

Predicciones sobre CoViD-19

Manuel Febrero-Bande

Dpt. de Estadística, Análisis Matemático y Optimización
Univ. de Santiago de Compostela

3 de marzo de 2021



DEPARTAMENTO DE ESTATÍSTICA,
ANÁLISE MATEMÁTICA E OPTIMIZACIÓN



- Predicciones

- Predicciones Fallecidos

3 Panorama internacional

Datos

Aplicación Shiny disponible en

<http://modestya.usc.es:3838/covid19prediction/>

Último dato Confirmados CCAA: 01/03/2021

Fuente: https://cnecovid.isciii.es/covid19/resources/casos_tecnica_ccaa.csv

Predicciones:

▶ España

► Andalucía

► Aragón

► Asturias

▶ I. Balears

▶ Canarias

▶ Cantabria

► **Cataluña**

► **Castilla-La Mancha**

► **Castilla y León**

► C. Valenciana

▶ Extremadura

▶ País Vasco

▶ Galicia

▶ Madrid

► Murcia

▶ Navarra

► **La Rioja**

► Mod Lineal

▶ Mod NF

► **Mod Aditivo**

	$10^2 \sigma_R^2$			$10^2 \sigma_R^2 (rob.)$			r^2		
Horiz	FLM	NP	SAM	FLM	NP	SAM	FLM	NP	SAM
H1	0.008	0.005	0.007	0.006	0.003	0.006	0.685	0.829	0.697
H2	0.032	0.011	0.03	0.017	0.009	0.018	0.69	0.901	0.709
H3	0.047	0.021	0.045	0.035	0.018	0	0.777	0.91	0.789
H4	0.068	0.034	0.064	0.058	0.03	0.056	0.815	0.917	0.824
H5	0.108	0.06	0.103	0.087	0.044	0.086	0.817	0.908	0.825

Último dato fichero: 01/03/2021.

Tabla Previsión Confirmados: Mod. Aditivo.

Last=01/03/2021

	Last	IA14	IA7	H1	H2	H3	H4	H5
España	3130194	135	47	3134250	3138762	3142231	3144429	3147429
Andalucía	479885	127	46	480614	481211	481806	482199	482624
Aragón	106972	160	59	107115	107279	107404	107490	107603
Asturias	43717	151	54	43811	43926	44006	44054	44104
Canarias	40982	88	36	41114	41258	41373	41461	41555
Cantabria	24741	95	32	24773	24813	24840	24857	24880
Castilla.y.León	206514	136	48	206742	206954	207144	207268	207438
Castilla.La.Mancha	169355	80	28	169480	169575	169672	169727	169812
Cataluña	503252	172	59	504070	505221	505941	506368	506910
Ceuta	4678	272	165	4697	4710	4727	4748	4770
Comunidad.Valenciana	379508	76	23	379765	379882	380055	380118	380256
Extremadura	69026	44	17	69064	69079	69108	69127	69159
Galicia	112163	104	35	112328	112498	112638	112722	112828
Islas.Baleares	56198	54	17	56237	56274	56306	56324	56357
La.Rioja	27484	55	22	27499	27504	27515	27523	27536
Madrid	588854	211	73	589712	590771	591521	592018	592719
Melilla	7016	309	108	7032	7050	7064	7073	7086
Murcia	106526	76	24	106602	106680	106743	106778	106839
Navarra	51445	111	45	51501	51566	51620	51662	51715
País.Vasco	151878	183	68	152138	152458	152688	152848	153048

Cuadro: Previsión Confirmados: Mod. Aditivo - Horizonte 1 – 5 días.

Tabla Ratio Incr. Confirmados: Mod. Lineal.

Last=01/03/2021

	Last	H1	H2	H3	H4	H5
España	0.0010	0.0015	0.0029	0.0041	0.0052	0.0060
Andalucía	0.0012	0.0018	0.0034	0.0047	0.0059	0.0068
Aragón	0.0011	0.0016	0.0030	0.0042	0.0054	0.0063
Asturias	0.0018	0.0020	0.0038	0.0055	0.0070	0.0080
Canarias	0.0027	0.0029	0.0058	0.0084	0.0110	0.0132
Cantabria	0.0011	0.0014	0.0026	0.0037	0.0049	0.0056
Castilla.y.León	0.0008	0.0014	0.0026	0.0036	0.0046	0.0054
Castilla.La.Mancha	0.0005	0.0011	0.0020	0.0028	0.0035	0.0040
Cataluña	0.0013	0.0017	0.0033	0.0047	0.0059	0.0068
Ceuta	0.0042	0.0049	0.0097	0.0144	0.0196	0.0253
Comunidad.Valenciana	0.0004	0.0010	0.0018	0.0024	0.0031	0.0034
Extremadura	0.0004	0.0009	0.0017	0.0023	0.0030	0.0035
Galicia	0.0012	0.0016	0.0030	0.0041	0.0053	0.0061
Islas.Baleares	0.0005	0.0011	0.0020	0.0027	0.0035	0.0040
La.Rioja	0.0004	0.0009	0.0017	0.0023	0.0030	0.0035
Madrid	0.0013	0.0017	0.0032	0.0045	0.0058	0.0068
Melilla	0.0021	0.0022	0.0041	0.0058	0.0077	0.0093
Murcia	0.0005	0.0011	0.0020	0.0026	0.0034	0.0038
Navarra	0.0008	0.0014	0.0026	0.0037	0.0048	0.0057
País.Vasco	0.0014	0.0019	0.0036	0.0051	0.0066	0.0077

Cuadro: Previsión Ratio Incr. Confirmados: Mod. lineal - Horizonte 1 – 5 días.

Tabla Ratio Incr. Confirmados: Mod. No Paramétrico.

Last=01/03/2021

	Last	H1	H2	H3	H4	H5
España	0.0010	0.0021	0.0043	0.0063	0.0084	0.0105
Andalucía	0.0012	0.0024	0.0049	0.0072	0.0095	0.0119
Aragón	0.0011	0.0020	0.0041	0.0060	0.0080	0.0100
Asturias	0.0018	0.0031	0.0063	0.0094	0.0124	0.0155
Canarias	0.0027	0.0037	0.0073	0.0110	0.0145	0.0181
Cantabria	0.0011	0.0023	0.0047	0.0069	0.0091	0.0114
Castilla.y.León	0.0008	0.0017	0.0036	0.0053	0.0070	0.0088
Castilla.La.Mancha	0.0005	0.0013	0.0028	0.0041	0.0055	0.0070
Cataluña	0.0013	0.0024	0.0050	0.0074	0.0098	0.0122
Ceuta	0.0042	0.0038	0.0075	0.0114	0.0151	0.0188
Comunidad.Valenciana	0.0004	0.0014	0.0030	0.0045	0.0060	0.0076
Extremadura	0.0004	0.0012	0.0025	0.0037	0.0049	0.0063
Galicia	0.0012	0.0026	0.0052	0.0078	0.0102	0.0128
Islas.Baleares	0.0005	0.0014	0.0030	0.0045	0.0060	0.0076
La.Rioja	0.0004	0.0011	0.0024	0.0036	0.0048	0.0061
Madrid	0.0013	0.0023	0.0048	0.0072	0.0095	0.0118
Melilla	0.0021	0.0032	0.0064	0.0096	0.0127	0.0158
Murcia	0.0005	0.0014	0.0028	0.0042	0.0057	0.0072
Navarra	0.0008	0.0015	0.0031	0.0045	0.0061	0.0077
País.Vasco	0.0014	0.0025	0.0051	0.0076	0.0100	0.0125

Cuadro: Previsión Ratio Incr. Confirmados: Mod. No Paramétrico - Horizonte 1
- 5 días.

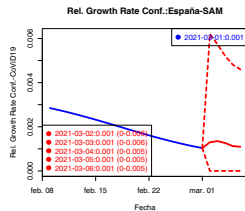
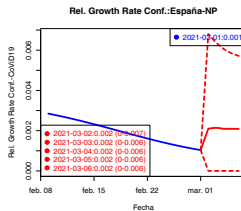
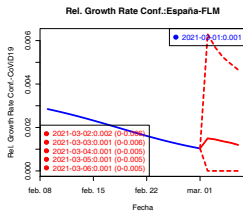
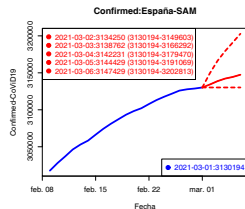
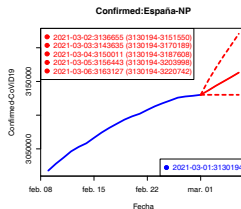
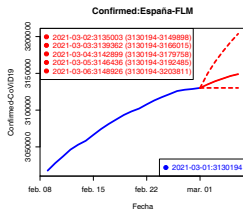
Tabla Ratio Incr. Confirmados: Mod. Aditivo.

