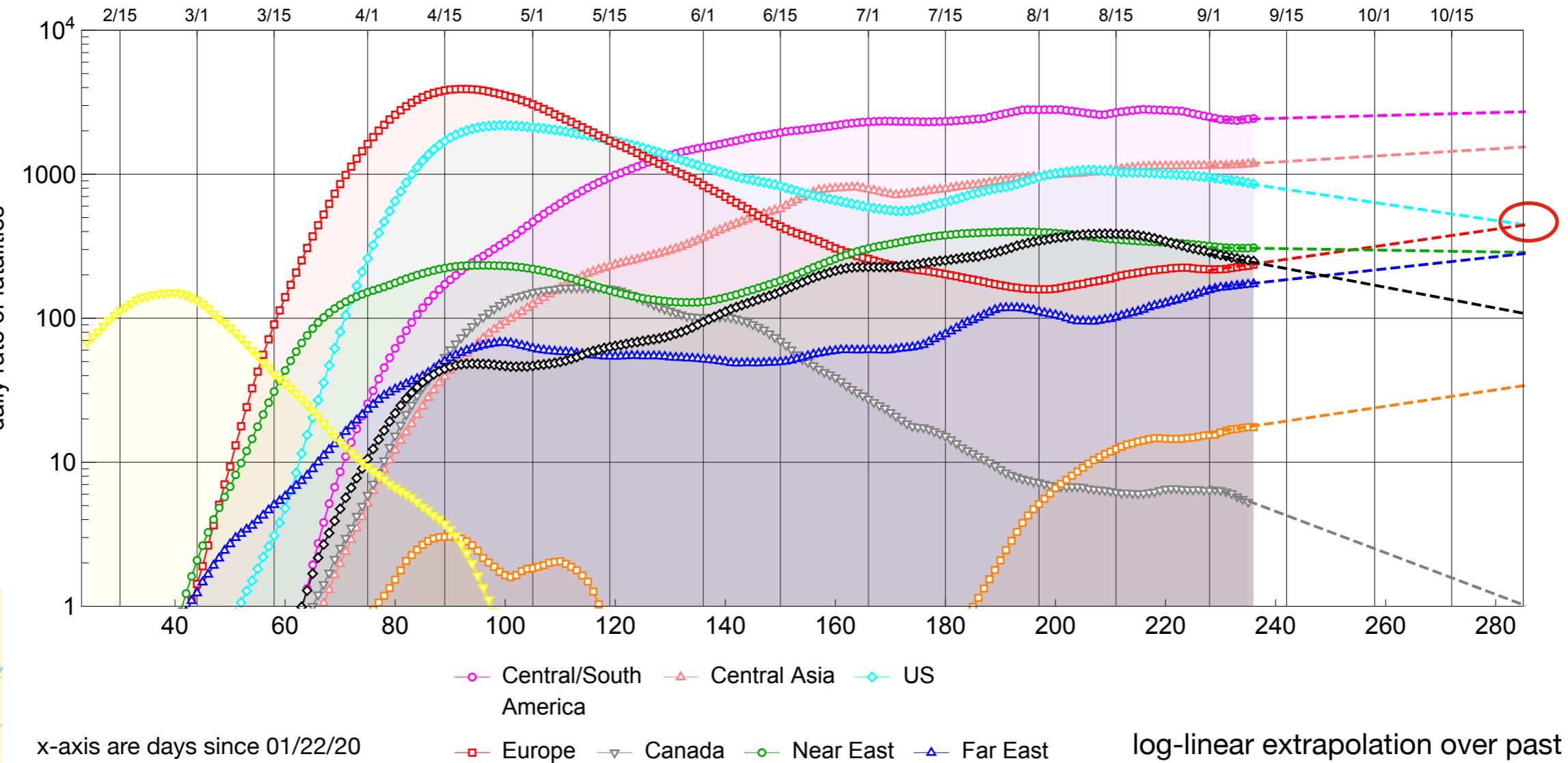
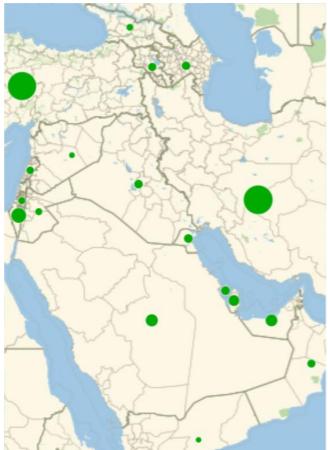
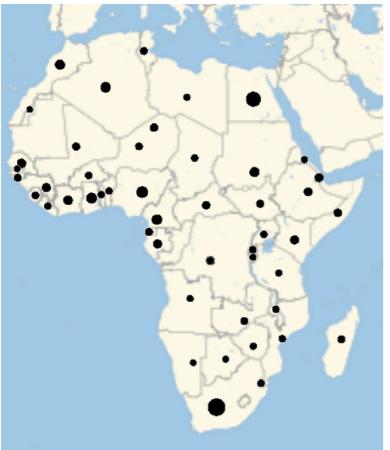
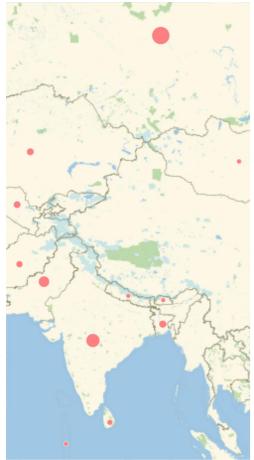


