

Predicciones sobre CoViD-19

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DEPARTAMENTO DE ESTATÍSTICA,
ANÁLISE MATEMÁTICA E OPTIMIZACIÓN



- Predicciones

- Predicciones

Datos

Número de datos funcionales: 1720

Países/Regiones distintos incorporados: 58

Predicciones:

► España

► Andalucía

► Aragón

► Asturias

► **Baleares**

► **Canarias**

► Cantabria

► Catalunya

► **Castilla-La Mancha**

► **Castilla y León**

► C. Valenciana

► Extremadura

► Euskadi

► **Galicia**

▶ Madrid

► Murcia

► Navarra

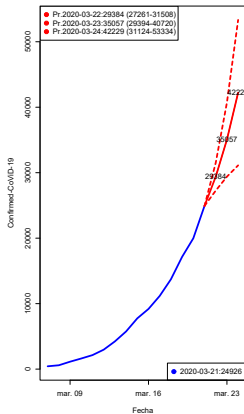
► La Rioja

Horiz	Medida	FLM	NP	SAM
H1	σ_R^2	0.111	0.091	0.104
H1	$\sigma_R^2(rob.)$	0.056	0.021	0.059
H1	r^2	0.141	0.453	0.195
H2	σ_R^2	0.527	0.457	0.489
H2	$\sigma_R^2(rob.)$	0.214	0.089	0.242
H2	r^2	0.16	0.434	0.218
H3	σ_R^2	2.268	2.228	2.165
H3	$\sigma_R^2(rob.)$	0.595	0.237	0.639
H3	r^2	0.121	0.329	0.158

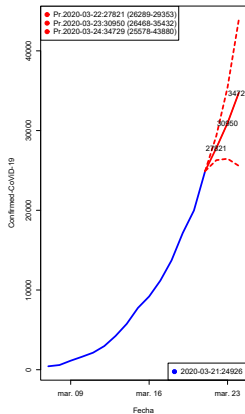
Nota. Los valores del r^2 son bajos pero en la muestra hay mucha heterocedasticidad y datos extraños de manera que no se dan las condiciones para estimar bien esta cantidad.

