

Predicciones sobre CoViD-19

Manuel Febrero-Bande

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

March 31, 2020



DEPARTAMENTO DE ESTADÍSTICA,
ANÁLISE MATEMÁTICA E OPTIMIZACIÓN



- Predicciones

- Predicciones Fallecidos

Datos

Número de datos funcionales: 2040

Países/Regiones distintos incorporados: 108

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**

- ▶ Mod Lineal

- ▶ Mod NP

► Mod Aditivo

Horiz	Medida	FLM	NP	SAM
H1	σ_R^2	0.014	0.013	0.013
H1	$\sigma_R^2(rob.)$	0.009	0.008	0.009
H1	r^2	0.411	0.464	0.452
H2	σ_R^2	0.05	0.045	0.044
H2	$\sigma_R^2(rob.)$	0.031	0.029	0.03
H2	r^2	0.487	0.544	0.543
H3	σ_R^2	0.122	0.111	0.107
H3	$\sigma_R^2(rob.)$	0.073	0.077	0.071
H3	r^2	0.515	0.567	0.573

Último dato: 2020-03-30 21:00 que se publica 2020-03-31 12:00.

Tabla Previsión Confirmados: Mod. Lineal.

	Last	N:H1-lw	N:H1-fit	N:H1-up	N:H2-lw	N:H2-fit	N:H2-up
España	94417	94417	103191	112138	94417	110863	127700
Andalucía	5818	5977	6393	6808	6257	7037	7817
Aragón	2272	2377	2540	2702	2544	2849	3153
Asturias	1236	1246	1334	1422	1278	1444	1609
Baleares	1069	1095	1172	1248	1142	1285	1428
Canarias	1262	1288	1378	1468	1338	1508	1677
Cantabria	1171	1220	1304	1388	1298	1455	1612
Cataluña	18773	19315	20680	22045	20100	22663	25225
Castilla.La.Mancha	6424	6686	7145	7604	7109	7971	8833
Castilla.y.León	6211	6442	6886	7331	6779	7613	8448
C..Valenciana	5508	5688	6081	6475	5979	6717	7456
Extremadura	1628	1669	1785	1902	1740	1959	2178
Euskadi	6320	6434	6886	7338	6660	7508	8356
Galicia	4039	4249	4537	4825	4565	5107	5648
Madrid	27509	27845	29856	31866	28597	32371	36145
Murcia	974	997	1067	1136	1039	1170	1300
Navarra	2305	2347	2511	2676	2435	2744	3053
La.Rioja	1810	1841	1970	2099	1912	2154	2397

Table: Previsión Confirmados: Mod. Lineal - Horizonte 1 y 2 días.

Tabla Previsión Confirmados: Mod. No Paramétrico.

	Last	N:H1-lw	N:H1-fit	N:H1-up	N:H2-lw	N:H2-fit	N:H2-up
España	94417	98899	105522	112145	104466	117390	130315
Andalucía	5818	6100	6508	6916	6449	7245	8042
Aragón	2272	2444	2604	2763	2655	2966	3277
Asturias	1236	1255	1342	1429	1284	1453	1622
Baleares	1069	1136	1211	1286	1216	1363	1509
Canarias	1262	1321	1410	1499	1394	1567	1740
Cantabria	1171	1279	1361	1443	1408	1569	1729
Cataluña	18773	20122	21439	22755	21722	24290	26859
Castilla.La.Mancha	6424	6853	7304	7754	7376	8256	9136
Castilla.y.León	6211	6655	7091	7526	7183	8032	8882
C..Valenciana	5508	5836	6222	6609	6230	6984	7738
Extremadura	1628	1745	1859	1973	1884	2107	2330
Euskadi	6320	6602	7046	7489	6952	7818	8683
Galicia	4039	4368	4651	4935	4763	5316	5869
Madrid	27509	27924	29853	31782	28609	32373	36138
Murcia	974	1031	1100	1168	1100	1234	1367
Navarra	2305	2383	2544	2706	2484	2800	3116
La.Rioja	1810	1826	1953	2080	1860	2108	2356

Table: Previsión Confirmados: Mod. No Paramétrico - Horizonte 1 y 2 días.

Tabla Previsión Confirmados: Mod. Aditivo.

	Last	N:H1-lw	N:H1-fit	N:H1-up	N:H2-lw	N:H2-fit	N:H2-up
España	94417	100441	106263	112086	107094	118485	129877
Andalucía	5818	6200	6559	6918	6632	7334	8035
Aragón	2272	2482	2622	2763	2723	2997	3272
Asturias	1236	1272	1348	1425	1329	1478	1627
Baleares	1069	1125	1191	1257	1186	1316	1445
Canarias	1262	1332	1410	1488	1408	1560	1712
Cantabria	1171	1278	1352	1426	1409	1554	1699
Cataluña	18773	19636	20799	21961	20378	22651	24923
Castilla.La.Mancha	6424	6947	7345	7743	7658	8437	9216
Castilla.y.León	6211	6503	6887	7272	6751	7502	8253
C..Valenciana	5508	5878	6217	6556	6257	6921	7585
Extremadura	1628	1756	1858	1961	1869	2068	2268
Euskadi	6320	6676	7066	7457	7031	7795	8559
Galicia	4039	4418	4668	4917	4901	5389	5877
Madrid	27509	28975	30668	32362	30642	33956	37270
Murcia	974	1035	1095	1155	1091	1209	1327
Navarra	2305	2435	2577	2719	2578	2856	3134
La.Rioja	1810	1916	2028	2140	2037	2256	2475

Table: Previsión número de casos confirmados: Mod. Aditivo - Horizonte 1 y 2 días.

Tabla Ratio Incr. Confirmados: Mod. Lineal.

	Last	RI:H1-lw	RI:H1-fit	RI:H1-up	RI:H2-lw	RI:H2-fit	RI:H2-up
España	0.119	0.000	0.093	0.188	0.000	0.174	0.353
Andalucía	0.123	0.027	0.099	0.170	0.075	0.209	0.343
Aragón	0.156	0.046	0.118	0.189	0.120	0.254	0.388
Asturias	0.085	0.008	0.079	0.151	0.034	0.168	0.302
Baleares	0.109	0.025	0.096	0.167	0.068	0.202	0.336
Canarias	0.108	0.021	0.092	0.163	0.061	0.195	0.329
Cantabria	0.133	0.042	0.114	0.185	0.108	0.242	0.376
Cataluña	0.123	0.029	0.102	0.174	0.071	0.207	0.344
Castilla.La.Mancha	0.141	0.041	0.112	0.184	0.107	0.241	0.375
Castilla.y.León	0.126	0.037	0.109	0.180	0.091	0.226	0.360
C..Valenciana	0.127	0.033	0.104	0.176	0.085	0.219	0.354
Extremadura	0.120	0.025	0.097	0.168	0.069	0.203	0.337
Euskadi	0.106	0.018	0.090	0.161	0.054	0.188	0.322
Galicia	0.158	0.052	0.123	0.195	0.130	0.264	0.398
Madrid	0.109	0.012	0.085	0.158	0.040	0.177	0.314
Murcia	0.113	0.024	0.095	0.166	0.066	0.201	0.335
Navarra	0.108	0.018	0.090	0.161	0.056	0.190	0.324
La.Rioja	0.112	0.017	0.088	0.160	0.056	0.190	0.324

Table: Previsión Ratio Incr. Confirmados: Mod. lineal - Horizonte 1 y 2 días.

