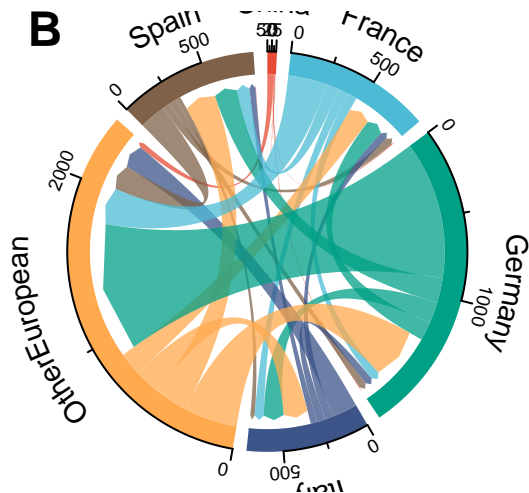
Migrations - Period 1

NULL



Migrations - Period 2

NULL



Migrations - Period 3

NULL