Last=01/03/2021

	Last	H1	H2	H3	H4	H5
España	0.0010	0.0013	0.0027	0.0038	0.0045	0.0055
Andalucía	0.0012	0.0015	0.0028	0.0040	0.0048	0.0057
Aragón	0.0011	0.0013	0.0029	0.0040	0.0048	0.0059
Asturias	0.0018	0.0022	0.0048	0.0066	0.0077	0.0088
Canarias	0.0027	0.0032	0.0067	0.0096	0.0117	0.0140
Cantabria	0.0011	0.0013	0.0029	0.0040	0.0047	0.0056
Castilla.y.León	0.0008	0.0011	0.0021	0.0030	0.0037	0.0045
Castilla.La.Mancha	0.0005	0.0007	0.0013	0.0019	0.0022	0.0027
Cataluña	0.0013	0.0016	0.0039	0.0053	0.0062	0.0073
Ceuta	0.0042	0.0041	0.0068	0.0105	0.0150	0.0196
Comunidad.Valenciana	0.0004	0.0007	0.0010	0.0014	0.0016	0.0020
Extremadura	0.0004	0.0006	0.0008	0.0012	0.0015	0.0019
Galicia	0.0012	0.0015	0.0030	0.0042	0.0050	0.0059
Islas.Baleares	0.0005	0.0007	0.0014	0.0019	0.0022	0.0028
La.Rioja	0.0004	0.0005	0.0007	0.0011	0.0014	0.0019
Madrid	0.0013	0.0015	0.0033	0.0045	0.0054	0.0066
Melilla	0.0021	0.0022	0.0048	0.0068	0.0082	0.0099
Murcia	0.0005	0.0007	0.0014	0.0020	0.0024	0.0029
Navarra	0.0008	0.0011	0.0024	0.0034	0.0042	0.0052
País.Vasco	0.0014	0.0017	0.0038	0.0053	0.0064	0.0077

Cuadro: Previsión Ratio Incr. Confirmados: Mod. Aditivo - Horizonte 1 – 5 días.

Confirmados: España



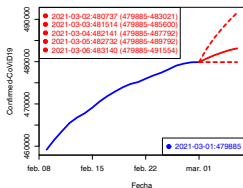
Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

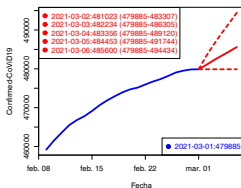
◀ Fallecidos

Confirmados: Andalucía

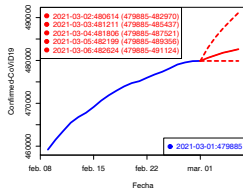
Confirmed:Andalucía-FLM



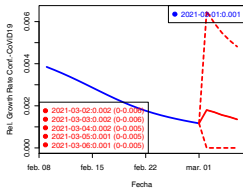
Confirmed:Andalucía-NP



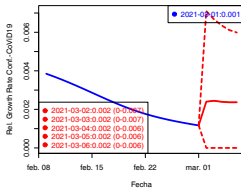
Confirmed:Andalucía-SAM



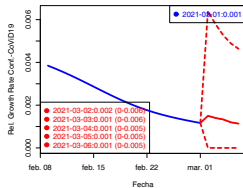
Rel. Growth Rate Conf.:Andalucía-FLM



Rel. Growth Rate Conf.:Andalucía-NP



Rel. Growth Rate Conf.:Andalucía-SAM

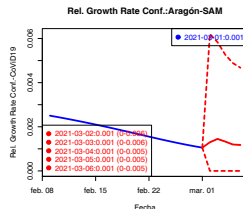
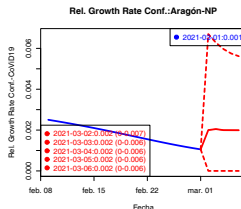
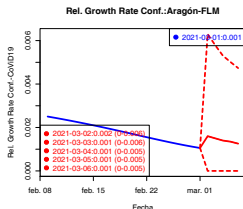
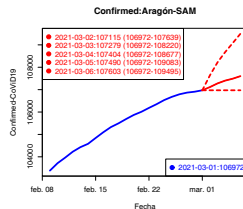
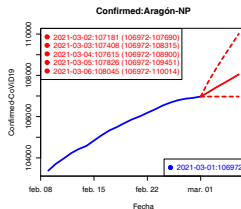
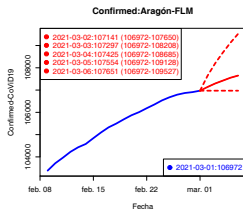


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Aragón

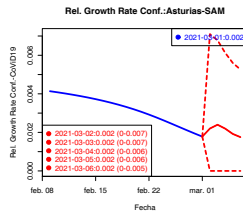
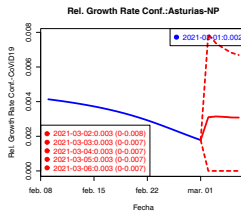
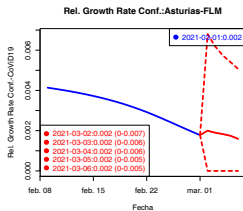
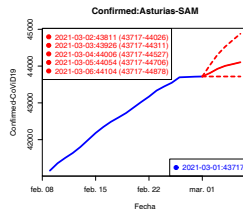
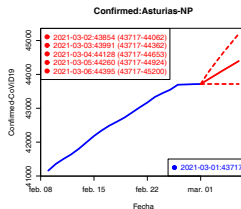
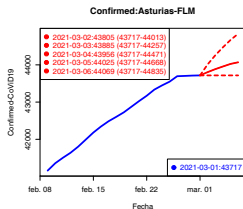


Los valores del Ratio de incremento de H2—H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Asturias

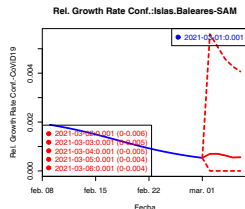
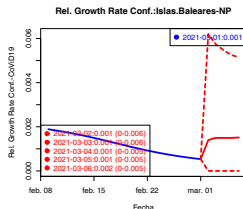
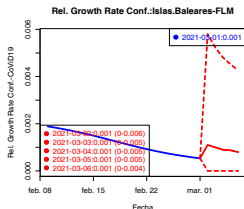
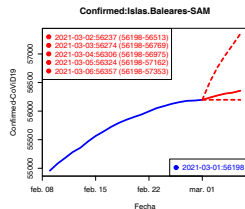
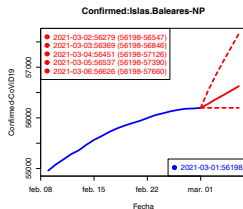
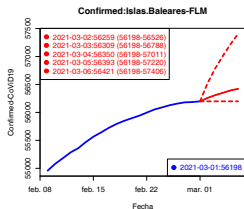


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Islas Baleares

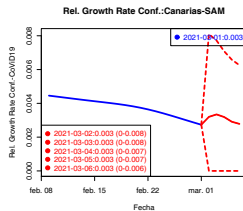
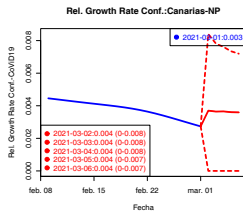
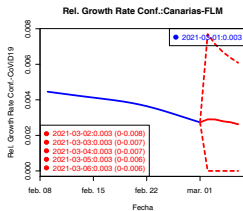
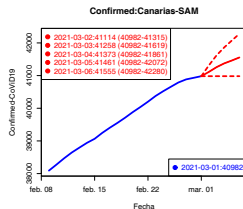
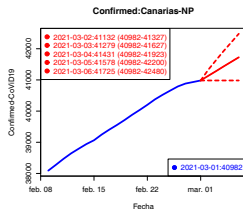
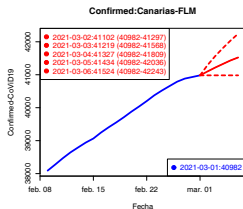


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Canarias

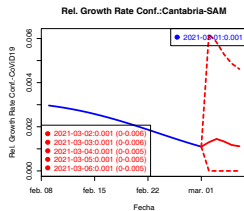
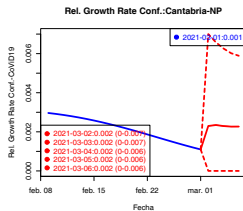
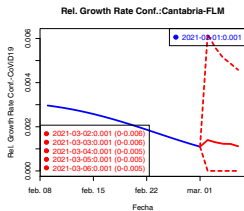
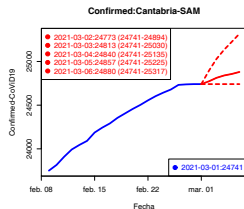
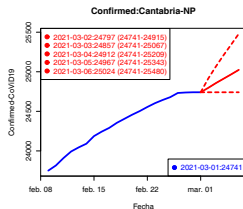
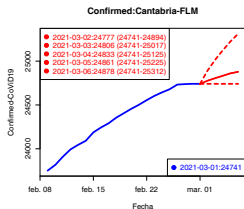