Confirmed cases: España

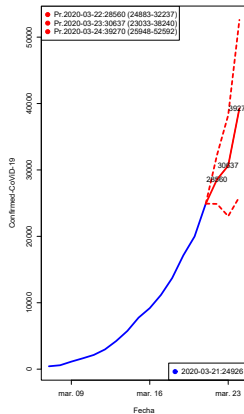
Confirmed cases:España-FLM



Confirmed cases:España-NP



Confirmed cases:España-SAM

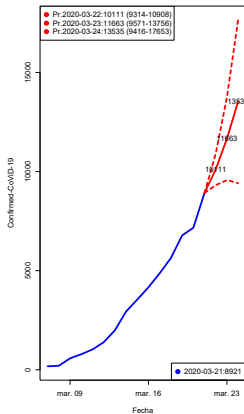


◀ Confirmados

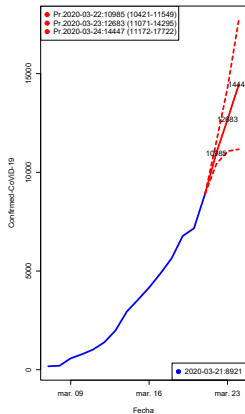
◀ Fallecidos

Confirmed cases: Madrid

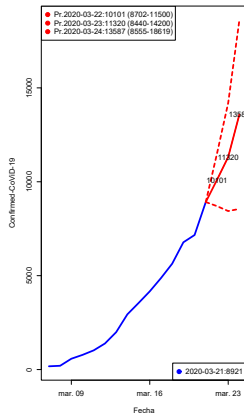
Confirmed cases:Madrid-FLM



Confirmed cases:Madrid-NP



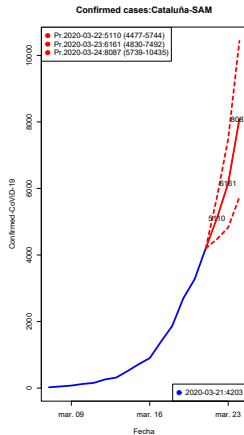
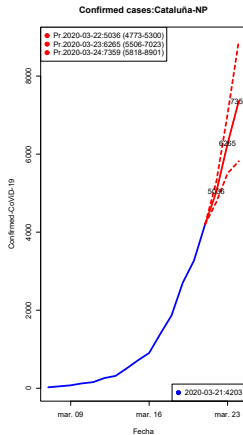
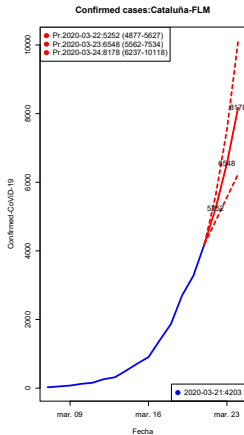
Confirmed cases:Madrid-SAM



◀ Confirmados

◀ Fallecidos

Confirmed cases: Cataluña

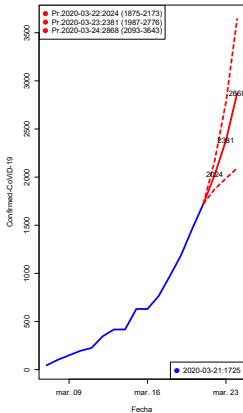


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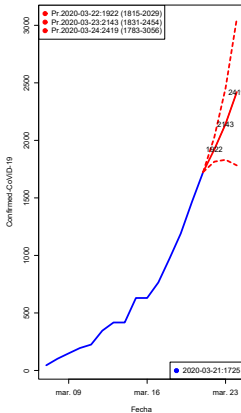
◀ Fallecidos

Confirmed cases: Euskadi

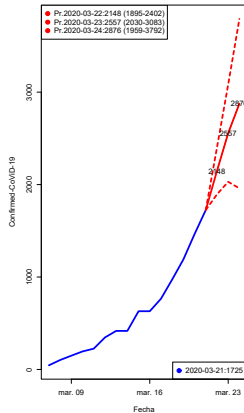
Confirmed cases:Euskadi-FLM



Confirmed cases:Euskadi-NP



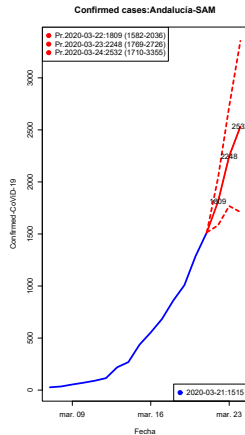
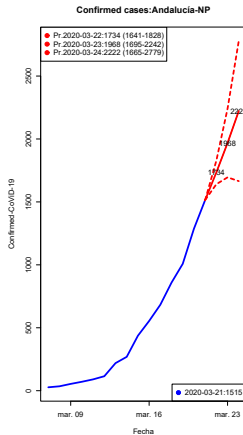
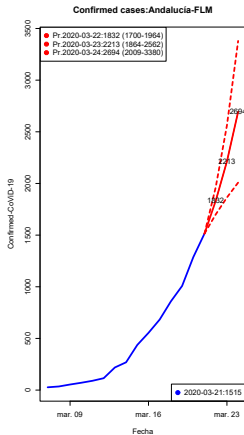
Confirmed cases:Euskadi-SAM