Tabla Ratio Incr. Confirmados: Mod. No Paramétrico.

	Last	RI:H1-lw	RI:H1-fit	RI:H1-up	RI:H2-lw	RI:H2-fit	RI:H2-up
España	0.119	0.047	0.118	0.188	0.106	0.243	0.380
Andalucía	0.123	0.048	0.119	0.189	0.108	0.245	0.382
Aragón	0.156	0.076	0.146	0.216	0.168	0.305	0.442
Asturias	0.085	0.015	0.086	0.156	0.039	0.175	0.312
Baleares	0.109	0.063	0.133	0.203	0.138	0.274	0.411
Canarias	0.108	0.047	0.117	0.187	0.105	0.242	0.379
Cantabria	0.133	0.092	0.162	0.232	0.202	0.339	0.476
Cataluña	0.123	0.072	0.142	0.212	0.157	0.294	0.431
Castilla.La.Mancha	0.141	0.067	0.137	0.207	0.148	0.285	0.422
Castilla.y.León	0.126	0.072	0.142	0.212	0.156	0.293	0.430
C..Valenciana	0.127	0.060	0.130	0.200	0.131	0.268	0.405
Extremadura	0.120	0.072	0.142	0.212	0.157	0.294	0.431
Euskadi	0.106	0.045	0.115	0.185	0.100	0.237	0.374
Galicia	0.158	0.081	0.152	0.222	0.179	0.316	0.453
Madrid	0.109	0.015	0.085	0.155	0.040	0.177	0.314
Murcia	0.113	0.059	0.129	0.199	0.129	0.266	0.403
Navarra	0.108	0.034	0.104	0.174	0.078	0.215	0.352
La.Rioja	0.112	0.009	0.079	0.149	0.028	0.164	0.301

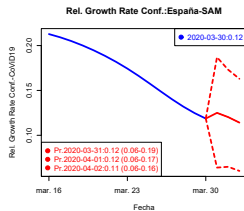
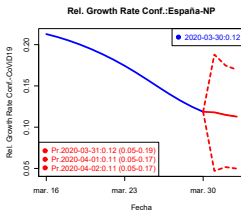
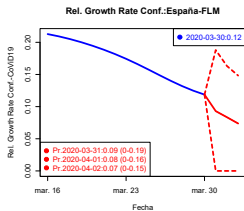
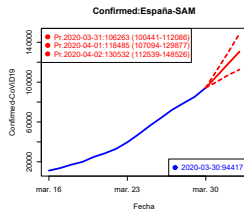
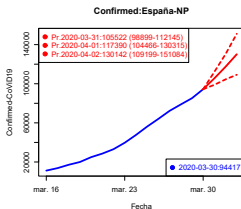
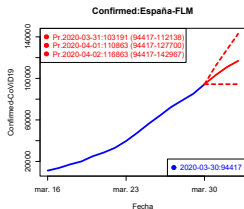
Table: Previsión Ratio Incr. Confirmados: Mod. No Paramétrico - Horizonte 1 y 2 días.

Tabla Ratio Incr. Confirmados: Mod. Aditivo.

	Last	RI:H1-lw	RI:H1-fit	RI:H1-up	RI:H2-lw	RI:H2-fit	RI:H2-up
España	0.119	0.064	0.125	0.187	0.134	0.255	0.376
Andalucía	0.123	0.066	0.127	0.189	0.140	0.260	0.381
Aragón	0.156	0.092	0.154	0.216	0.198	0.319	0.440
Asturias	0.085	0.029	0.091	0.152	0.075	0.196	0.316
Baleares	0.109	0.052	0.114	0.176	0.110	0.231	0.352
Canarias	0.108	0.056	0.117	0.179	0.115	0.236	0.357
Cantabria	0.133	0.091	0.155	0.218	0.203	0.327	0.451
Cataluña	0.123	0.046	0.108	0.170	0.085	0.207	0.328
Castilla.La.Mancha	0.141	0.081	0.143	0.205	0.192	0.313	0.435
Castilla.y.León	0.126	0.047	0.109	0.171	0.087	0.208	0.329
C..Valenciana	0.127	0.067	0.129	0.190	0.136	0.256	0.377
Extremadura	0.120	0.079	0.141	0.204	0.148	0.270	0.393
Euskadi	0.106	0.056	0.118	0.180	0.113	0.233	0.354
Galicia	0.158	0.094	0.156	0.217	0.213	0.334	0.455
Madrid	0.109	0.053	0.115	0.176	0.114	0.234	0.355
Murcia	0.113	0.062	0.124	0.186	0.120	0.241	0.363
Navarra	0.108	0.056	0.118	0.180	0.118	0.239	0.360
La.Rioja	0.112	0.059	0.120	0.182	0.126	0.246	0.367

Table: Previsión Ratio Incr. Confirmados: Mod. Aditivo - Horizonte 1 y 2 días.