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Cantabria

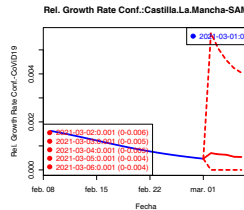
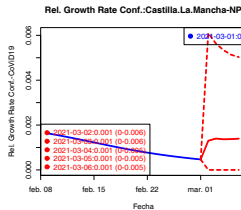
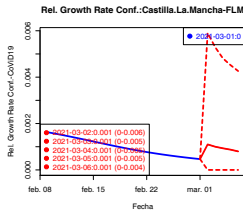
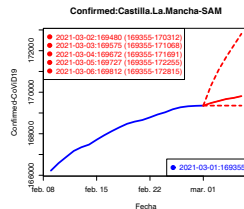
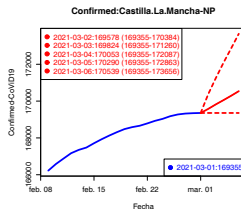
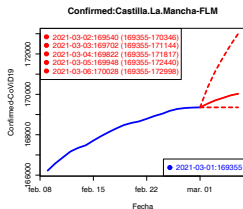


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Castilla-La Mancha

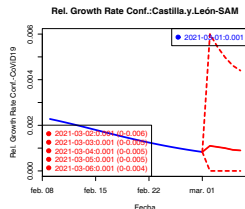
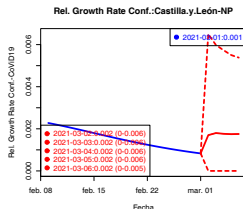
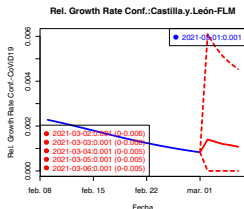
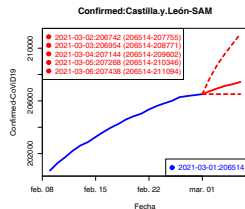
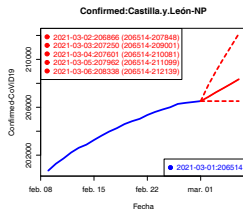
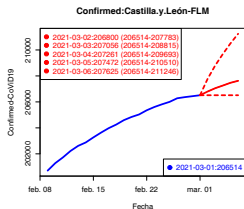


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Castilla y León

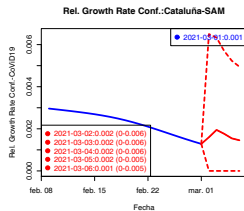
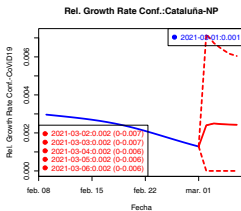
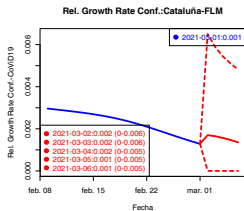
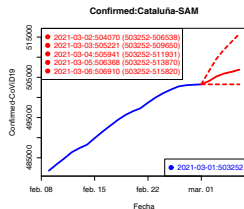
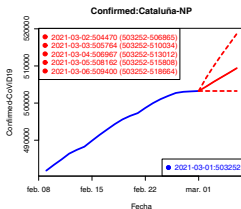
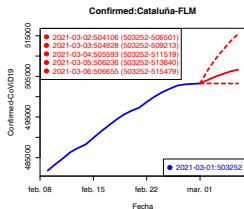


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Cataluña

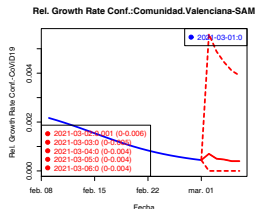
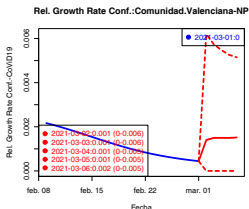
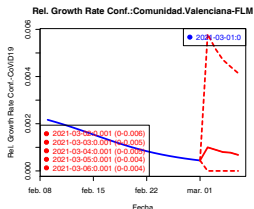
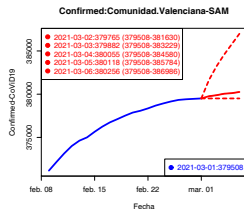
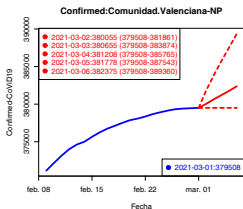
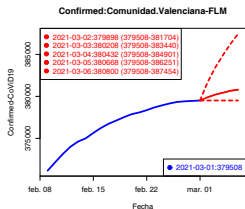


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: C. Valenciana

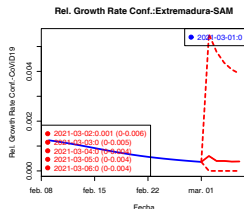
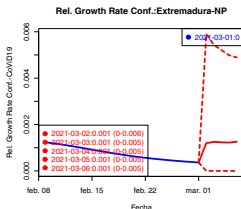
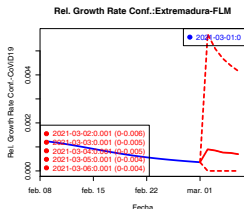
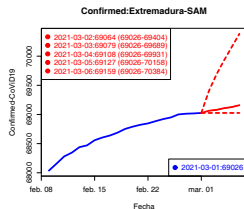
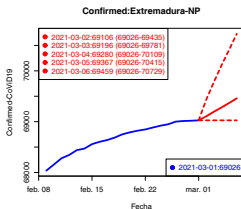
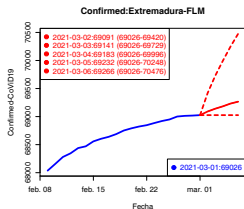


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Extremadura

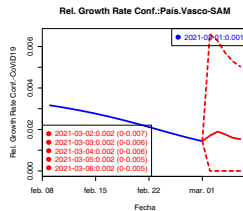
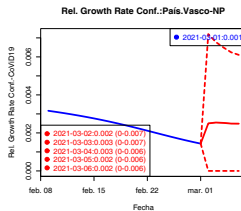
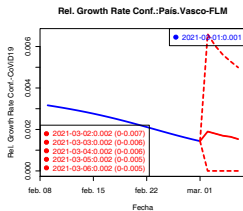
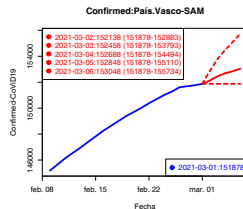
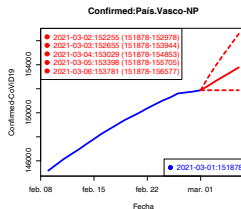
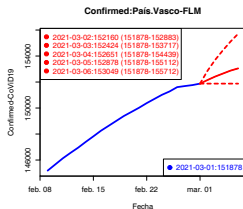


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: País Vasco

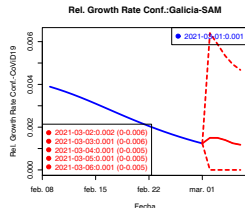
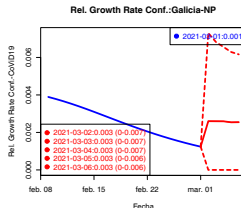
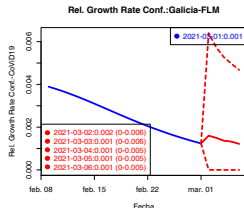
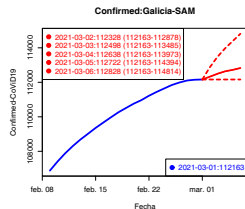
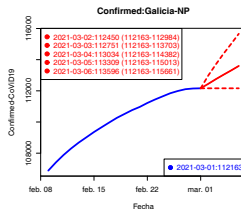
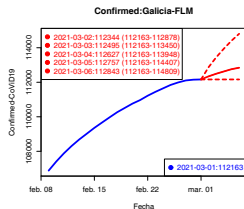


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Galicia

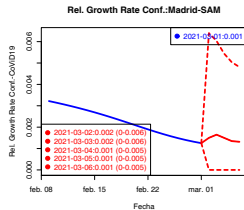
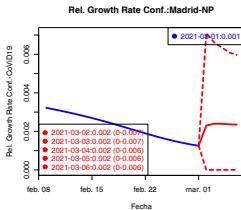
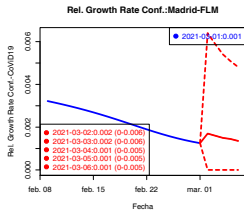
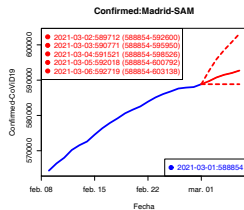
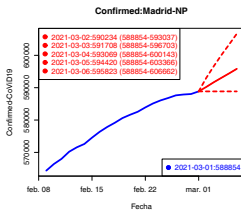
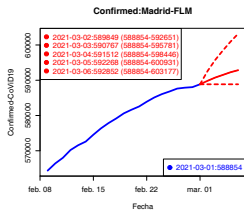