decline and rise in daily rate of deaths over the past weeks

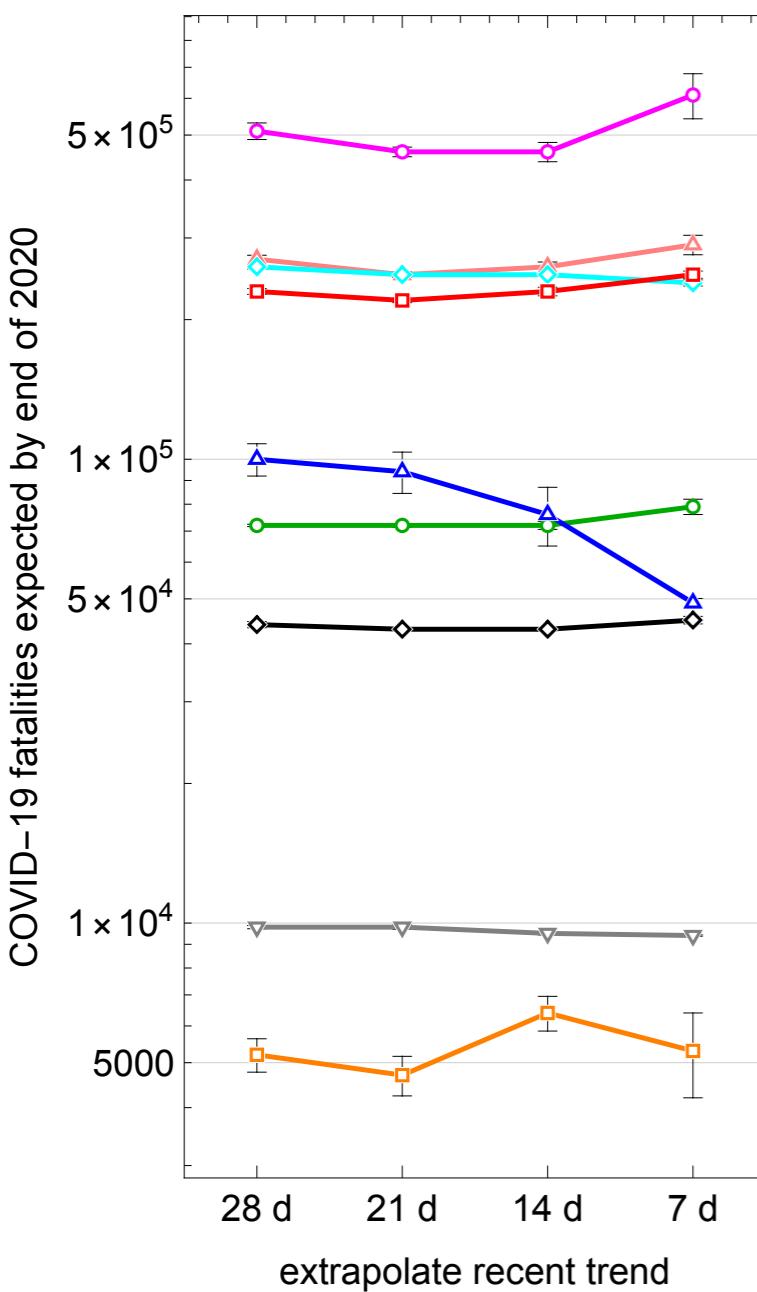


	on 9/9/20	confirmed	fatalities
Central/South America	7 943 973	301 996	
Europe	2 929 619	193 579	
US	6 361 265	190 859	
Central Asia	6 386 299	107 875	
Near East	1 993 058	47 182	
Africa	1 315 482	31 844	
Far East	618 262	14 359	
Canada	136 135	9204	
China	90 100	4733	
Australia	26 524	788	
rounded sums :	28 000 000	900 000	



Estimate of COVID deaths by the end of this year

US, Africa and Canada indicate containment



COVID-19 fatalities expected by end of 2020 *

	9/9/20	trend over past 28-days	trend over past 21-days	trend over past 14-days	trend over past 7-days
US	260 000 ± 2700	250 000 ± 2400	250 000 ± 1900	240 000 ± 3600	
Far East	100 000 ± 8000	94 000 ± 9600	76 000 ± 11000	49 000 ± 1100	
C & S America	510 000 ± 21 000	460 000 ± 11 000	460 000 ± 22 000	610 000 ± 68 000	
Central Asia	270 000 ± 5300	250 000 ± 3300	260 000 ± 6200	290 000 ± 14 000	
Europe	230 000 ± 3300	220 000 ± 2400	230 000 ± 4900	250 000 ± 4500	
Africa	44 000 ± 680	43 000 ± 230	43 000 ± 330	45 000 ± 840	
Near East	72 000 ± 420	72 000 ± 680	72 000 ± 1400	79 000 ± 3000	
Australia	5200 ± 430	4700 ± 460	6400 ± 550	5300 ± 1100	
Canada	9800 ± 79	9800 ± 110	9500 ± 70	9400 ± 31	
globally	1 500 000 ± 42 000	1 400 000 ± 45 000	1 400 000 ± 45 000	1 600 000 ± 83 000	

obtained from exponential fit over the past #‐days
numbers are rounded to the highest two digits
error bars mark 90 % confidence level

- Central/South America
- △— Central Asia
- ◇— US
- Europe
- ▽— Canada
- Near East
- △— Far East
- ◆— Africa
- Australia

	2015 annual deaths	Covid deaths expected 2020	Covid fraction of all deaths 2020
C & S America	3.77×10^6	610 000	16 %
US	2.65×10^6	240 000	9 %
Europe	4.5×10^6	250 000	6 %
Near East	1.69×10^6	79 000	5 %
Canada	267 000	9400	4 %
Australia	158 341	5300	3 %
Central Asia	1.475×10^7	290 000	2 %
Far East	6.16×10^6	49 000	0.8 %
Africa	1.055×10^7	45 000	0.4 %
China	1.004×10^7	4733	0.05 %