Confirmados: España

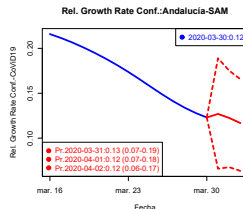
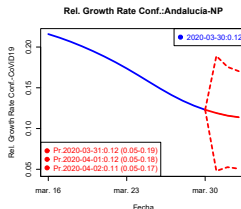
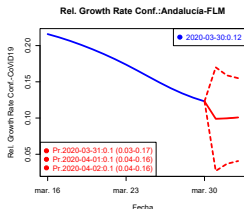
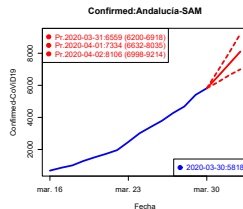
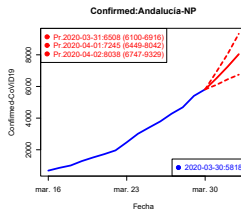
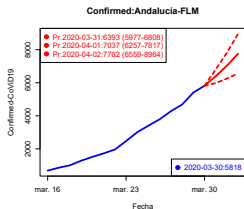


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

← Confirmados

← Fallecidos

Confirmados: Andalucía

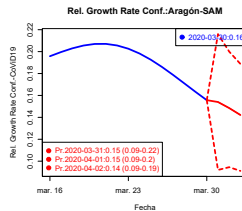
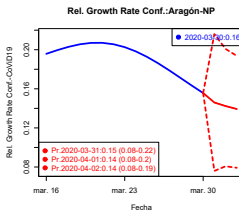
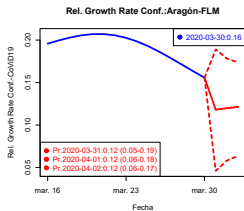
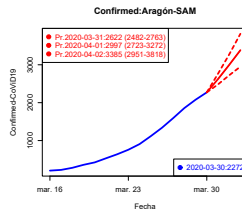
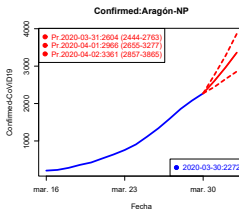
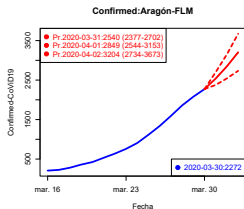


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Aragón

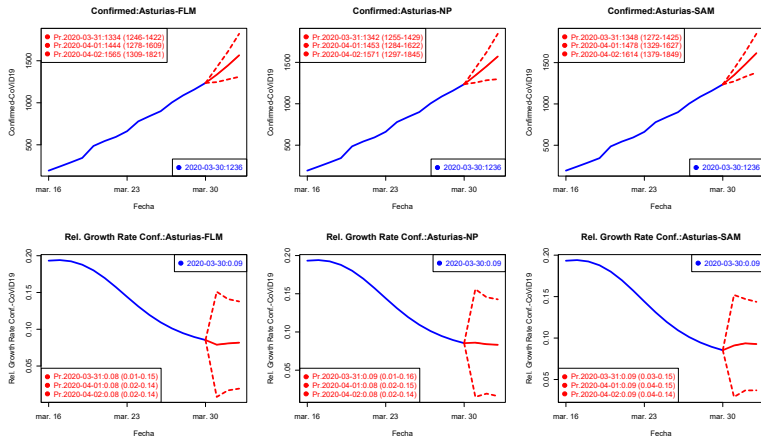


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Asturias

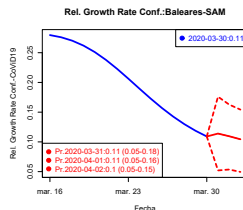
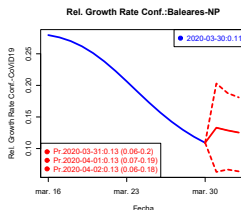
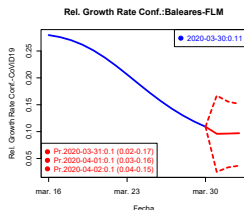
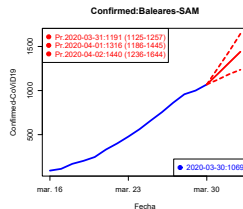
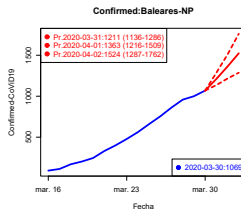
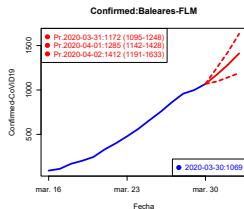


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Baleares

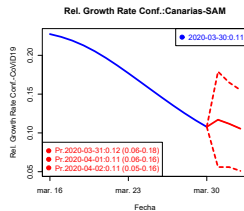
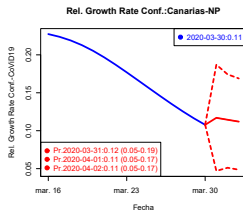
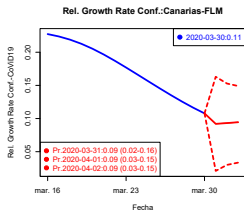
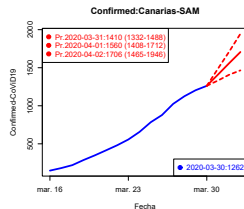
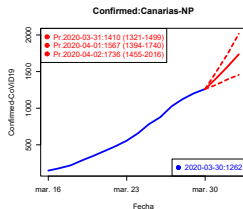
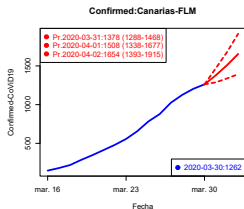


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Canarias

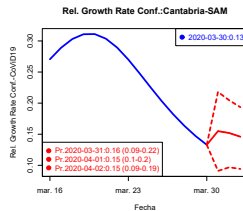
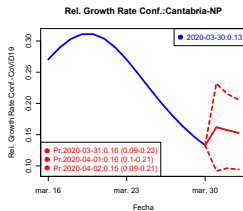
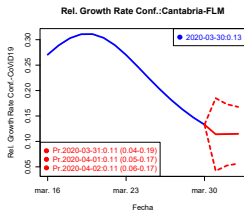
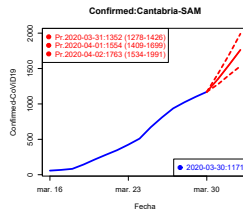
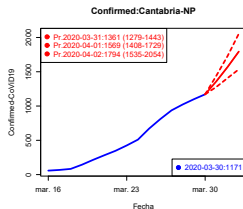
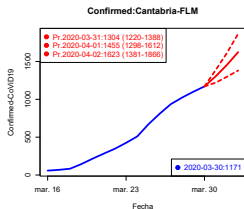


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

← Confirmados

← Fallecidos

Confirmados: Cantabria

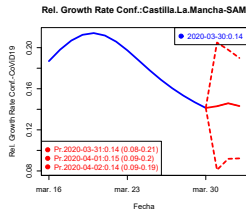
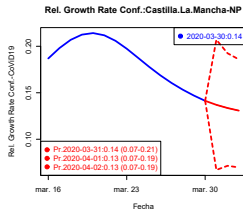
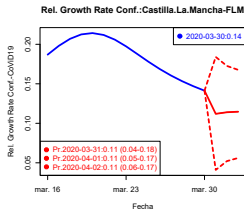
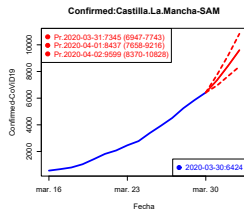
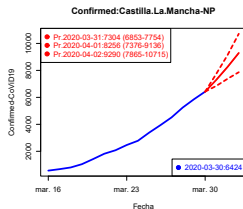
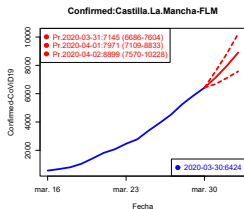