◀ Confirmados

◀ Fallecidos

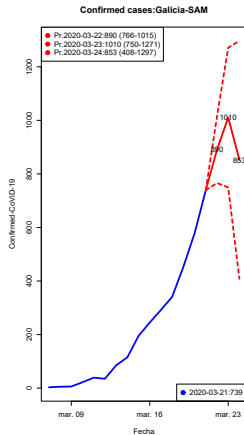
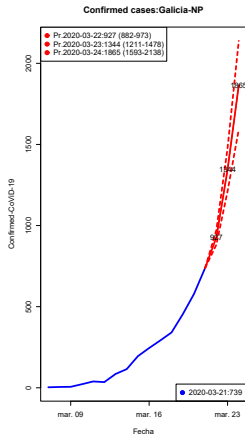
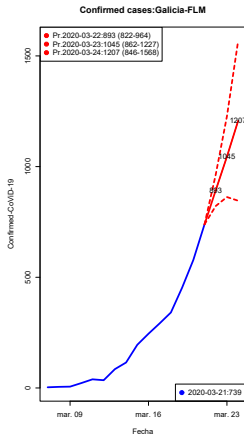
Confirmed cases: Andalucía



◀ Confirmados

◀ Fallecidos

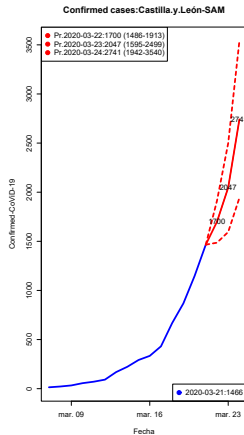
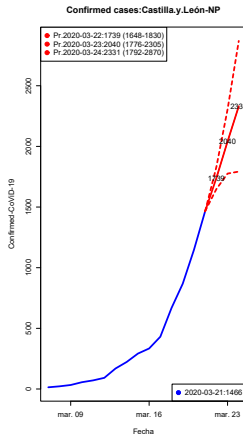
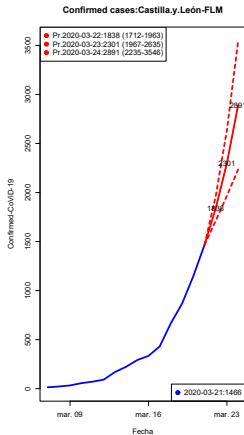
Confirmed cases: Galicia



◀ Confirmados

◀ Fallecidos

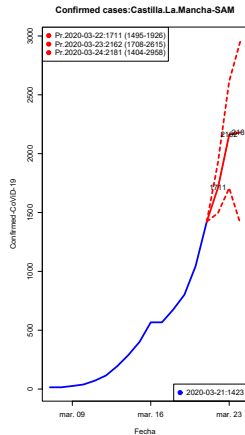
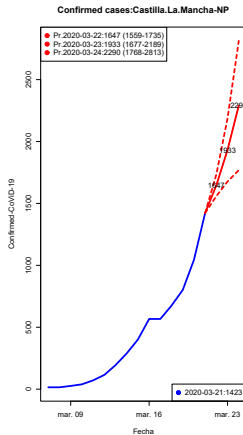
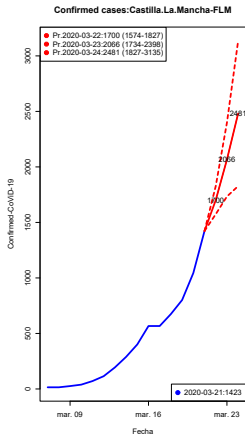
Confirmed cases: Castilla y León



◀ Confirmados

◀ Fallecidos

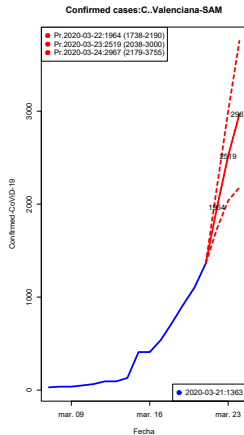
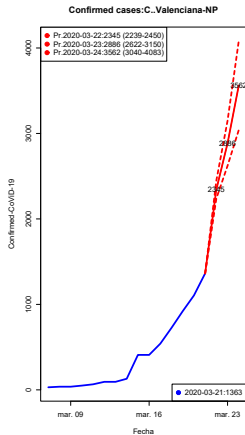
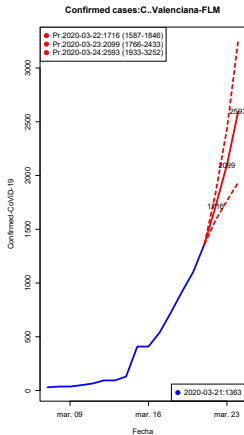
Confirmed cases: Castilla-La Mancha