source of annual deaths

from trend over past 7 days above

highest deaths per capita

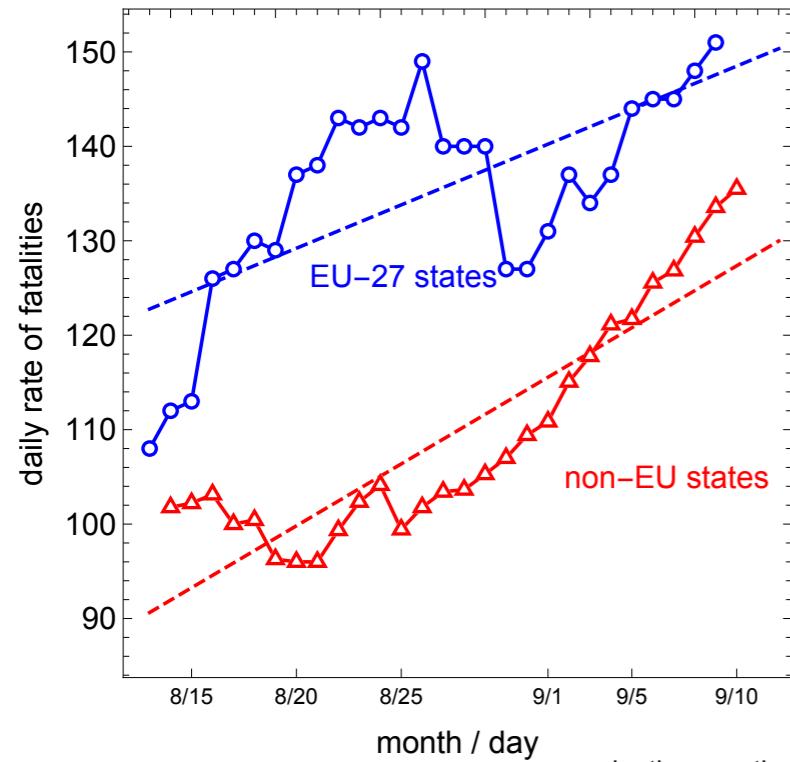
close to 1 per mil

cases		confirmed	deaths	population
confirmed	deaths	per 10^4	per 10^4	(millions)
696 190	30 123	211	9.1	Peru 33.
89 691	9917	77	8.6	Belgium 12.
64 056	5771	75	6.8	Quebec, Canada 8.5
543 379	29 628	116	6.3	Spain 47.
355 219	41 594	52	6.1	United Kingdom 68
112 166	10 701	64	6.1	Ecuador 18.
427 027	11 702	223	6.1	Chile 19.
123 345	7146	106	6.1	Bolivia 12.
4 197 889	128 539	198	6.	Brazil 213
281 583	35 577	47	5.9	Italy 60
6 361 265	190 859	193	5.8	US 329
85 880	5842	85	5.8	Sweden 10.
647 321	69 049	51	5.4	Mexico 128
99 042	2116	230	4.9	Panama 4.3
363 751	30 643	56	4.7	France 65
686 851	22 053	135	4.3	Colombia 51
77 688	6246	45	3.6	Netherlands 17.
30 164	1781	61	3.6	Ireland 4.9
45 152	905	152	3.1	Armenia 3.
15 293	634	73	3.	North Macedonia 2.1
41 144	1096	102	2.7	Moldova 4.
12 683	488	70	2.7	Kosovo 1.8
393 425	22 669	47	2.7	Iran 84
642 431	15 168	108	2.6	South Africa 59
512 293	10 658	113	2.4	Argentina 45.