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Castilla-La Mancha

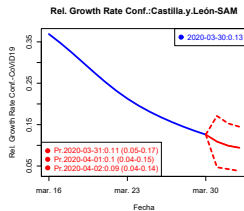
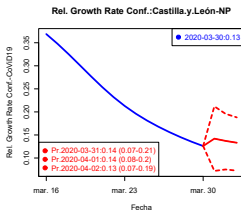
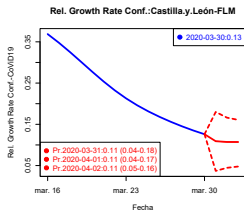
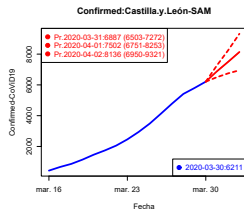
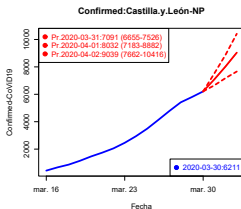
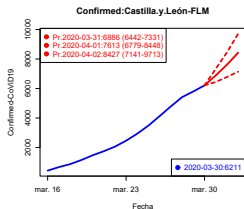


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Castilla y León

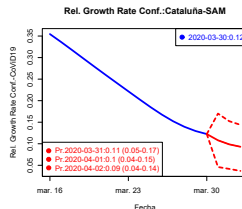
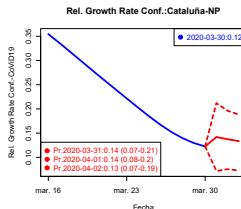
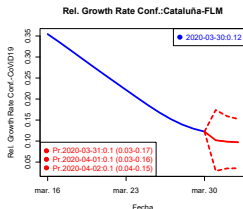
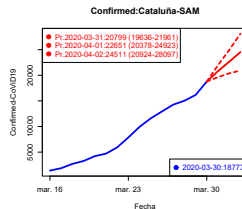
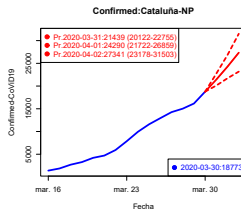
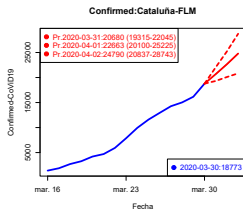


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

← Confirmados

← Fallecidos

Confirmados: Cataluña

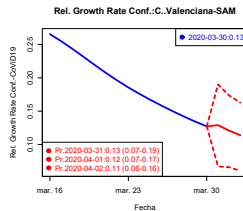
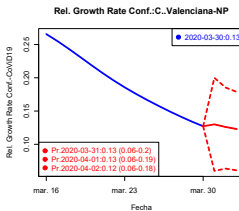
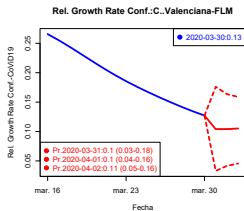
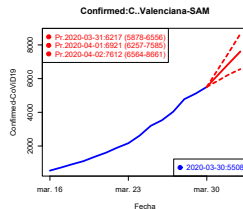
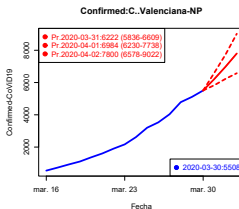
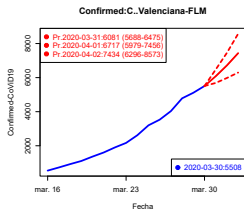


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: C. Valenciana

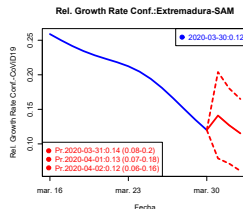
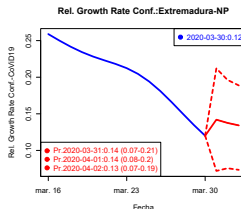
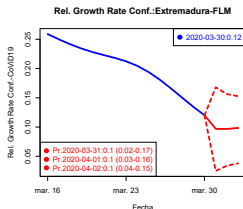
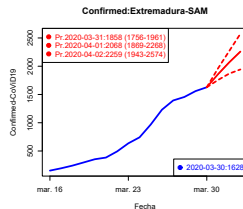
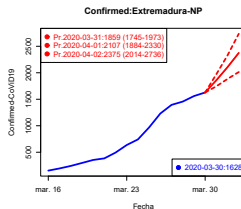
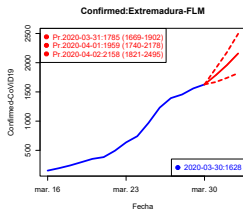


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Extremadura

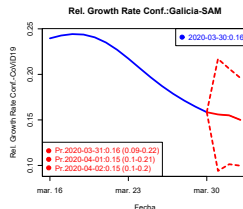
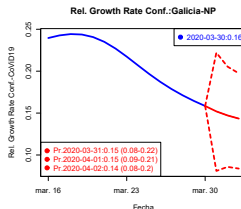
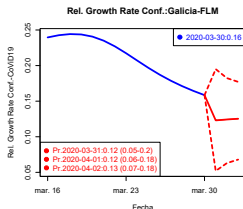
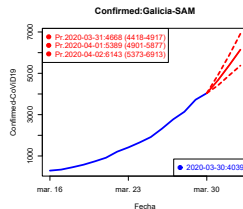
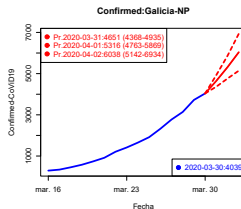
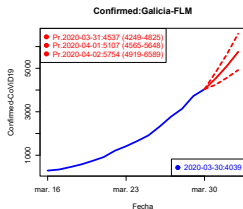