◀ Confirmados

◀ Fallecidos

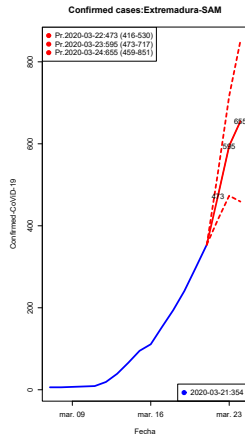
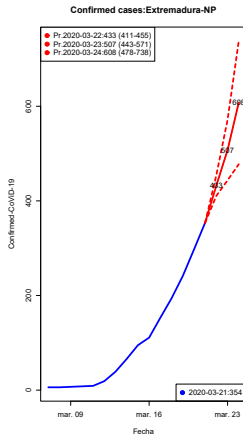
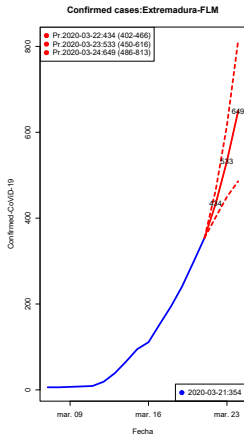
Confirmed cases: C. Valenciana



◀ Confirmados

◀ Fallecidos

Confirmed cases: Extremadura

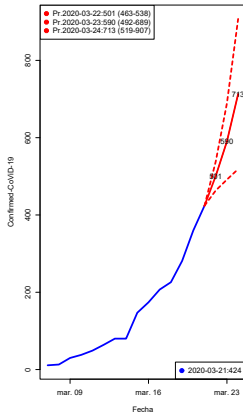


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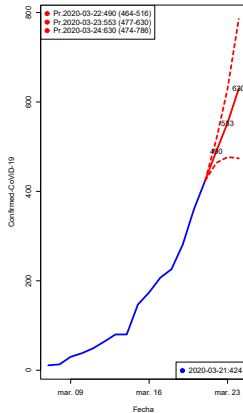
◀ Fallecidos

Confirmed cases: Aragón

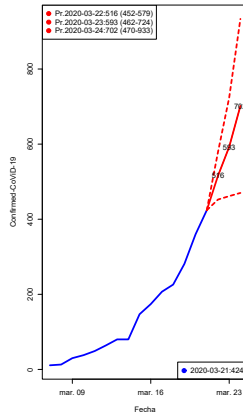
Confirmed cases:Aragón-FLM



Confirmed cases:Aragón-NP



Confirmed cases:Aragón-SAM

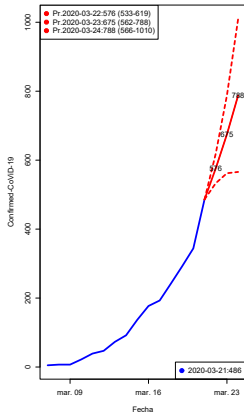


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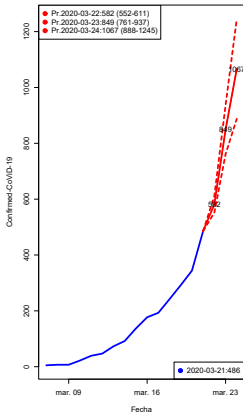
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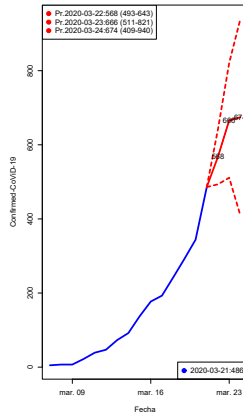
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Confirmed cases:Asturias-NP