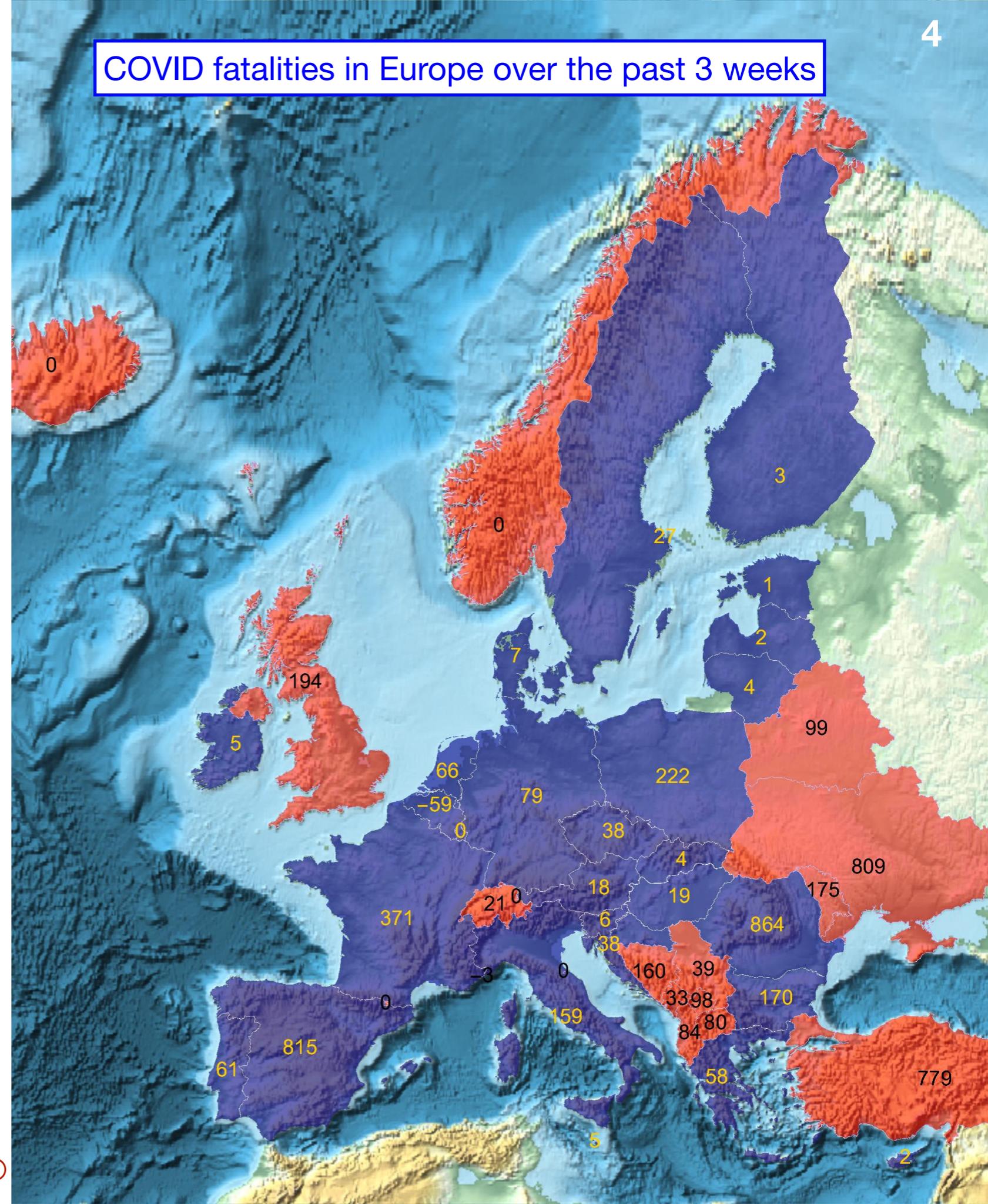
close to 1/2 percent

county	deaths per 10^4 inh.	population
Hancock	Georgia	46 8457
Galax	Virginia	44 6347
Randolph	Georgia	40 6778
Terrell	Georgia	36 8531
Emporia	Virginia	36 5346
Neshoba	Mississippi	35 29 118
McKinley	New Mexico	35 71 367
Bronx	New York	35 1 418 207
Holmes	Mississippi	32 17 010
Queens	New York	32 2 253 858
Early	Georgia	31 10 190
Perkins	Nebraska	31 2 891
Jenkins	Georgia	31 8676
Kings	New York	29 2 559 903
Brooks	Texas	28 7093
East Feliciana	Louisiana	27 19 135
Leflore	Mississippi	27 28 183
Essex	New Jersey	27 798 975
Turner	Georgia	26 7985
Lowndes	Alabama	26 9726
Passaic	New Jersey	25 501 826
Northampton	Virginia	25 11 710
Kenedy	Texas	25 404
Union	New Jersey	24 556 341
Bienville	Louisiana	24 13 241
Red River	Louisiana	24 8442
Crenshaw	Alabama	23 13 772
Wilcox	Georgia	23 8635
Sharkey	Mississippi	23 4321
Richmond	New York	23 476 143
St. John the Baptist	Louisiana	23 42 837
Issaquena	Mississippi	23 1327
Hudson	New Jersey	22 672 391
Starr	Texas	22 64 633
Upson	Georgia	22 26 320
Bamberg	South Carolina	22 14 066
Bergen	New Jersey	22 932 202
Knox	Texas	22 3664
Dakota	Nebraska	21 20 026
Apache	Arizona	21 71 887
Rockland	New York	21 325 789
Willacy	Texas	21 21 358
Clarke	Mississippi	21 15 541
Mitchell	Georgia	21 21 863
Dougherty	Georgia	20 87 956
Sumter	Georgia	20 29 524
Tallapoosa	Alabama	20 40 367
Navajo	Arizona	20 110 924
Wilkinson	Mississippi	20 8630
New York	New York	20 1 628 706

Europe w/o Russia



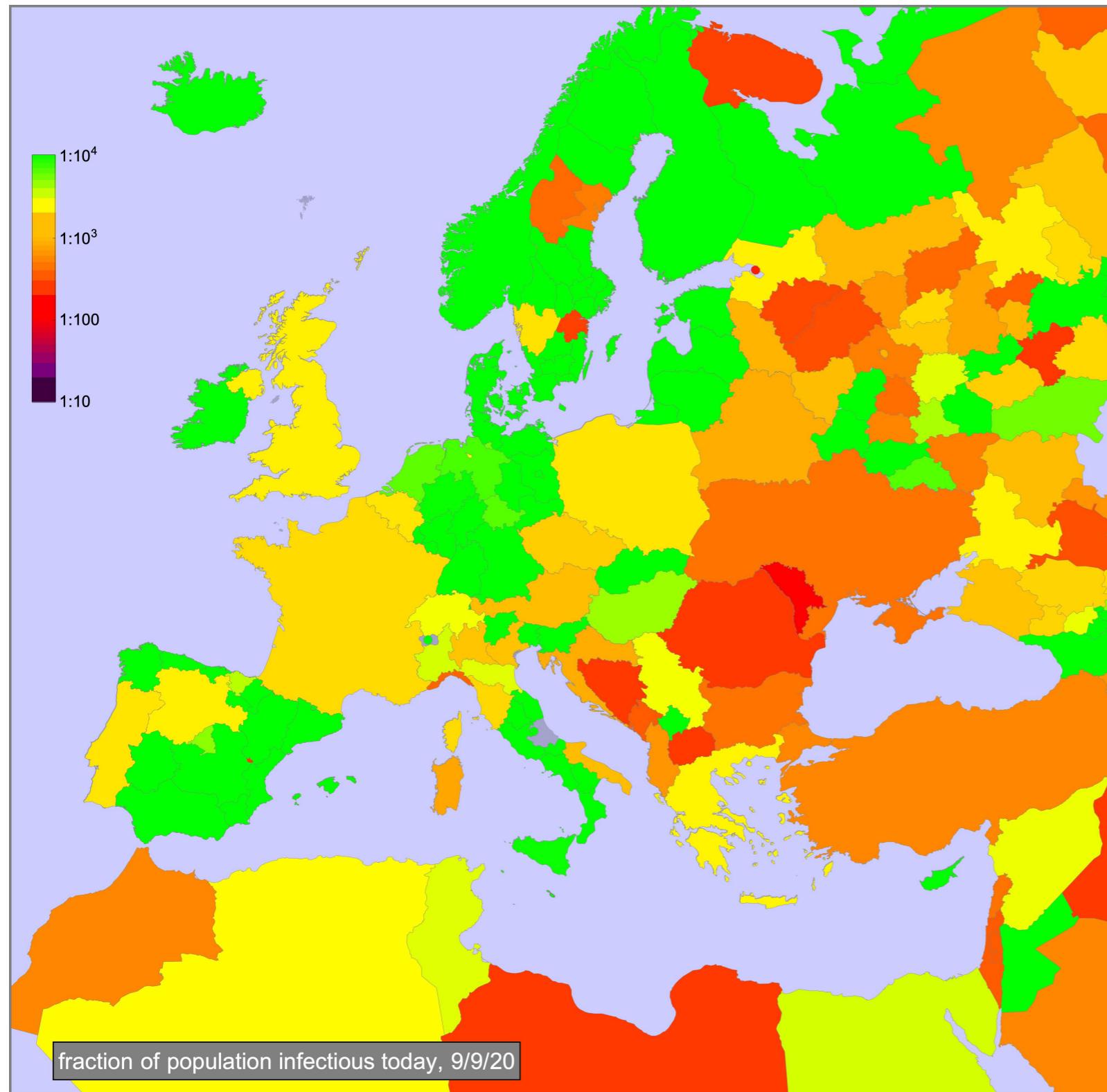
COVID fatalities in Europe over the past 3 weeks