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Galicia

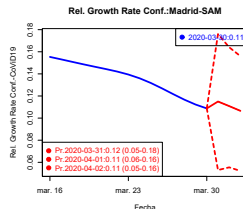
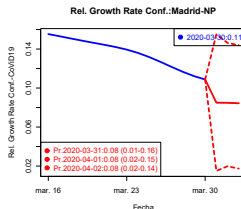
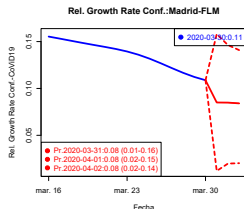
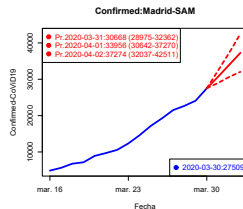
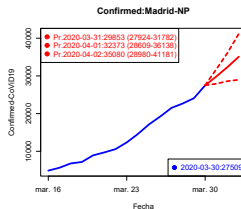
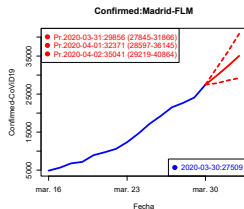


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Madrid

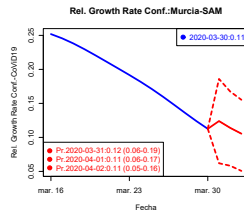
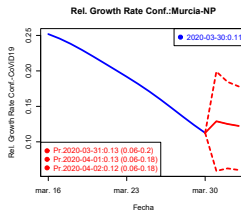
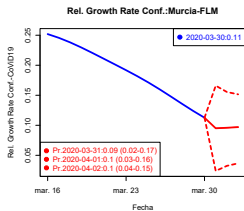
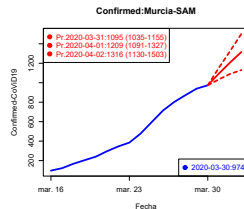
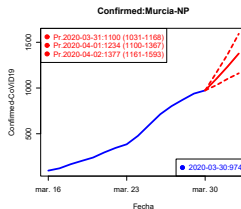
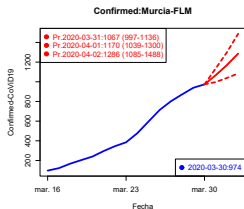


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: Murcia

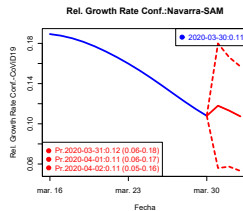
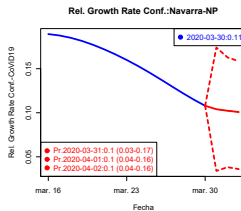
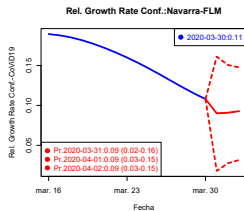
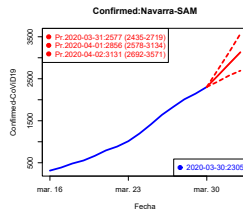
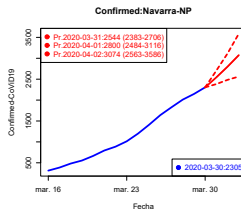
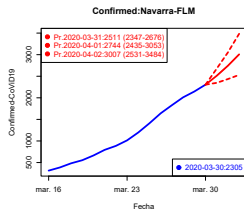


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

← Confirmados

← Fallecidos

Confirmados: Navarra

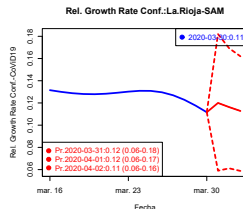
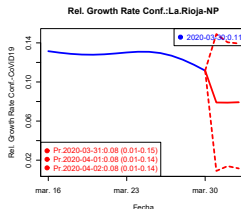
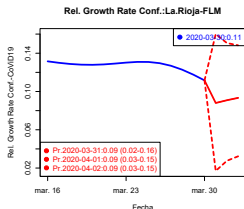
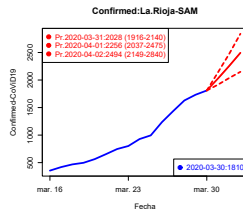
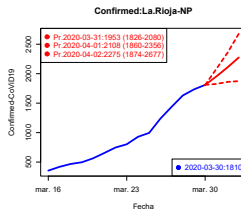
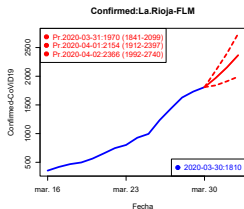


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Confirmados: La Rioja



Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Table of Contents

1 Casos Confirmados

- Predicciones

2 Fallecidos

- Predicciones Fallecidos

Modelos para fallecidos por CoViD-19

```
> Error in .jnew("java/io/FileOutputStream", jFile):
java.io.FileNotFoundException: Pred_20200330.xlsx (El proceso no tiene acceso al
archivo porque está siendo utilizado por otro proceso)
```

Número de datos funcionales: 2142

Países/Regiones distintos incorporados: 42

Predicciones:

▶ España

▶ Andalucía

▶ Aragón

▶ Asturias

▶ Baleares

▶ Canarias

▶ Cantabria

▶ Castilla-La Mancha

▶ Castilla y León

▶ Cataluña

▶ C. Valenciana

▶ Extremadura

▶ Euskadi

▶ Galicia

▶ Madrid

▶ Murcia

▶ Navarra

▶ La Rioja

▶ Mod Lineal

▶ Mod NP

▶ Mod Aditivo

Horiz	Medida	FLM	NP	SAM
H1	σ_R^2	0.066	0.062	0.064
H1	$\sigma_R^2(rob.)$	0.035	0.037	0.035
H1	r^2	0.175	0.246	0.197
H2	σ_R^2	0.194	0.175	0.183
H2	$\sigma_R^2(rob.)$	0.144	0.142	0.143
H2	r^2	0.273	0.357	0.312
H3	σ_R^2	0.477	0.429	0.441
H3	$\sigma_R^2(rob.)$	0.34	0.324	0.324
H3	r^2	0.31	0.39	0.36

Tabla Previsión Fallecidos: Mod. Lineal.

	Last	N:H1-lw	N:H1-fit	N:H1-up	N:H2-lw	N:H2-fit	N:H2-up
España	8189	8313	9391	10470	8667	10685	12702
Andalucía	248	252	285	318	261	323	385
Aragón	138	143	160	178	154	188	221
Asturias	55	56	64	71	59	73	88
Baleares	42	44	50	56	48	59	69
Canarias	55	56	64	71	60	74	87
Cantabria	37	40	45	50	44	53	63
Cataluña	1672	1791	2024	2258	1954	2386	2819
Castilla.La.Mancha	708	734	829	924	785	961	1138
Castilla.y.León	516	545	617	688	591	724	857
C..Valenciana	339	346	394	442	361	450	539
Extremadura	133	139	157	175	150	183	216
Euskadi	325	325	368	411	336	416	495
Galicia	84	88	99	111	96	117	138
Madrid	3603	3603	4025	4499	3603	4469	5355
Murcia	34	37	41	46	41	49	58
Navarra	113	116	132	147	123	151	180
La.Rioja	85	85	96	107	87	108	129

Table: Previsión fallecidos: Mod. lineal - Horizonte 1 y 2 días.