Confirmed cases:Asturias-SAM

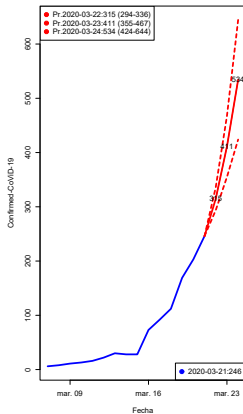


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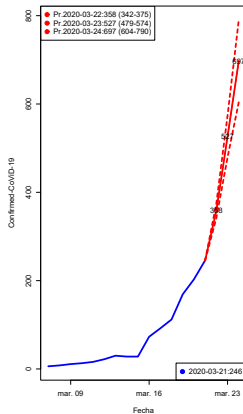
◀ Fallecidos

Confirmed cases: Baleares

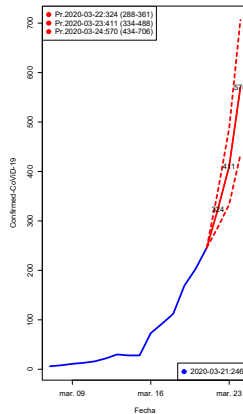
Confirmed cases:Baleares-FLM



Confirmed cases:Baleares-NP



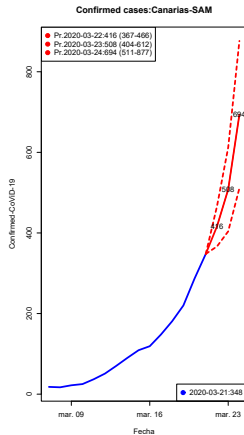
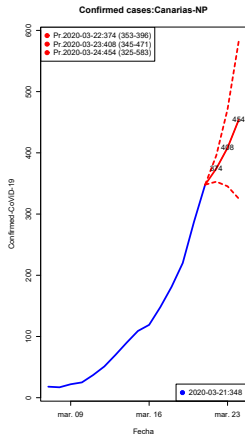
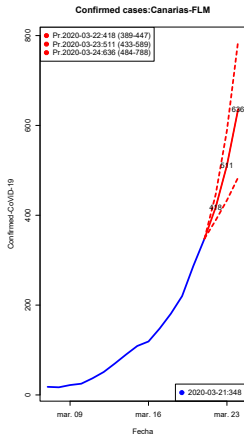
Confirmed cases:Baleares-SAM