note that Belgium *
corrected total deaths
by -117 on August 27

Ukraine	809
Turkey	779
United Kingdom	194
Moldova	175
Bosnia Herzegovina	160
Belarus	99
Kosovo	98
Albania	84
North Macedonia	80
Serbia	39
Montenegro	33
Switzerland	21
San Marino	0
Norway	0
Liechtenstein	0
Iceland	0
Andorra	0
Monaco	-3

Europe & greater Mediterranean region

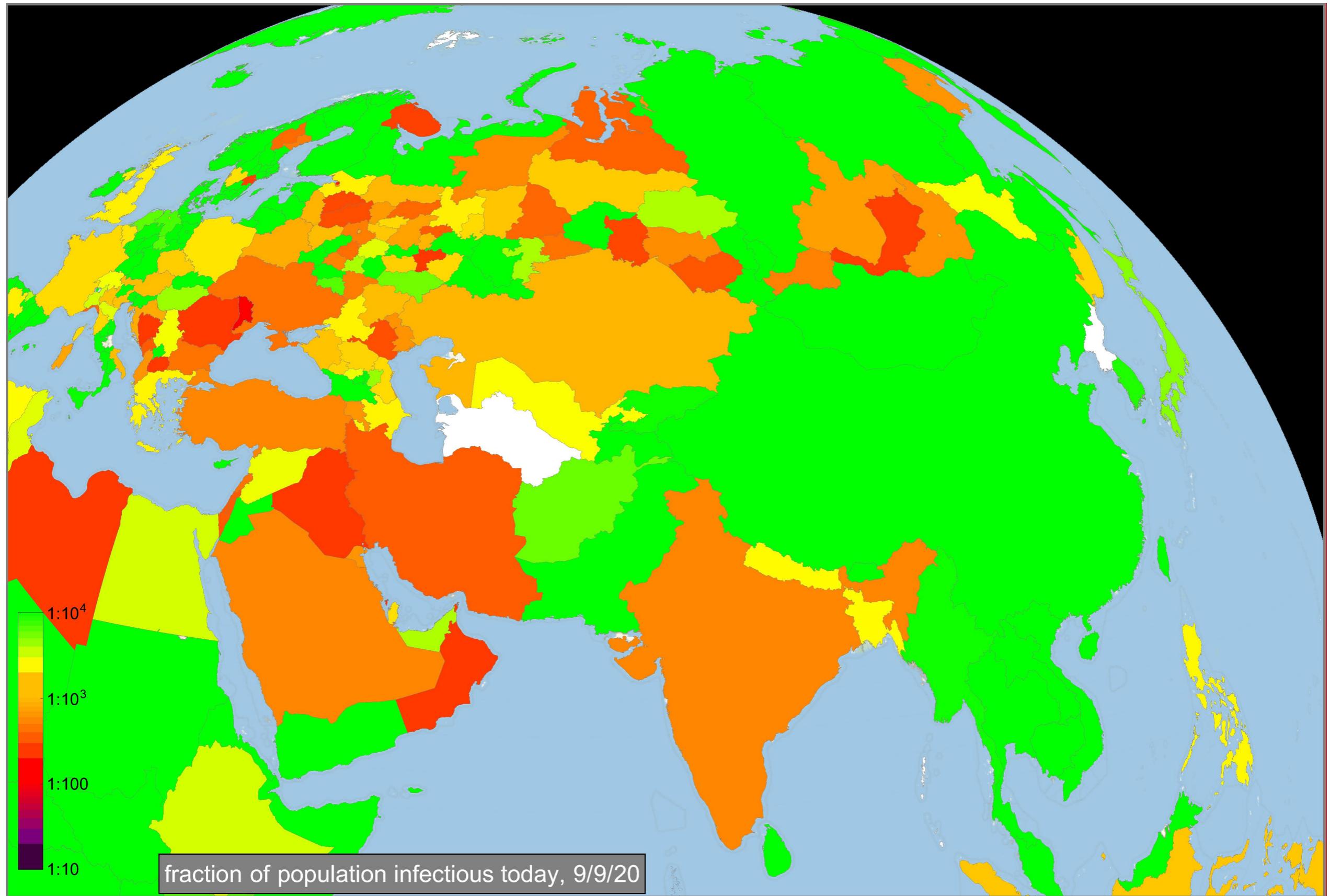


province, country	population	infectious
Moldova	4.	1 : 100
Romania	20	1 : 200
Oman	4.6	1 : 200
North Macedonia	2.1	1 : 200
Libya	6.4	1 : 200
Iraq	38	1 : 200
Bosnia and Herzegovina	3.5	1 : 200
Bahrain	1.5	1 : 200
Ostergotland, Sweden	0.5	1 : 200
West Bank and Gaza	2.7	1 : 300
Montenegro	0.6	1 : 300
Israel	8.3	1 : 300
Iran	81	1 : 300
Liguria, Italy	1.6	1 : 300
Jamtland Harjedalen, Sweden	0.1	1 : 400
Ukraine	44	1 : 400
Lebanon	6.1	1 : 400
Bulgaria	7.1	1 : 400
Vasternorrland, Sweden	0.2	1 : 500
Turkey	81	1 : 500
Saudi Arabia	33	1 : 500
Morocco	36	1 : 500
Kuwait	4.1	1 : 600
Armenia	2.9	1 : 600
Albania	2.9	1 : 600
Sardegna, Italy	1.6	1 : 700
Croatia	4.2	1 : 800
Belarus	9.5	1 : 800
Puglia, Italy	4.	1 : 1000
Austria	8.7	1 : 1000
Veneto, Italy	4.9	1 : 1000
Lombardia, Italy	10	1 : 1100
Czechia	11	1 : 1200
Toscana, Italy	3.7	1 : 1400
France	65	1 : 1400