Tabla Previsión Fallecidos: Mod. No Paramétrico.

	Last	N:H1-lw	N:H1-fit	N:H1-up	N:H2-lw	N:H2-fit	N:H2-up
España	8189	8259	9157	10055	8846	10253	11660
Andalucía	248	250	278	305	269	312	354
Aragón	138	143	159	174	159	182	206
Asturias	55	55	60	66	55	65	74
Baleares	42	44	49	54	49	57	64
Canarias	55	56	62	68	60	70	79
Cantabria	37	41	46	50	49	56	63
Cataluña	1672	1813	1997	2181	2086	2375	2663
Castilla.La.Mancha	708	729	807	885	798	920	1042
Castilla.y.León	516	560	617	674	645	734	823
C..Valenciana	339	351	388	426	387	445	503
Extremadura	133	140	155	169	157	180	203
Euskadi	325	328	363	399	351	407	463
Galicia	84	90	99	108	102	116	131
Madrid	3603	3603	3858	4253	3603	4144	4763
Murcia	34	35	39	43	39	45	51
Navarra	113	113	124	137	117	137	156
La.Rioja	85	85	90	100	85	96	111

Table: Previsión fallecidos: Mod. No Paramétrico - Horizonte 1 y 2 días.

Tabla Previsión Fallecidos: Mod. Aditivo.

	fxtd	N:H1-lw	N:H1-fit	N:H1-up	N:H2-lw	N:H2-fit	N:H2-up
España	8189	8447	9426	10405	8918	10487	12056
Andalucía	248	255	286	316	268	317	366
Aragón	138	147	164	180	166	193	219
Asturias	55	57	64	71	60	72	85
Baleares	42	46	51	57	53	62	70
Canarias	55	57	64	71	62	72	83
Cantabria	37	40	45	50	46	54	61
Cataluña	1672	1767	1984	2201	1909	2289	2668
Castilla.La.Mancha	708	744	830	917	799	939	1080
Castilla.y.León	516	556	621	687	633	742	851
C..Valenciana	339	351	396	441	387	465	543
Extremadura	133	142	159	175	158	184	210
Euskadi	325	335	374	413	363	425	487
Galicia	84	92	102	112	104	120	136
Madrid	3603	3603	4000	4434	3603	4296	4996
Murcia	34	38	43	47	46	53	60
Navarra	113	115	129	143	119	142	165
La.Rioja	85	85	95	105	85	103	120

Table: Previsión fallecidos: Mod. Aditivo - Horizonte 1 y 2 días.

Tabla Ratio Incr. Fallecidos: Mod. Lineal.

	Last	RI:H1-lw	RI:H1-fit	RI:H1-up	RI:H2-lw	RI:H2-fit	RI:H2-up
España	0.157	0.015	0.147	0.278	0.058	0.305	0.551
Andalucía	0.153	0.015	0.148	0.281	0.054	0.303	0.551
Aragón	0.220	0.032	0.161	0.290	0.115	0.357	0.599
Asturias	0.174	0.015	0.154	0.293	0.067	0.325	0.583
Baleares	0.205	0.050	0.182	0.315	0.142	0.390	0.637
Canarias	0.194	0.026	0.157	0.288	0.087	0.332	0.577
Cantabria	0.200	0.069	0.203	0.336	0.176	0.425	0.675
Cataluña	0.229	0.071	0.211	0.350	0.168	0.427	0.685
Castilla.La.Mancha	0.189	0.037	0.171	0.304	0.108	0.357	0.607
Castilla.y.León	0.208	0.056	0.195	0.333	0.145	0.403	0.660
C..Valenciana	0.159	0.021	0.162	0.304	0.064	0.325	0.587
Extremadura	0.218	0.048	0.181	0.314	0.124	0.373	0.621
Euskadi	0.127	0.001	0.132	0.262	0.033	0.278	0.523
Galicia	0.212	0.051	0.182	0.313	0.147	0.392	0.637
Madrid	0.121	0.000	0.117	0.249	0.000	0.240	0.486
Murcia	0.325	0.072	0.206	0.339	0.191	0.440	0.690
Navarra	0.205	0.029	0.163	0.297	0.086	0.335	0.584
La.Rioja	0.149	0.000	0.129	0.261	0.023	0.270	0.517

Table: Previsión Ratio Incr. Fallecidos: Mod. lineal - Horizonte 1 y 2 días.

◀ Confirmados

◀ Fallecidos

Tabla Ratio Incr. Fallecidos: Mod. No Paramétrico.

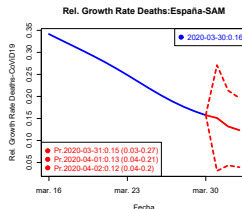
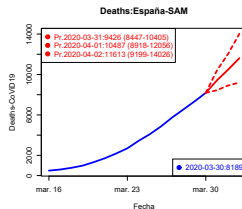
	Last	RI:H1-lw	RI:H1-fit	RI:H1-up	RI:H2-lw	RI:H2-fit	RI:H2-up
España	0.157	0.009	0.118	0.228	0.080	0.252	0.424
Andalucía	0.153	0.010	0.120	0.229	0.083	0.255	0.427
Aragón	0.220	0.039	0.149	0.259	0.148	0.320	0.492
Asturias	0.174	0.000	0.082	0.191	0.002	0.173	0.345
Baleares	0.205	0.051	0.161	0.271	0.174	0.346	0.518
Canarias	0.194	0.013	0.123	0.232	0.090	0.261	0.433
Cantabria	0.200	0.117	0.227	0.337	0.326	0.499	0.672
Cataluña	0.229	0.084	0.194	0.304	0.248	0.420	0.592
Castilla.La.Mancha	0.189	0.030	0.140	0.249	0.127	0.299	0.471
Castilla.y.León	0.208	0.085	0.195	0.305	0.249	0.421	0.594
C..Valenciana	0.159	0.035	0.145	0.255	0.140	0.312	0.484
Extremadura	0.218	0.053	0.162	0.272	0.178	0.350	0.522
Euskadi	0.127	0.008	0.117	0.227	0.078	0.250	0.422
Galicia	0.212	0.065	0.175	0.285	0.207	0.379	0.551
Madrid	0.121	0.000	0.071	0.180	0.000	0.150	0.322
Murcia	0.325	0.033	0.143	0.253	0.135	0.307	0.479
Navarra	0.205	0.000	0.098	0.207	0.036	0.208	0.379
La.Rioja	0.149	0.000	0.059	0.169	0.000	0.127	0.298

Table: Previsión Ratio Incr. Fallecidos: Mod. No Paramétrico - Horizonte 1 y 2 días.