◀ Confirmados

◀ Fallecidos

Confirmed cases: Canarias

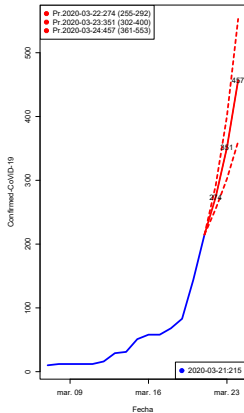


◀ Confirmados

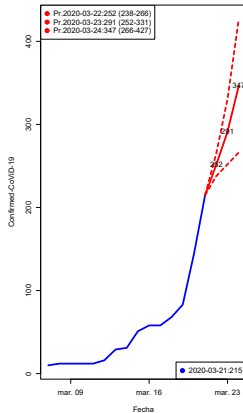
◀ Fallecidos

Confirmed cases: Cantabria

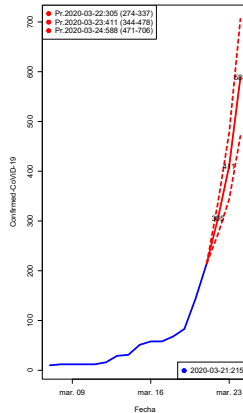
Confirmed cases:Cantabria-FLM



Confirmed cases:Cantabria-NP



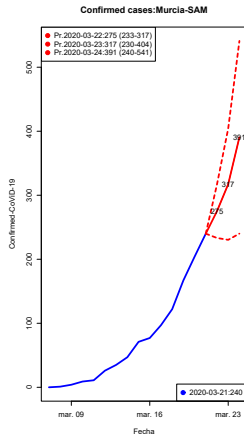
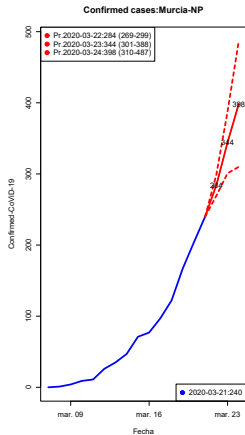
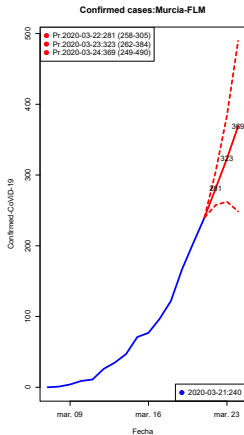
Confirmed cases:Cantabria-SAM



◀ Confirmados

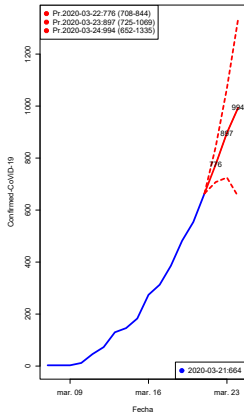
◀ Fallecidos

Confirmed cases: Murcia

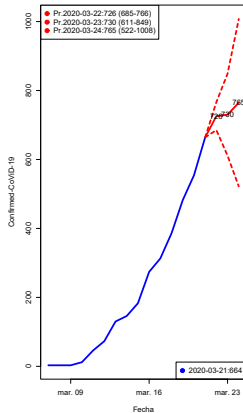

[◀ Confirmados](#)
[◀ Fallecidos](#)

Confirmed cases: Navarra

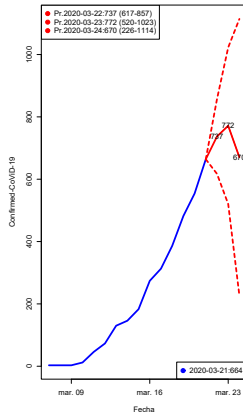
Confirmed cases:Navarra-FLM



Confirmed cases:Navarra-NP



Confirmed cases:Navarra-SAM

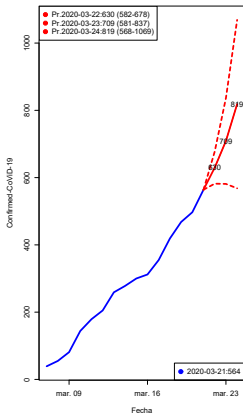


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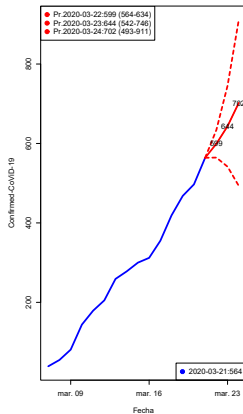
◀ Fallecidos