million
inhabitants

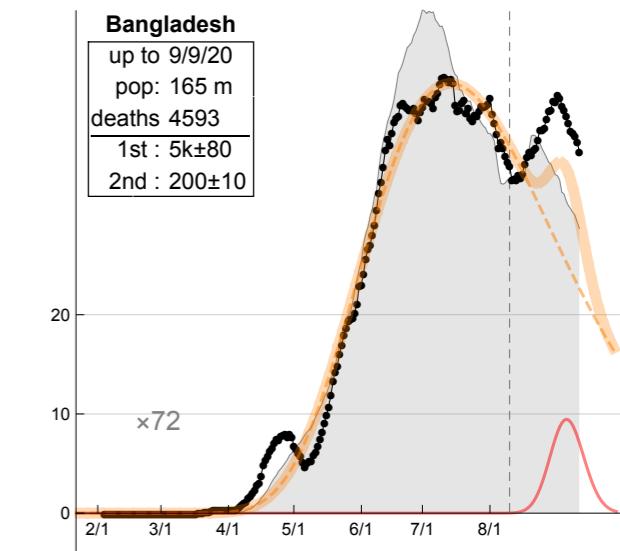
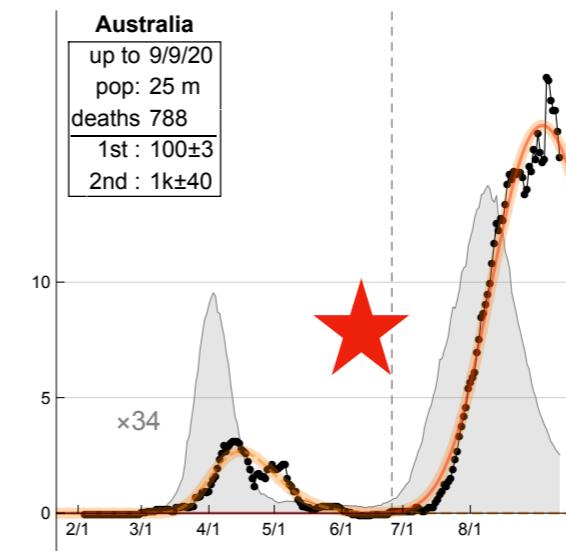
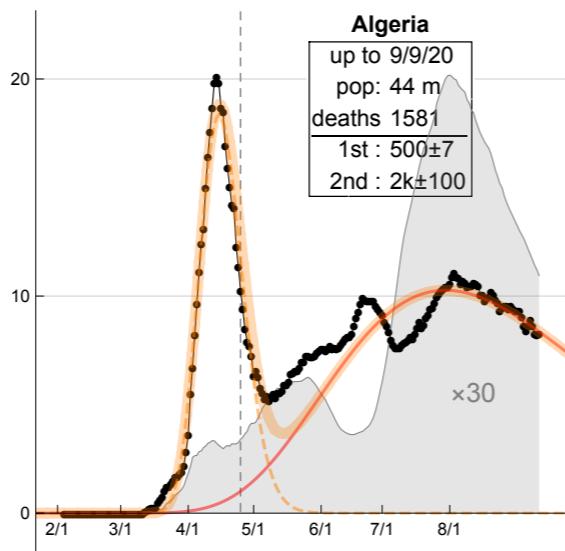
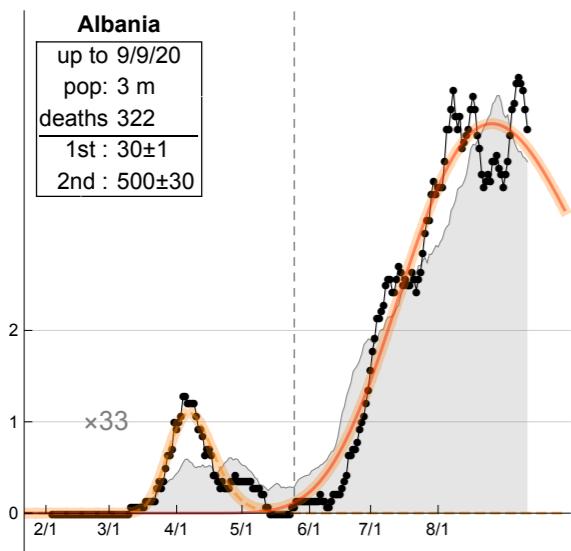
see page 27 for method of calculation
of "infectious persons today"