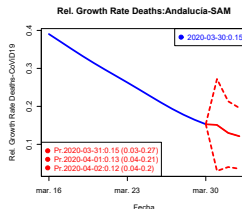
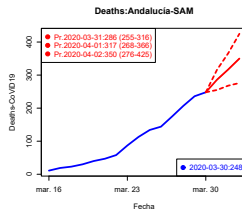
Tabla Ratio Incr. Fallecidos: Mod. Aditivo.

	Last	Rl:H1lw	Rl:H1fit	Rl:H1up	Rl:H2lw	Rl:H2fit	Rl:H2up
España	0.157	0.031	0.151	0.271	0.089	0.281	0.472
Andalucía	0.153	0.030	0.151	0.272	0.082	0.277	0.472
Aragón	0.220	0.066	0.185	0.303	0.205	0.395	0.585
Asturias	0.174	0.031	0.162	0.293	0.092	0.312	0.531
Baleares	0.205	0.097	0.219	0.341	0.257	0.455	0.653
Canarias	0.194	0.040	0.158	0.277	0.117	0.307	0.496
Cantabria	0.200	0.089	0.213	0.338	0.239	0.442	0.644
Cataluña	0.229	0.057	0.187	0.316	0.142	0.369	0.595
Castilla.La.Mancha	0.189	0.051	0.173	0.294	0.128	0.326	0.525
Castilla.y.León	0.208	0.076	0.204	0.332	0.227	0.437	0.648
C..Valenciana	0.159	0.035	0.167	0.300	0.142	0.370	0.599
Extremadura	0.218	0.070	0.192	0.313	0.186	0.381	0.577
Euskadi	0.127	0.031	0.150	0.270	0.115	0.306	0.497
Galicia	0.212	0.089	0.207	0.326	0.231	0.421	0.611
Madrid	0.121	0.000	0.110	0.231	0.000	0.192	0.387
Murcia	0.325	0.119	0.245	0.371	0.337	0.543	0.748
Navarra	0.205	0.017	0.139	0.261	0.056	0.256	0.456
La.Rioja	0.149	0.000	0.112	0.236	0.005	0.205	0.406

Table: Previsión Ratio Incr. Fallecidos: Mod. Aditivo - Horizonte 1 y 2 días.

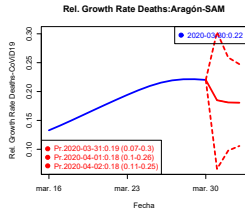
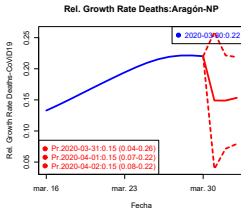
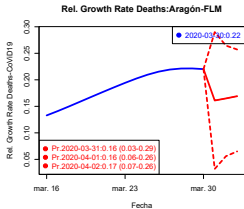
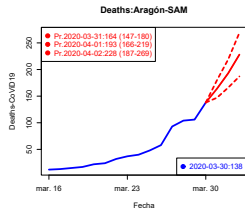
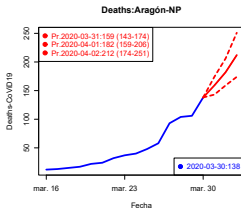
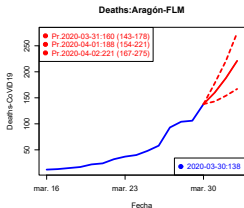


◀ Confirmados ◀ Fallecidos



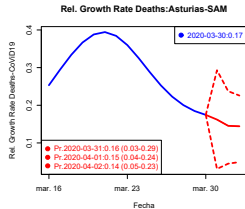
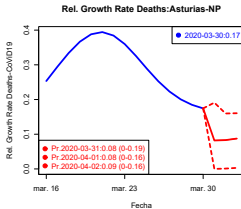
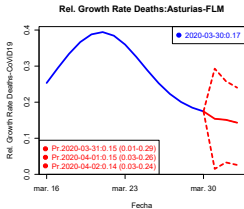
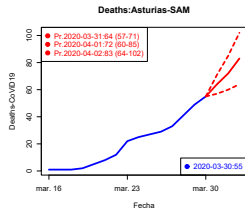
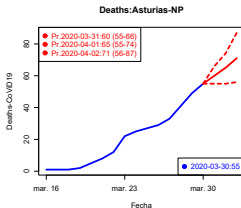
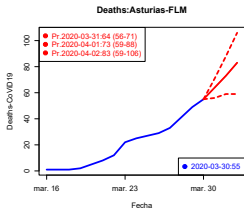
◀ Confirmados ◀ Fallecidos

Fallecidos: Aragón

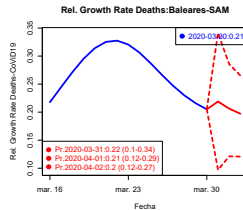
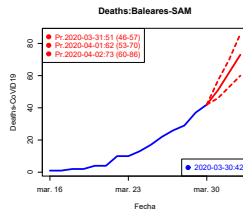


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

Fallecidos: Asturias

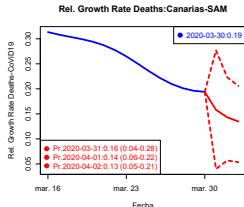
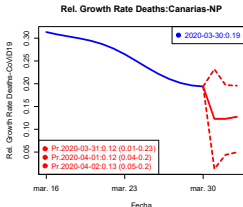
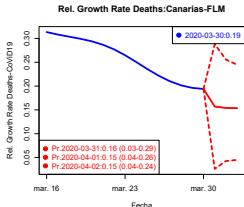
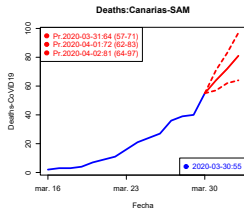
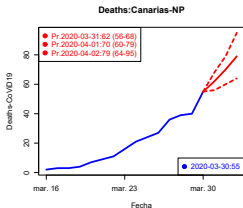
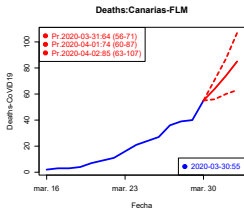


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.