Confirmed cases: La Rioja

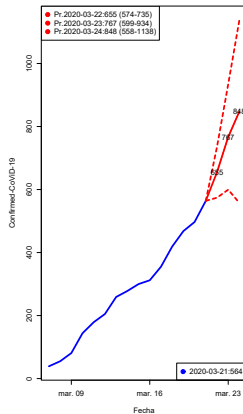
Confirmed cases:La.Rioja-FLM



Confirmed cases:La.Rioja-NP



Confirmed cases:La.Rioja-SAM



◀ Confirmados

◀ Fallecidos

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1 Casos Confirmados

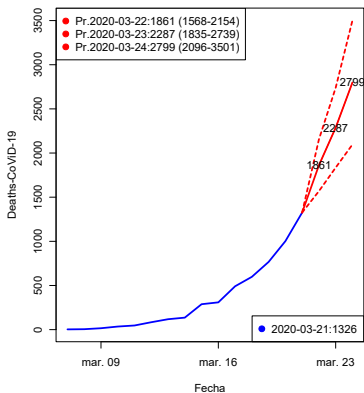
- Predicciones

2 Fallecidos

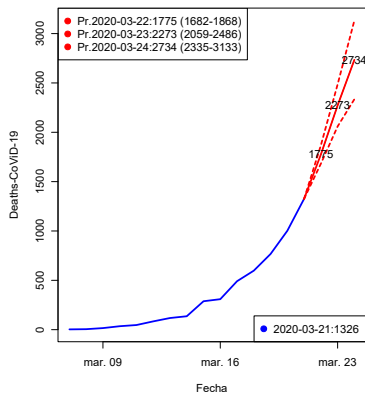
- Predicciones

Fallecidos: España

Deaths cases:España-FLM



Deaths cases:España-NP

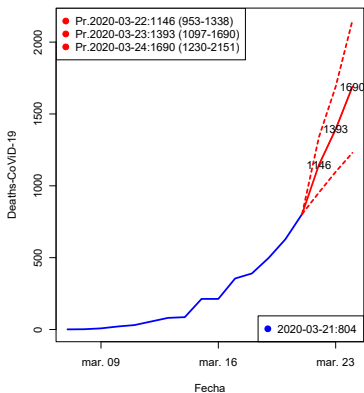


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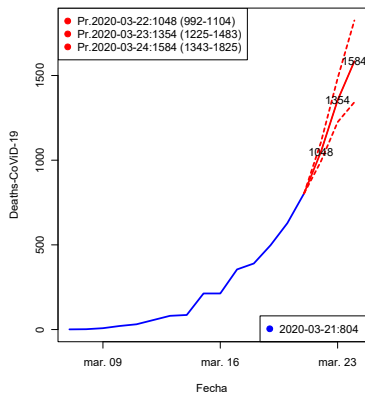
[◀ Fallecidos](#)

Fallecidos: Madrid

Deaths cases:Madrid-FLM



Deaths cases:Madrid-NP

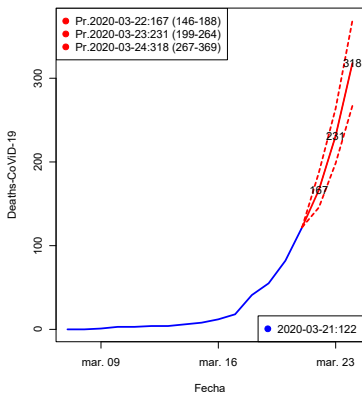


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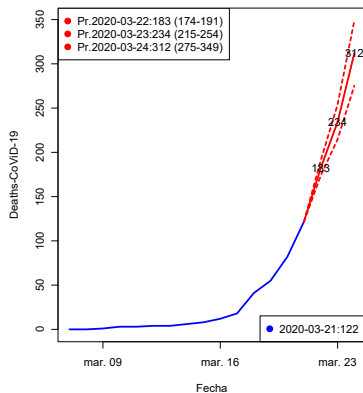
◀ Fallecidos

Fallecidos: Cataluña

Deaths cases:Cataluña-FLM



Deaths cases:Cataluña-NP

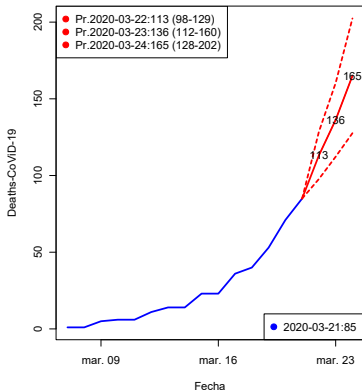


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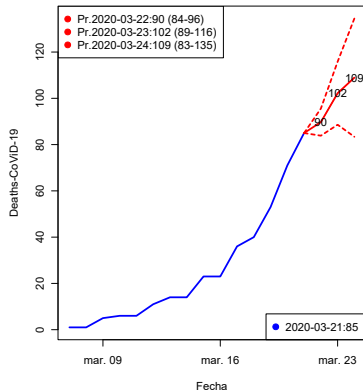
◀ Fallecidos