Asian region

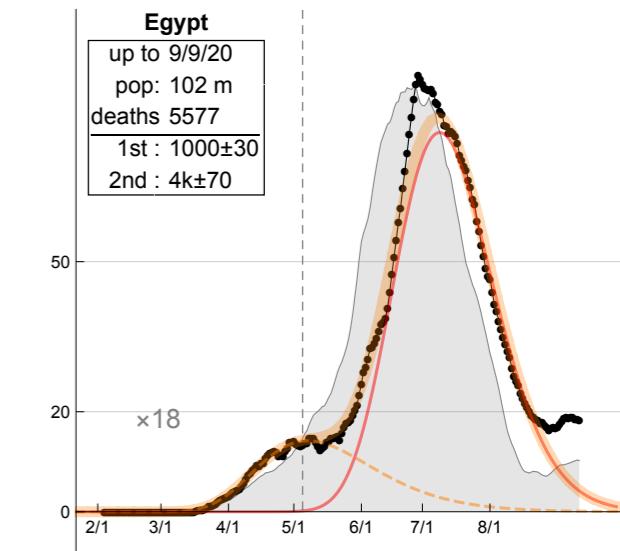
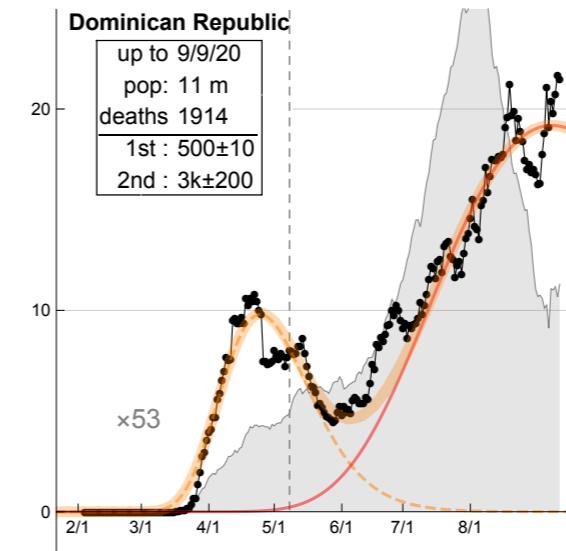
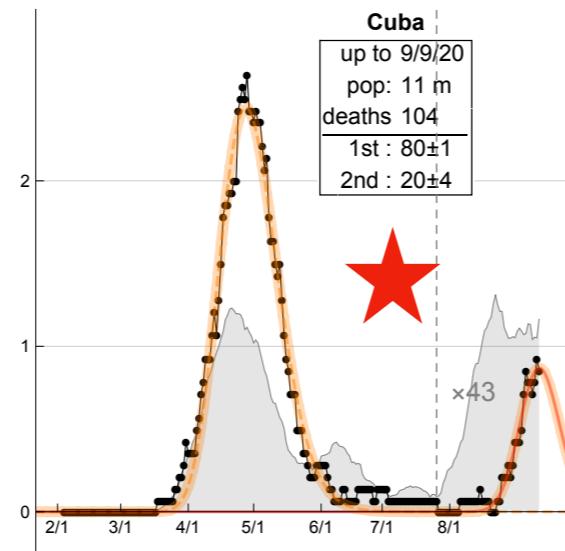
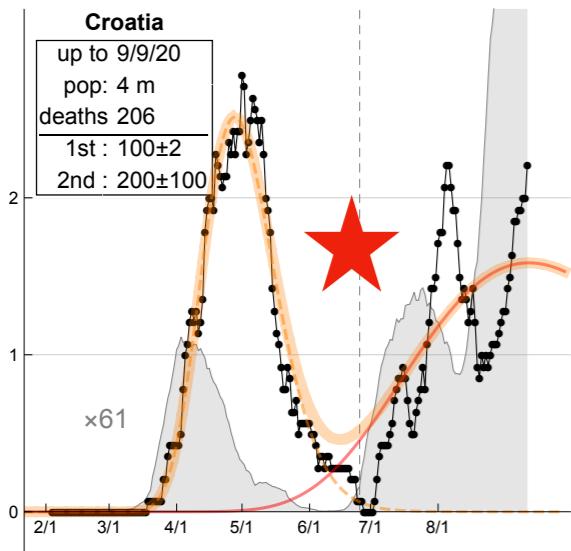
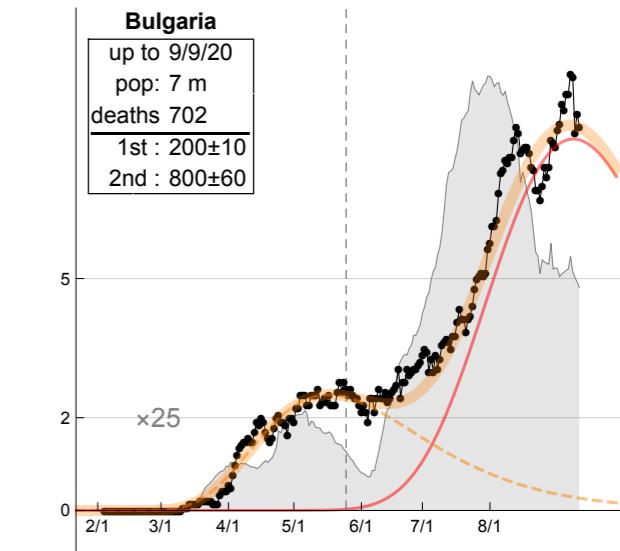
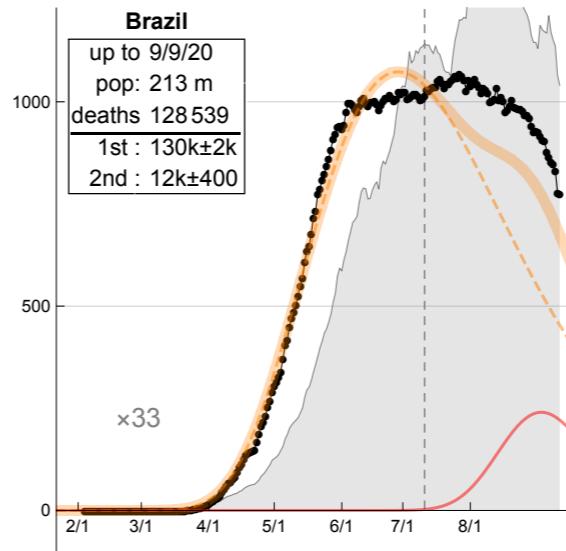
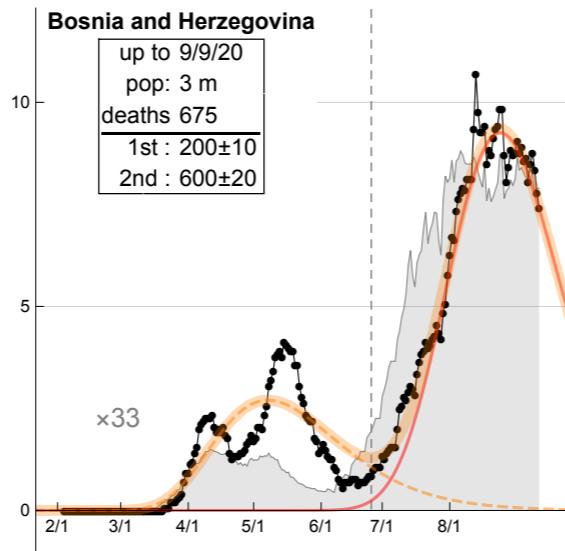
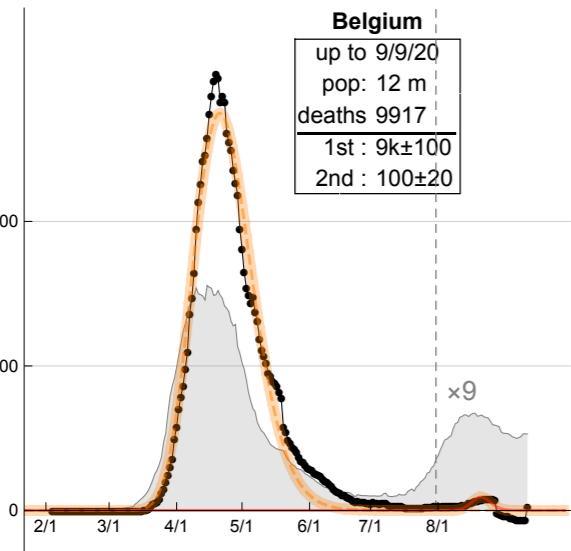


