

European Covid-19 Forecast Hub

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**centre for the
mathematical
modelling of
infectious diseases**

**LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE**



Central goals of Forecast Hub

1. Provide decision-makers and general public with reliable information about where the pandemic is headed in the next month.
2. Gain insight into which modelling approaches do well. (Secondarily, hold models "accountable".)
3. Assess the reliability of forecasts for different measures of disease severity.
4. Create a community of infectious disease modelers underpinned by an open-science ethos.

Model coordination for outbreaks

- Ensemble forecasting is established as the gold-standard in many fields: weather, economics, etc...
- There have been numerous government-coordinated outbreak forecasting efforts (flu, Ebola, chikungunya, Zika, dengue, etc...).
- One consistent finding across all efforts:

Combining models into an "ensemble" provides more consistent forecasts than any single model.

Flu: Reich et al. 2019, *PLoS Comp Bio*. <https://doi.org/10.1371/journal.pcbi.1007486>

Flu: McGowan et al. 2019, *Sci Rep*. <https://doi.org/10.1038/s41598-018-36361-9>

Dengue: Johansson et al. 2019, *PNAS*.

Ebola: Viboud et al. 2018, *Epidemics*.

Outline of European forecast hub

- 32 countries (EU + EFTA + UK)
- Initial targets: **cases** and **deaths** at the national level
- Expecting forecasts with **uncertainty**: 23 quantiles
0.01, 0.025, 0.05, 0.10, ..., 0.90, 0.95, 0.975, 0.99
- Weekly submission (deadline: **Monday night**), 1-4 week forecast targets
- Teams can submit for just **one** or a **subset** of countries, or **all**
- Truth data: **JHU**: (<https://github.com/CSSEGISandData/COVID-19>)
- **No restrictions** on models, can use **any data**
- **First** submission deadline: **8 March, 24:00 CET**

Technical details (1)

- Submission is via **github**:
www.covid19forecasthub.eu -> Community -> Submission instructions
- Submission via files in **csv format** with **filename** in a specific format and **specific columns**
- Every team must submit a **Metadata** file (see instructions) containing details about the team, model, etc. This only has to be done **once** (or if anything changes).
- Submission via GitHub Pull Requests: this triggers **automated checks** of the format of both Metadata and csv files.
- If there are any problems reported by the check, adapt and **try again**. If you're lost, **contact us**.

Technical details (2)

- Forecasts can be submitted **at any time** (but you might want to submit on Mondays to use the latest data)
- For the visualisations, evaluations etc., a weekly snapshot is taken **every Monday 24:00 CET** (the “submission deadline”)
- Grace period: if a submission has been **attempted** by the deadline (i.e. a pull request made), it can be **updated** until 1200 CET on the Tuesday

Please join!

(and bear with us with any technical issues)

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<https://covid19forecasthub.eu>