Fallecidos: Euskadi

Deaths cases:Euskadi-FLM



Deaths cases:Euskadi-NP

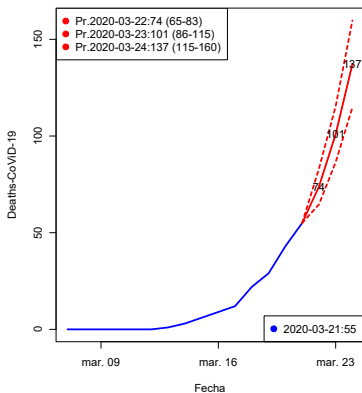


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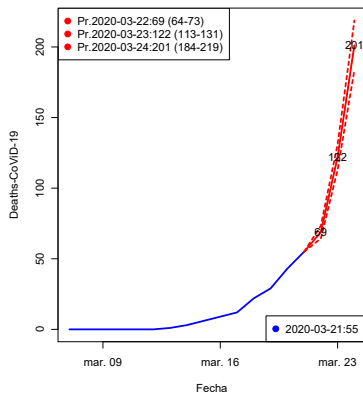
◀ Fallecidos

Fallecidos: Castilla y León

Deaths cases:Castilla.y.León-FLM



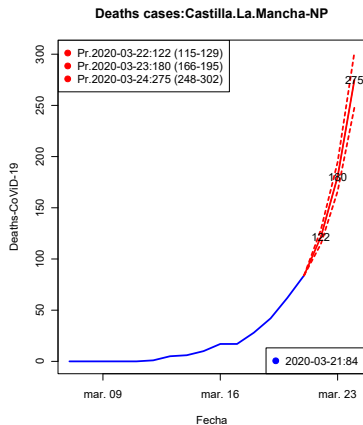
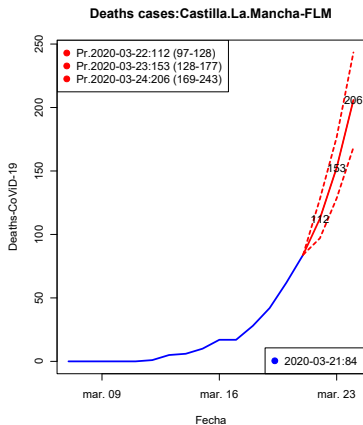
Deaths cases:Castilla.y.León-NP



◀ Confirmados

◀ Fallecidos

Fallecidos: Castilla-La Mancha



◀ Fallecidos

Breve descripción del Modelo de predicción

Objetivo: Predecir ratio de incremento a 1, 2, o 3 días: $r^{(k)}(t) = \frac{x_{t+k} - x_t}{x_t + 1}$

Información usada: Pasado de esta variable a un retardo durante los últimos 15 días: $R^{(1)} = \{r^{(1)}(-14), \dots, r^{(1)}(0)\}$.

Datos para alimentar el modelo:

https://github.com/CSSEGISandData/COVID-19/tree/master/csse_covid_19_data/csse_covid_19_time_series/. Algunas series de tiempo (como el Cruise Ship) son filtrados por inconsistencia, presunta falta de veracidad o por valores bajos. En la predicción final se reconstruye el número de casos esperado.

Se construyen tres modelos funcionales de la regresión general: $r^{(k)}(0) = f(R^{(1)}) + \epsilon$ donde la diferencia radica en la forma de la función f

- Lineal: $f(R^{(1)}) = \int_{-14}^0 R^{(1)}(t) \beta(t) dt$
- NP: f es una estimación no paramétrica tipo núcleo.
- SAM: f es una combinación aditiva de funciones suaves de las componentes principales.