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Madrid

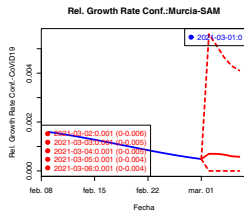
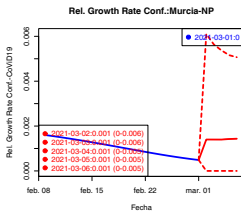
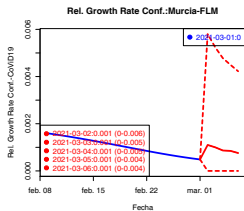
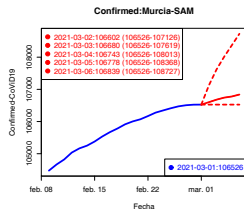
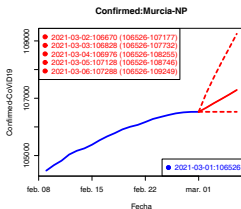
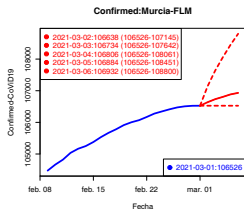


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Murcia

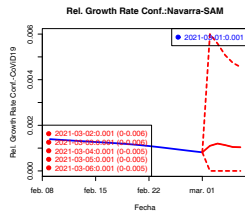
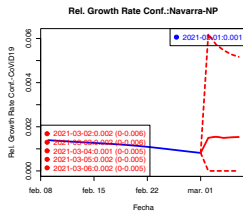
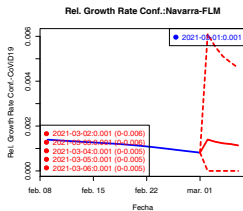
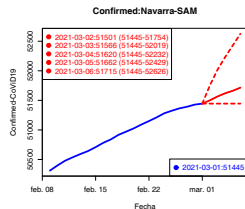
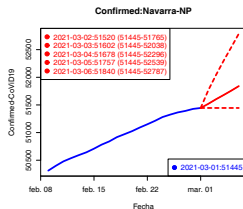
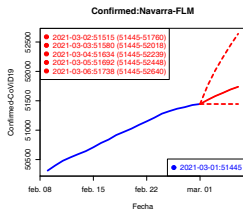


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Navarra

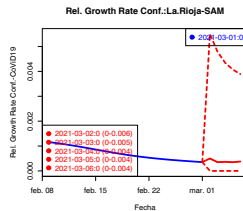
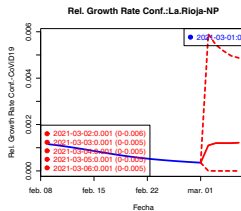
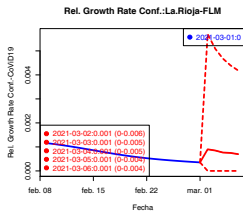
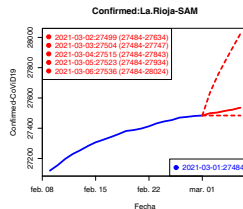
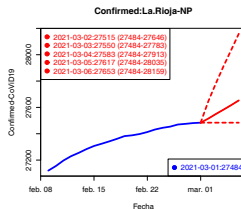
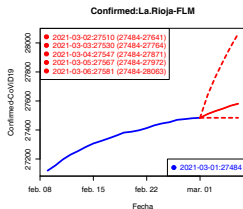


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: La Rioja



Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Table of Contents

- 1 Casos Confirmados
 - Predicciones
- 2 Fallecidos
 - Predicciones Fallecidos
- 3 Panorama internacional

Modelos para fallecidos por CoViD-19

Último dato: 02/03/2021 Fuente: https://cneccovid.isciii.es/covid19/resources/casos_hosp_uci_def_sexo_edad_provres.csv

Predicciones:

▶ España

► Andalucía

► Aragón

► Asturias

► I. Balears

▶ **Canarias**

► **Cantabria**

► **Castilla-La Mancha**

▶ Castilla y León

▶ Cataluña

► C. Valenciana

▶ Extremadura

▶ País Vasco

▶ Galicia

► Madrid

► Murcia

▶ Navarra

► La Rioja

► Mod Lineal

▶ Mod NF

► Mod Aditivo

	$10^2 \sigma_R^2$			$10^2 \sigma_R^2 (rob.)$			r^2		
Horiz	FLM	NP	SAM	FLM	NP	SAM	FLM	NP	SAM
H1	0.003	0.003	0.003	0.002	0.002	0.002	0.662	0.654	0.682
H2	0.01	0.011	0.01	0.005	0.006	0.004	0.713	0.697	0.73
H3	0.031	0.033	0.03	0.009	0.011	0.009	0.649	0.636	0.658
H4	0.034	0.037	0.033	0.014	0.018	0.012	0.749	0.73	0.757
H5	0.045	0.05	0.044	0.019	0.025	0.015	0.786	0.764	0.793

Tabla Previsión Fallecidos: Mod. Lineal.

Last=02/03/2021

	Last	H1	H2	H3	H4	H5
España	69337	69430	69510	69603	69635	69638
Andalucía	8320	8334	8347	8359	8362	8359
Aragón	3258	3263	3269	3275	3279	3282
Asturias	1775	1781	1787	1792	1796	1799
Canarias	591	593	595	598	599	600
Cantabria	511	512	513	513	514	514
Castilla.y.León	6323	6332	6340	6349	6353	6354
Castilla.La.Mancha	5599	5604	5607	5611	5611	5609
Cataluña	10474	10481	10486	10495	10495	10493
Ceuta	82	82	83	83	83	84
Comunidad.Valenciana	6674	6685	6696	6703	6705	6702
Extremadura	1704	1707	1710	1712	1712	1712
Galicia	2229	2236	2243	2249	2254	2258
Islas.Baleares	725	725	725	726	725	725
La.Rioja	726	726	727	727	727	726
Madrid	13979	13991	13999	14017	14021	14021
Melilla	0	0	0	0	0	0
Murcia	1487	1490	1493	1495	1495	1495
Navarra	1099	1100	1100	1101	1101	1101
País.Vasco	3781	3787	3792	3799	3803	3805

Cuadro: Previsión fallecidos: Mod. lineal - Horizonte 1 – 5 días.

Tabla Previsión Fallecidos: Mod. No Paramétrico.

Last=02/03/2021

	Last	H1	H2	H3	H4	H5
España	69337	69523	69702	69915	70100	70307
Andalucía	8320	8352	8383	8419	8450	8481
Aragón	3258	3267	3275	3286	3295	3304
Asturias	1775	1782	1788	1796	1802	1809
Canarias	591	593	596	598	601	603
Cantabria	511	512	513	515	516	517
Castilla.y.León	6323	6338	6353	6371	6386	6404
Castilla.La.Mancha	5599	5612	5623	5638	5651	5666
Cataluña	10474	10491	10507	10530	10547	10571
Ceuta	82	82	83	83	84	84
Comunidad.Valenciana	6674	6699	6724	6753	6778	6803
Extremadura	1704	1709	1713	1718	1723	1728
Galicia	2229	2239	2248	2259	2269	2278
Islas.Baleares	725	727	729	731	733	735
La.Rioja	726	728	730	732	733	736
Madrid	13979	14010	14039	14075	14106	14144
Melilla	0	0	0	0	0	0
Murcia	1487	1493	1499	1507	1513	1519
Navarra	1099	1101	1103	1105	1107	1110
País.Vasco	3781	3791	3801	3812	3822	3834

Cuadro: Previsión fallecidos: Mod. No Paramétrico - Horizonte 1 – 5 días.

Tabla Previsión Fallecidos: Mod. Aditivo.