◀ Confirmados ▶ Fallecidos

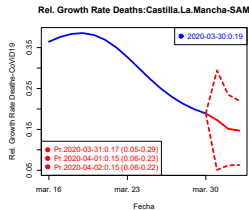
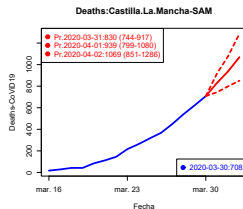
Fallecidos: Canarias



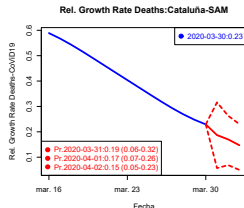
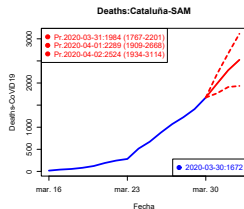
Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

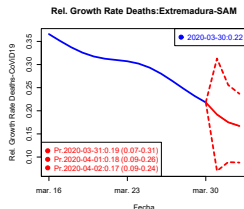
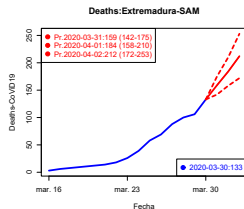
◀ Fallecidos



◀ Fallecidos

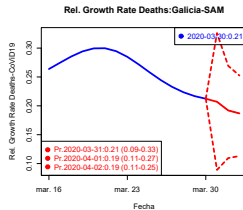
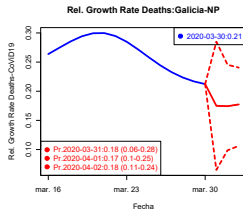
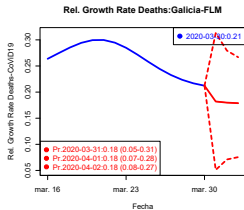
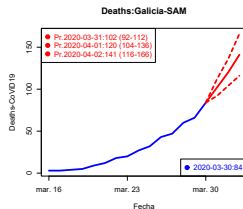
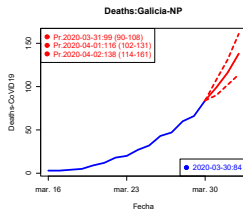
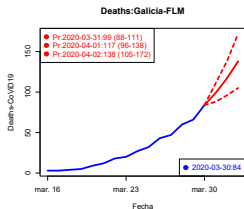


◀ Confirmados ▶ Fallecidos



◀ Confirmados ◀ Fallecidos

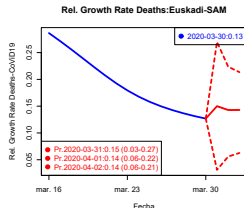
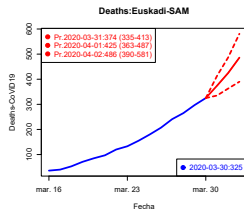
Fallecidos: Galicia



Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

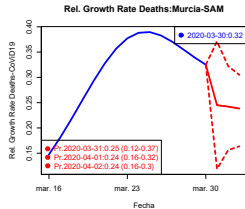
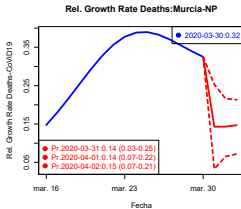
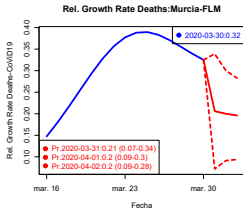
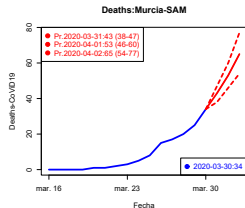
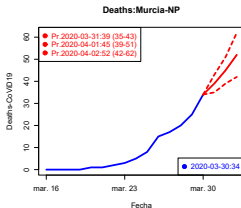
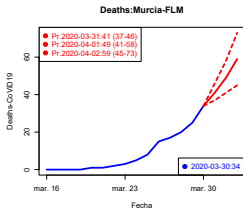
◀ Confirmados

◀ Fallecidos



◀ Confirmados ◀ Fallecidos

Fallecidos: Murcia

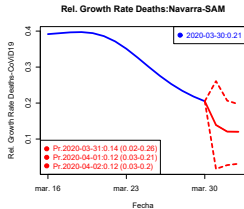
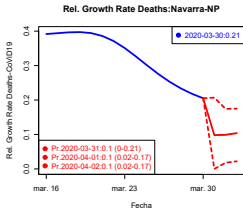
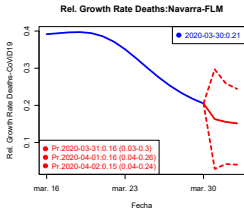
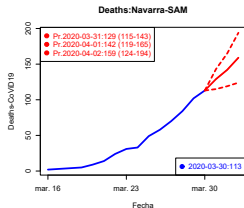
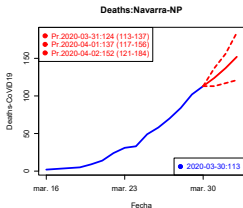
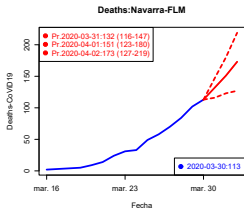


Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

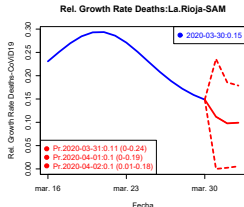
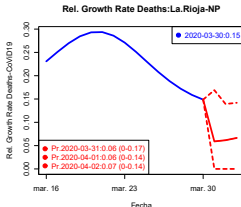
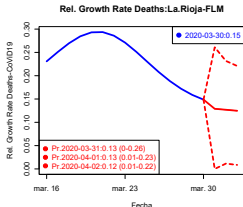
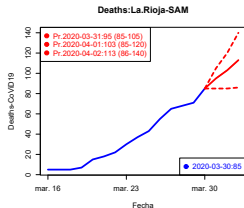
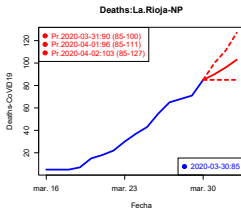
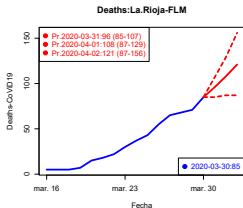
◀ Fallecidos

Fallecidos: Navarra



Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

Fallecidos: La Rioja



Los valores del Ratio de incremento a H2 y H3 están rescalados a H1 para su comparación gráfica.

◀ Confirmados

◀ Fallecidos

Breve descripción del Modelo de predicción

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

Información usada: Pasado de esta variable suavizado (retardo 1) 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 Diamond Princess) son filtrados por inconsistencia, presunta falta de veracidad o por anormalmente 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 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.