Bulletin GPoM-epidemiologic no 5 Coronavirus Covid-19 epidemic (2019-2020)

15 Mars 2020

Methodology

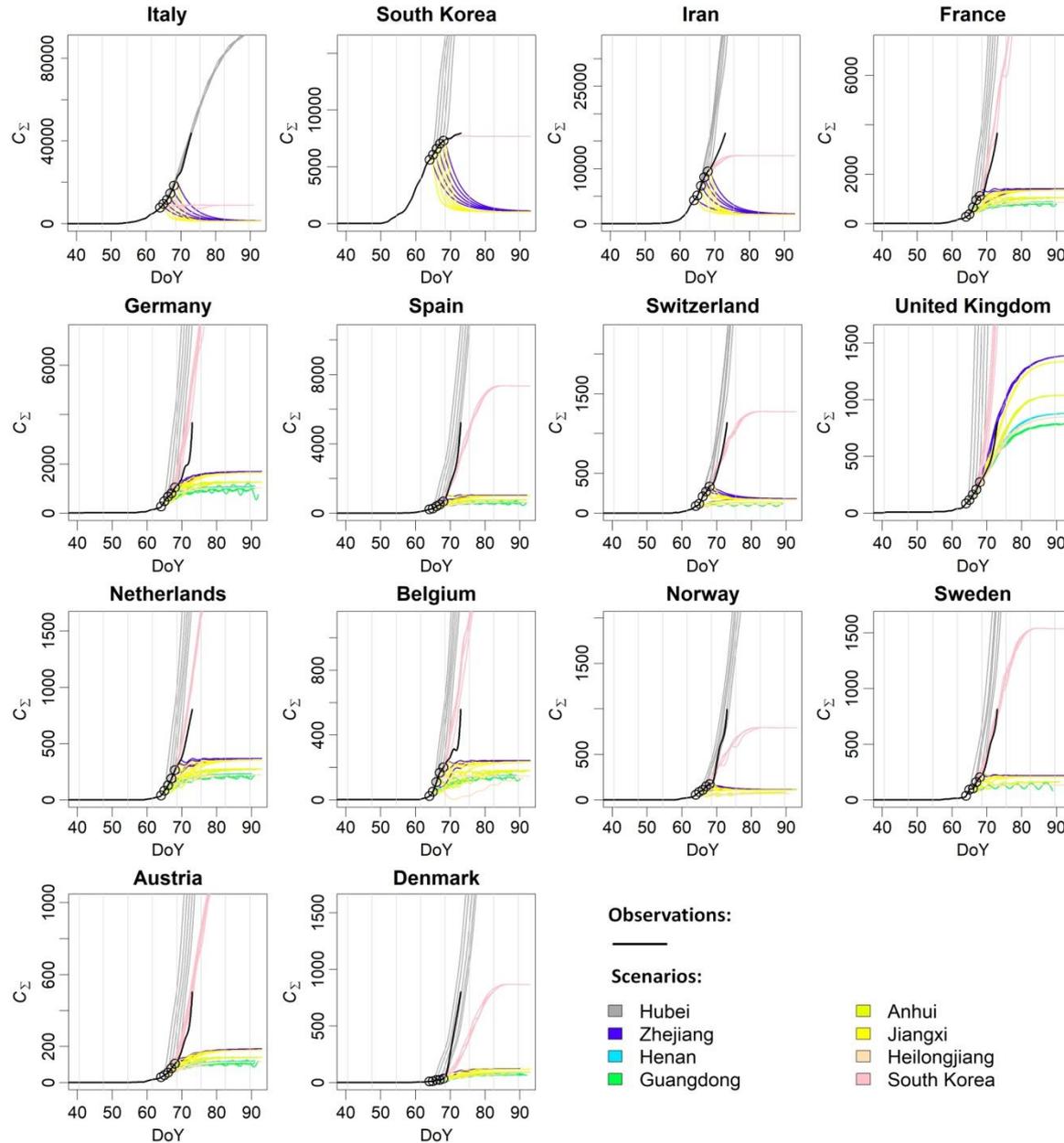- **Models** of canonical form (GPoM tools) were **obtained for the outbreaks of Covid-19** at **ten locations**: eight Chinese provinces (**Hubei**, **Zhejiang**, **Henan**, **Hunan**, **Gouangdong**, **Anhui**, **Jiangxi** and **Heilongjiang**), **South Korea** and **Japan**

- **These models** have been **applied to the starting outbreaks in fourteen countries**, mostly in Europe

- The objective is to identify **what scenarios are the more consistent** when **considering the recent evolutions** of these outbreaks

Analysis

- For each country, the **ten models are run** (several initial conditions are used to test the robustness)

- Diverging models are directly rejected as inconsistent

- Other models are plotted. **Scenarios of inconsistent behavior** are **rejected** (example: a decreasing cumulative number of case proves that the scenario must be rejected)

- Among the remaining **consistent scenarios**, the ones showing the **best fit with the recent observations** are considered as curently **more realistic**

Note: A correction factor of 2.45 and 1.45 were respectively applied to the Italian and Iranian time series in order to ensure their consistency with the Chinese data set

Scenarios for 14 countries

Results

- The **Hubei scenario** now appears as **most realistic for Italy**. Other analyses (not shown) also suggest that **Italy will** very probably **overpass this scenario** (it is already the case when considering the recent evolution of daily deaths)

- Although with a delay, **Spain**, **Switzerland**, **Norway** and **Denmark** do also follow the **Hubei scenario**

- **Iran** is **in between** Hubei and South Korea scenarios

Results (next)

- **France**, **Germany**, **Netherlands**, **Belgium**, **Sweden** and **Austria** are curently on the **South Korea path**

- Although perhaps more ambiguous (due to a short delay with other countries in Europe), the behavior of **United Kingdom** is very probably **also** on a South Korea scenario

- Considering the previous bulletins, note that these **scenarios** are **quickly evolving**, all **from light** (Japan, HeilongJiang, ... Zhejiang) to **moderate** (South Korea) **to hard scenarios** (Hubei), and **potentially beyond**

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