Last=02/03/2021

	Last	H1	H2	H3	H4	H5
España	69337	69410	69476	69637	69675	69706
Andalucía	8320	8335	8344	8368	8379	8375
Aragón	3258	3263	3269	3278	3283	3288
Asturias	1775	1781	1786	1793	1796	1799
Canarias	591	593	596	599	600	601
Cantabria	511	512	512	513	513	513
Castilla y León	6323	6331	6339	6351	6355	6363
Castilla-La Mancha	5599	5603	5605	5611	5613	5618
Cataluña	10474	10479	10480	10497	10491	10489
Ceuta	82	82	83	83	84	84
Comunidad Valenciana	6674	6687	6696	6707	6718	6723
Extremadura	1704	1706	1709	1709	1710	1713
Galicia	2229	2237	2242	2250	2254	2258
Islas Baleares	725	725	725	726	727	727
La Rioja	726	726	726	727	728	728
Madrid	13979	13987	13992	14031	14034	14031
Melilla	0	0	0	0	0	0
Murcia	1487	1490	1493	1496	1499	1501
Navarra	1099	1099	1100	1101	1101	1102
País Vasco	3781	3786	3791	3802	3805	3808

Cuadro: Previsión fallecidos: Mod. Aditivo - Horizonte 1 – 5 días.

Tabla Ratio Incr. Fallecidos: Mod. Lineal.

Last=02/03/2021

	Last	H1	H2	H3	H4	H5
España	0.0014	0.0013	0.0025	0.0038	0.0043	0.0043
Andalucía	0.0019	0.0017	0.0032	0.0046	0.0051	0.0047
Aragón	0.0018	0.0017	0.0033	0.0053	0.0064	0.0072
Asturias	0.0030	0.0032	0.0065	0.0096	0.0116	0.0133
Canarias	0.0034	0.0034	0.0070	0.0110	0.0136	0.0160
Cantabria	0.0013	0.0016	0.0030	0.0044	0.0050	0.0052
Castilla.y.León	0.0014	0.0014	0.0027	0.0041	0.0047	0.0050
Castilla.La.Mancha	0.0009	0.0008	0.0015	0.0022	0.0022	0.0019
Cataluña	0.0004	0.0007	0.0012	0.0020	0.0020	0.0018
Ceuta	0.0039	0.0036	0.0078	0.0144	0.0177	0.0203
Comunidad.Valenciana	0.0019	0.0017	0.0032	0.0043	0.0047	0.0042
Extremadura	0.0014	0.0017	0.0035	0.0045	0.0048	0.0046
Galicia	0.0034	0.0032	0.0064	0.0091	0.0112	0.0128
Islas.Baleares	0.0008	0.0004	0.0005	0.0009	0.0007	0.0000
La.Rioja	0.0009	0.0005	0.0007	0.0012	0.0011	0.0006
Madrid	0.0009	0.0009	0.0015	0.0027	0.0030	0.0030
Melilla	0.0000	0.0005	0.0007	0.0015	0.0014	0.0012
Murcia	0.0023	0.0020	0.0038	0.0051	0.0056	0.0054
Navarra	0.0005	0.0006	0.0010	0.0017	0.0018	0.0016
País.Vasco	0.0016	0.0016	0.0030	0.0048	0.0057	0.0064

Cuadro: Previsión Ratio Incr. Fallecidos: Mod. lineal - Horizonte 1 – 5 días.

Tabla Ratio Incr. Fallecidos: Mod. No Paramétrico.

Last=02/03/2021

	Last	H1	H2	H3	H4	H5
España	0.0014	0.0027	0.0053	0.0083	0.0110	0.0140
Andalucía	0.0019	0.0038	0.0076	0.0119	0.0156	0.0193
Aragón	0.0018	0.0027	0.0054	0.0085	0.0112	0.0143
Asturias	0.0030	0.0037	0.0073	0.0116	0.0152	0.0189
Canarias	0.0034	0.0039	0.0078	0.0123	0.0162	0.0202
Cantabria	0.0013	0.0023	0.0044	0.0070	0.0093	0.0120
Castilla.y.León	0.0014	0.0024	0.0047	0.0075	0.0100	0.0128
Castilla.La.Mancha	0.0009	0.0022	0.0044	0.0070	0.0093	0.0120
Cataluña	0.0004	0.0017	0.0032	0.0053	0.0070	0.0093
Ceuta	0.0039	0.0044	0.0087	0.0138	0.0182	0.0225
Comunidad.Valenciana	0.0019	0.0038	0.0076	0.0119	0.0156	0.0193
Extremadura	0.0014	0.0027	0.0052	0.0083	0.0109	0.0139
Galicia	0.0034	0.0043	0.0086	0.0135	0.0177	0.0219
Islas.Baleares	0.0008	0.0027	0.0052	0.0083	0.0109	0.0139
La.Rioja	0.0009	0.0025	0.0049	0.0078	0.0102	0.0131
Madrid	0.0009	0.0022	0.0043	0.0069	0.0091	0.0118
Melilla	0.0000	0.0013	0.0025	0.0043	0.0056	0.0077
Murcia	0.0023	0.0042	0.0084	0.0132	0.0172	0.0213
Navarra	0.0005	0.0017	0.0034	0.0056	0.0073	0.0097
País.Vasco	0.0016	0.0027	0.0052	0.0083	0.0109	0.0139

Cuadro: Previsión Ratio Incr. Fallecidos: Mod. No Paramétrico - Horizonte 1 – 5 días.

Tabla Ratio Incr. Fallecidos: Mod. Aditivo.

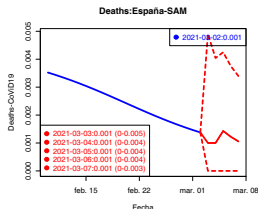
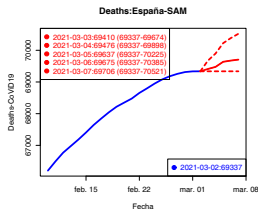
Last=02/03/2021

	Last	H1	H2	H3	H4	H5
España	0.0014	0.0010	0.0020	0.0043	0.0049	0.0053
Andalucía	0.0019	0.0018	0.0029	0.0058	0.0070	0.0066
Aragón	0.0018	0.0015	0.0033	0.0063	0.0076	0.0091
Asturias	0.0030	0.0032	0.0064	0.0100	0.0116	0.0134
Canarias	0.0034	0.0036	0.0077	0.0128	0.0155	0.0175
Cantabria	0.0013	0.0012	0.0022	0.0038	0.0038	0.0048
Castilla.y.León	0.0014	0.0012	0.0025	0.0044	0.0050	0.0063
Castilla.La.Mancha	0.0009	0.0006	0.0011	0.0021	0.0025	0.0034
Cataluña	0.0004	0.0005	0.0005	0.0022	0.0016	0.0015
Ceuta	0.0039	0.0035	0.0080	0.0161	0.0193	0.0215
Comunidad.Valenciana	0.0019	0.0019	0.0033	0.0049	0.0066	0.0073
Extremadura	0.0014	0.0014	0.0028	0.0031	0.0035	0.0055
Galicia	0.0034	0.0034	0.0058	0.0093	0.0112	0.0132
Islas.Baleares	0.0008	0.0002	0.0002	0.0018	0.0026	0.0025
La.Rioja	0.0009	0.0003	0.0006	0.0015	0.0024	0.0032
Madrid	0.0009	0.0006	0.0009	0.0037	0.0039	0.0038
Melilla	0.0000	0.0005	0.0001	0.0013	0.0000	0.0000
Murcia	0.0023	0.0023	0.0041	0.0059	0.0083	0.0094
Navarra	0.0005	0.0004	0.0006	0.0018	0.0019	0.0029
País.Vasco	0.0016	0.0013	0.0027	0.0055	0.0063	0.0071

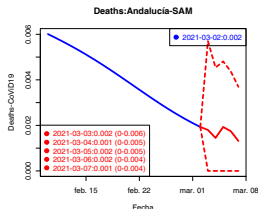
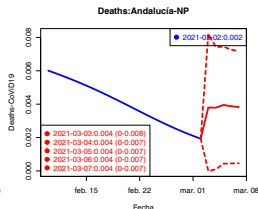
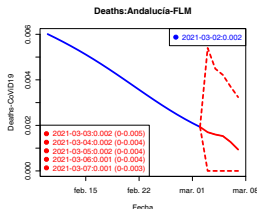
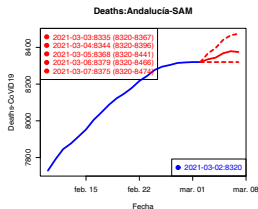
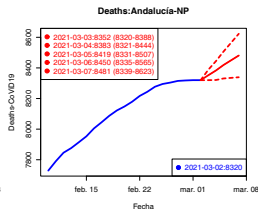
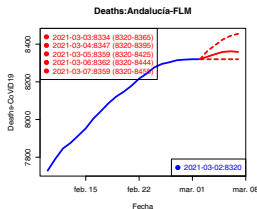
Cuadro: Previsión Ratio Incr. Fallecidos: Mod. Aditivo - Horizonte 1 – 5 días.

Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Fallecidos



Fallecidos: Andalucía

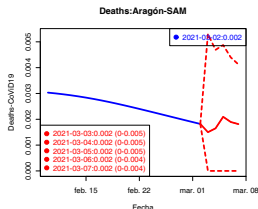
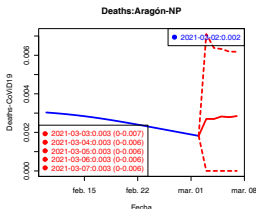
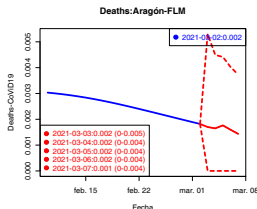
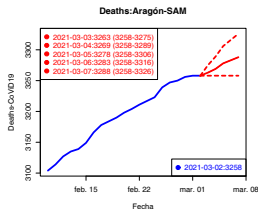
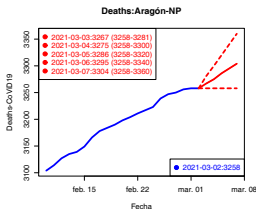
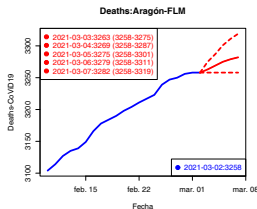


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

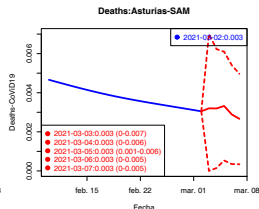
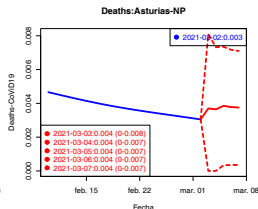
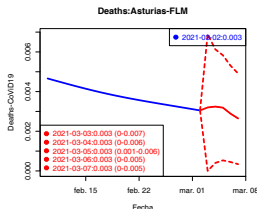
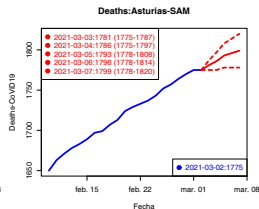
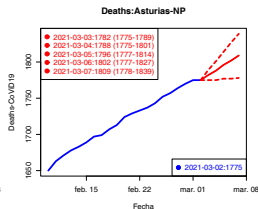
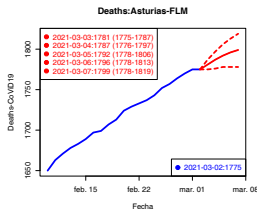
◀ Fallecidos

Fallecidos: Aragón



Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

Fallecidos: Asturias

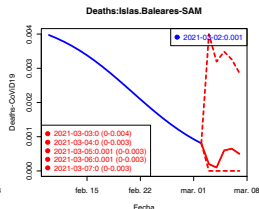
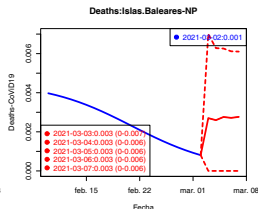
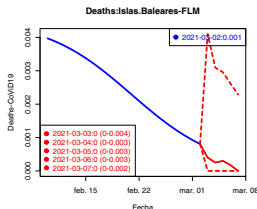
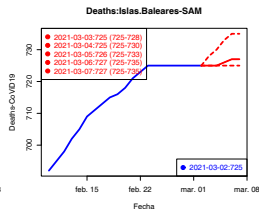
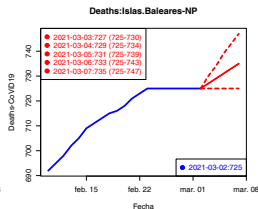
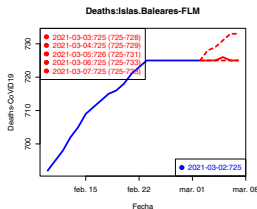


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Fallecidos: Islas Baleares

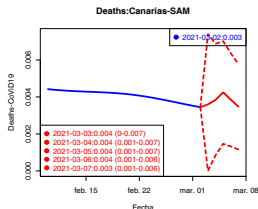
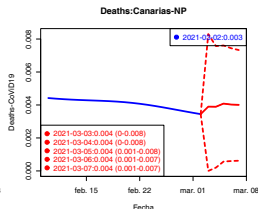
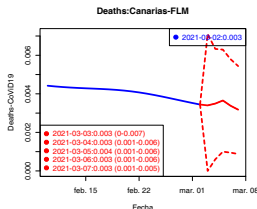
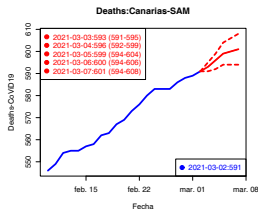
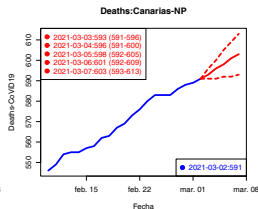
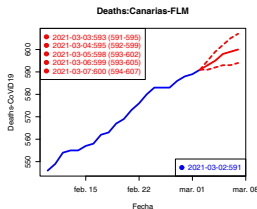


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Fallecidos: Canarias

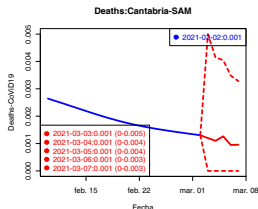
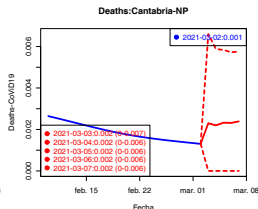
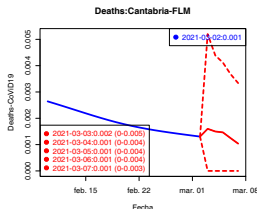
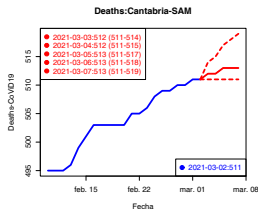
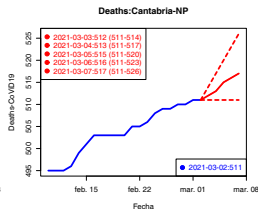
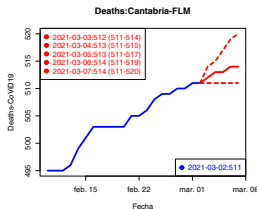


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Fallecidos: Cantabria

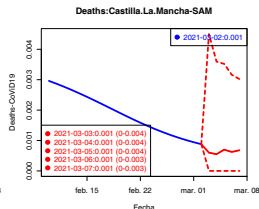
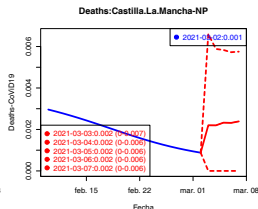
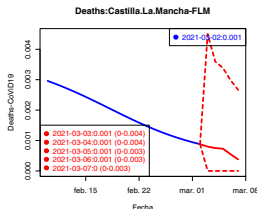
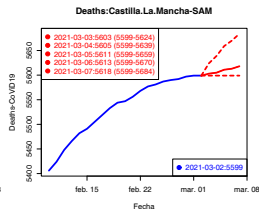
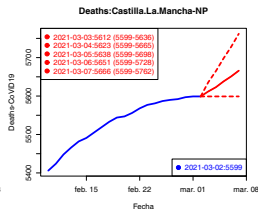
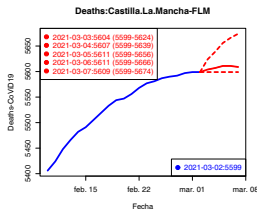


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Fallecidos: Castilla-La Mancha

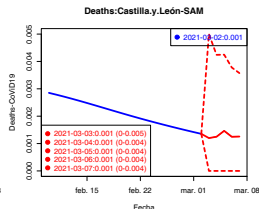
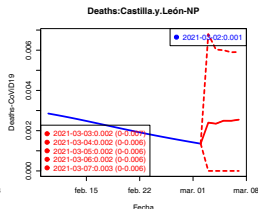
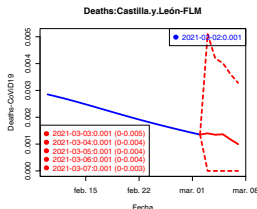
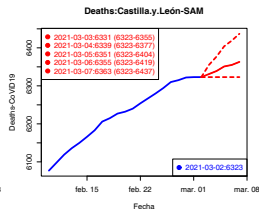
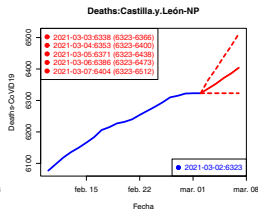
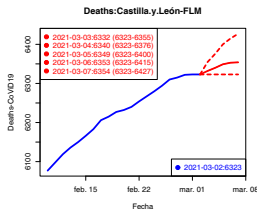


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Fallecidos: Castilla y León

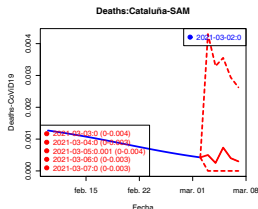
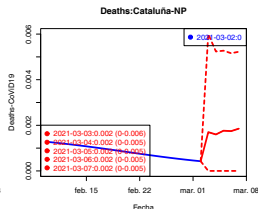
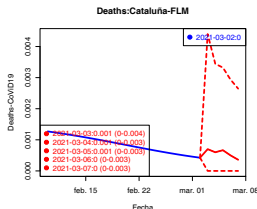
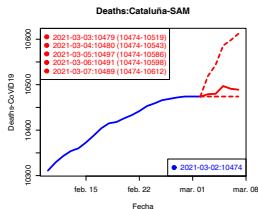
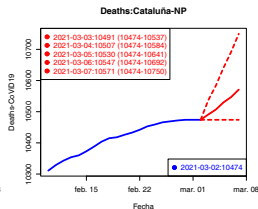
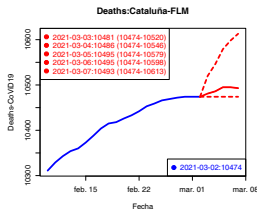


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

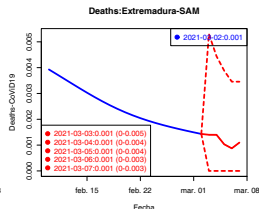
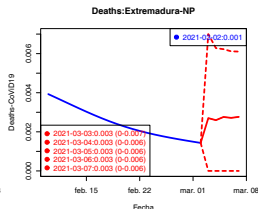
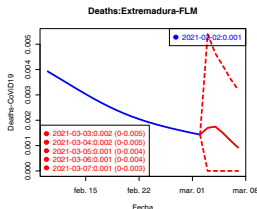
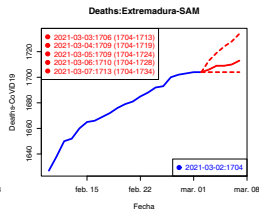
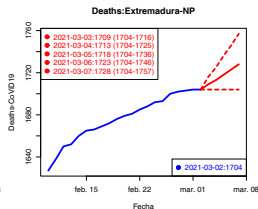
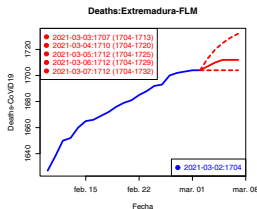
◀ Fallecidos

Fallecidos: Cataluña



Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

Fallecidos: Extremadura



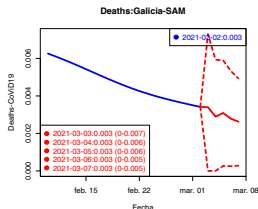
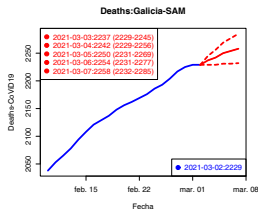
Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

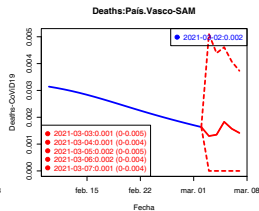
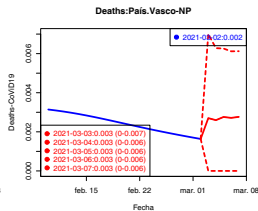
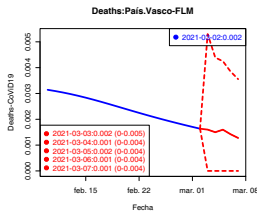
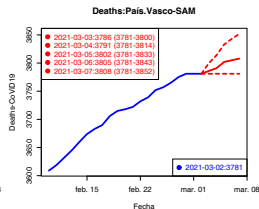
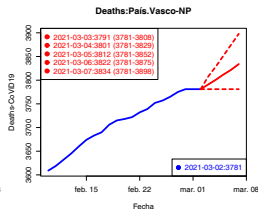
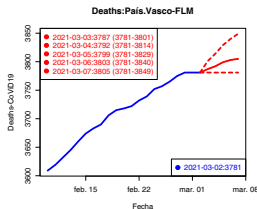
◀ Fallecidos

Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Fallecidos



Fallecidos: País Vasco

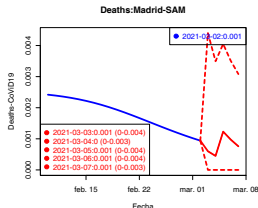
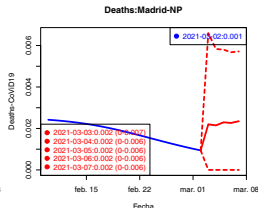
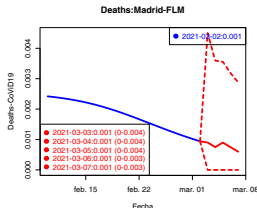
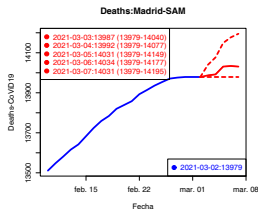
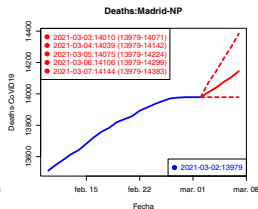
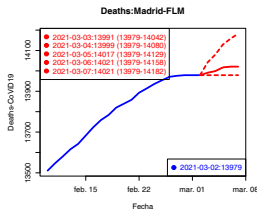


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Fallecidos: Madrid

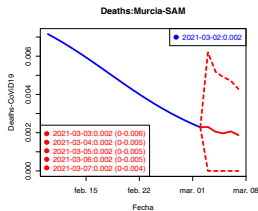
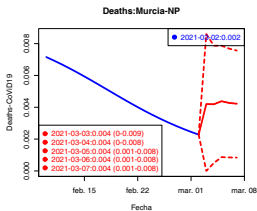
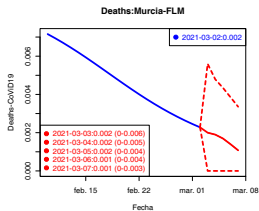
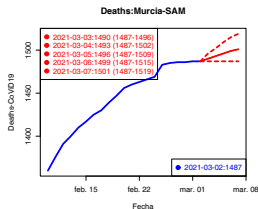
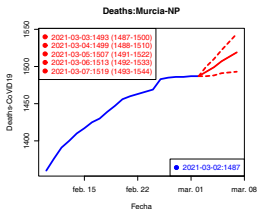
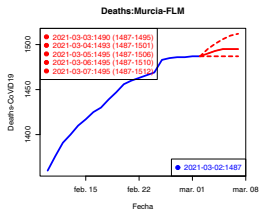


Los valores del Ratio de incremento de H2-H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Fallecidos: Murcia

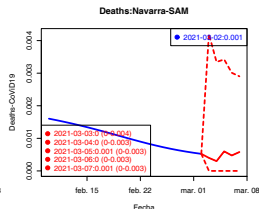
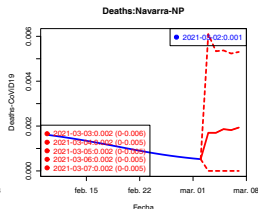
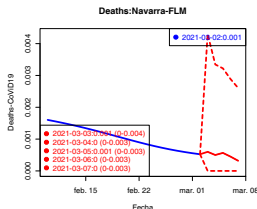
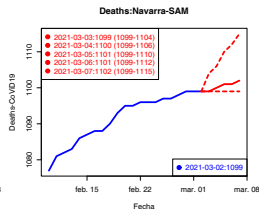
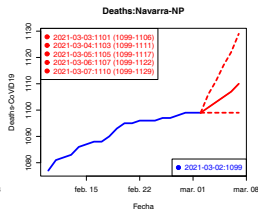
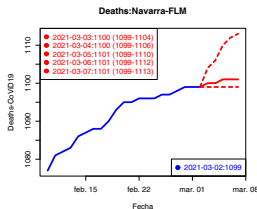


Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

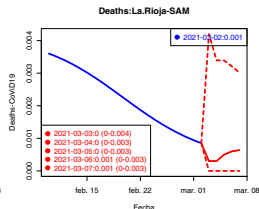
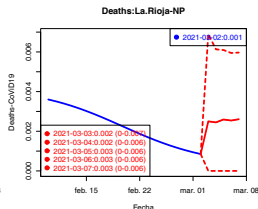
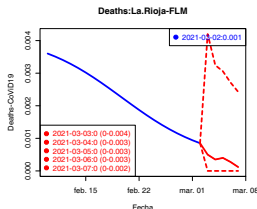
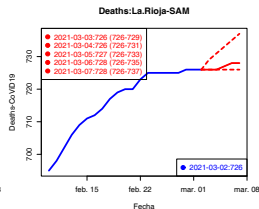
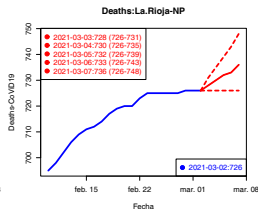
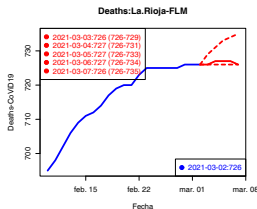
◀ Fallecidos

Fallecidos: Navarra



Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

Fallecidos: La Rioja



Los valores del Ratio de incremento de H2–H5 están rescalados a H1 para su comparación gráfica.

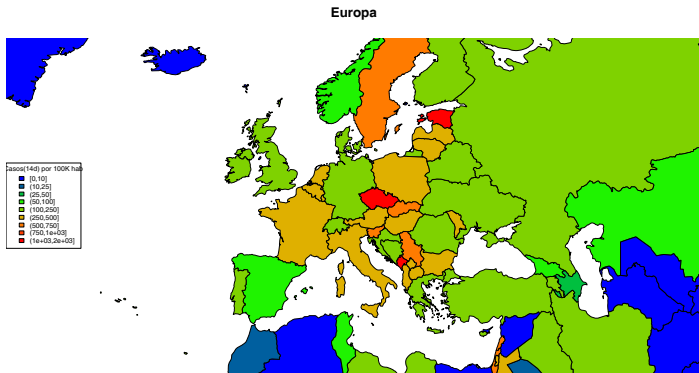
◀ Confirmados

◀ Fallecidos

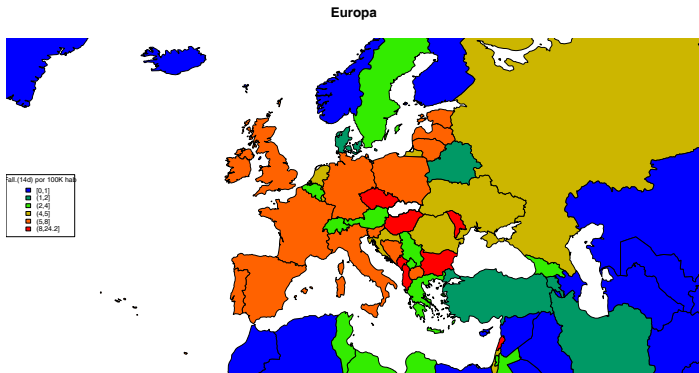
Table of Contents

- 1 Casos Confirmados
 - Predicciones
- 2 Fallecidos
 - Predicciones Fallecidos
- 3 Panorama internacional

Europa: Incidencia Acumulada (14d) por 100K hab.

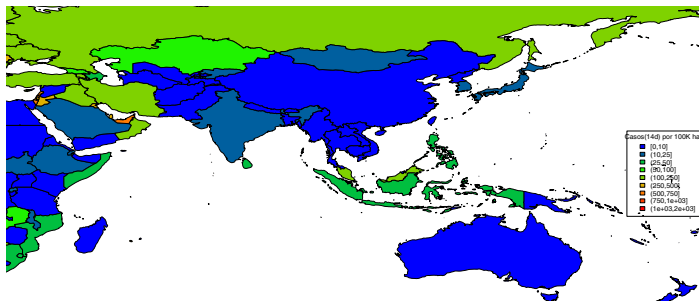


Europa: Fallecidos (14d) por 100K hab.



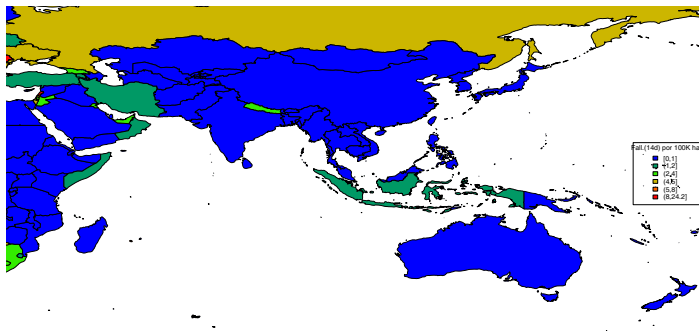
Asia y Oceanía: Incidencia acumulada (14d) por 100K hab.

Asia y Oceanía



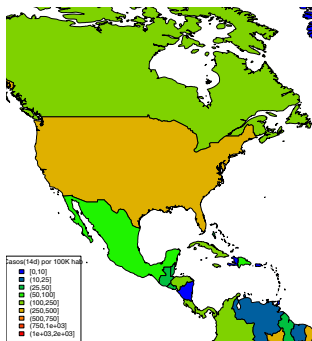
Asia y Oceanía: Fallecidos (14d) por 100K hab.

Asia y Oceanía

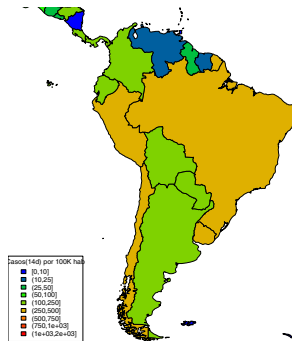


América: Incidencia acumulada (14d) por 100K hab.

América del Norte

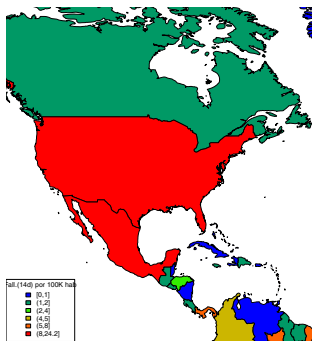


América del sur

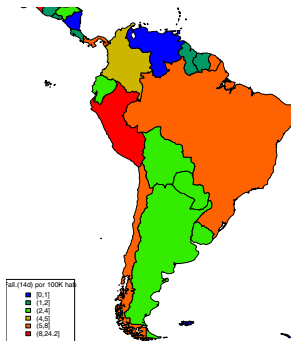


América: Fallecidos (14d) por 100K hab.

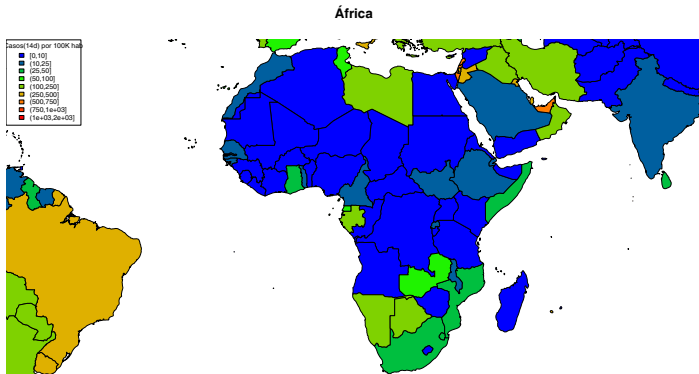
América del Norte



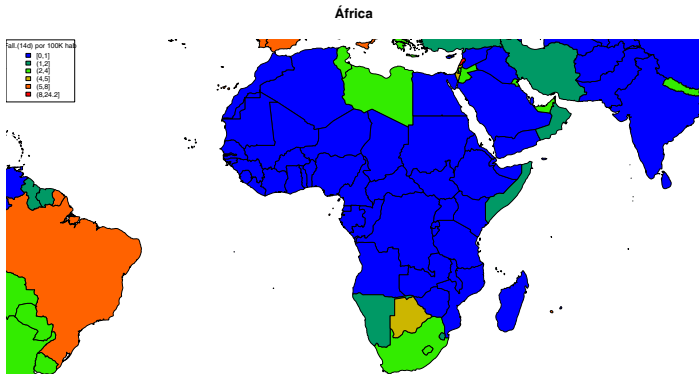
América del sur



África: Incidencia acumulada (14d) por 100K hab.



África: Fallecidos (14d) por 100K hab.



Breve descripción del Modelo de predicción

Objetivo: Predecir ratio de incremento de casos confirmados a 1–5 días: $r^{(k)}(t) = \frac{x_{t+k} - x_t}{x_t + 1}$

Información usada: Pasado de esta variable suavizada (retardo 1) durante los últimos 21 días: $R^{(1)} = \{r^{(1)}(-21), \dots, r^{(1)}(0)\}$.

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 Diamond Princess) son filtrados por inconsistencia, presunta falta de veracidad o por valores anormalmente 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: $f(R^{(1)}) = \int_{-21}^0 R^{(1)}(t)\beta(t)dt$
- NP: f es una estimación no paramétrica tipo núcleo.
- SAM: f es una combinación aditiva de funciones suaves de las componentes principales funcionales.

Para el objetivo de predecir el ratio de incremento de fallecidos, se usa además del pasado de la propia variable, el ratio de incremento pasado de casos confirmados.