Black points : 14-day moving average. Region to left of vertical dashed black line is considered for LogNormal fit of first wave. Orange dashed: first wave . Red dashed: second wave. Orange band: sum of both

second waves, part 1



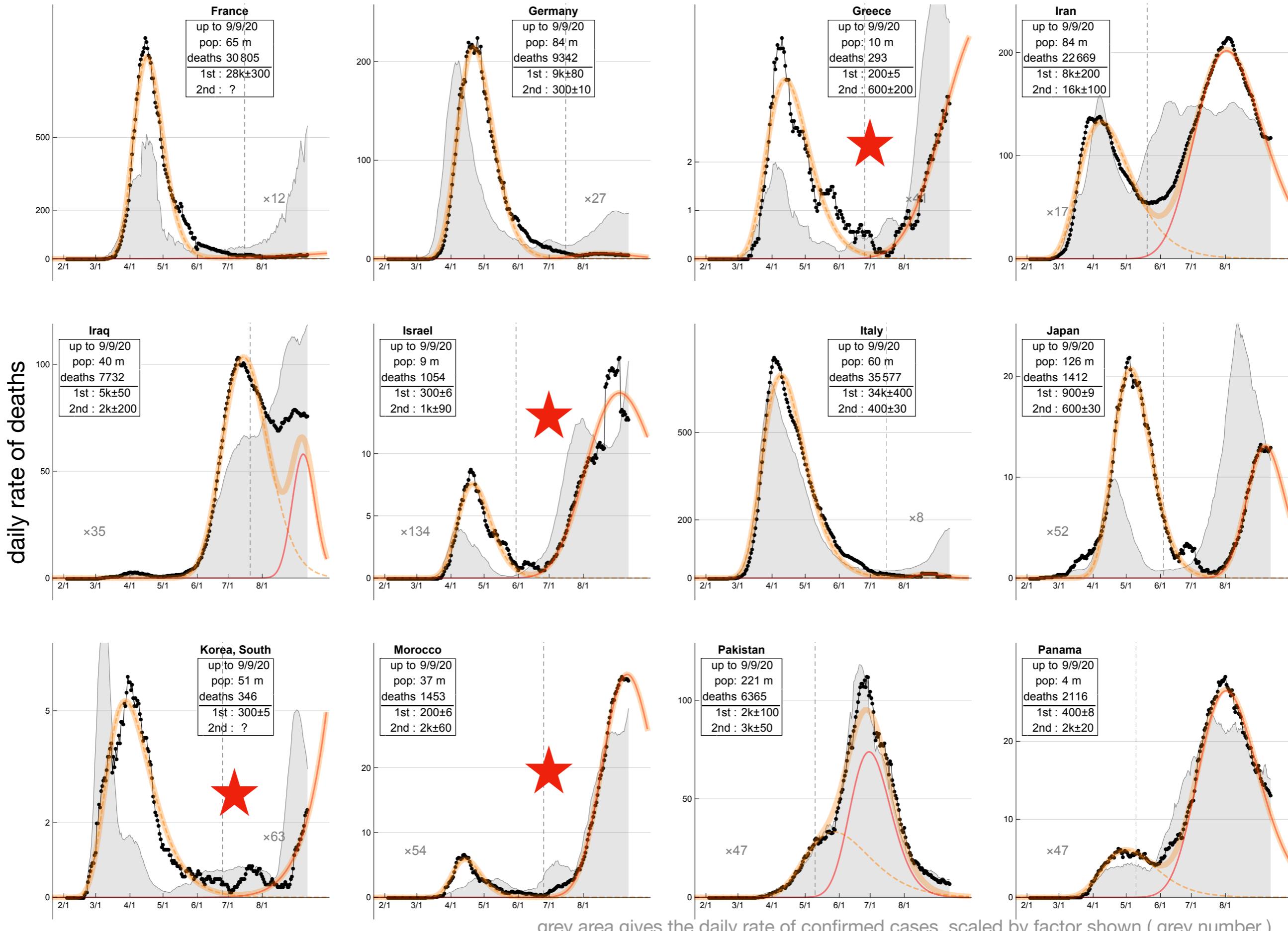
daily rate of deaths



grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

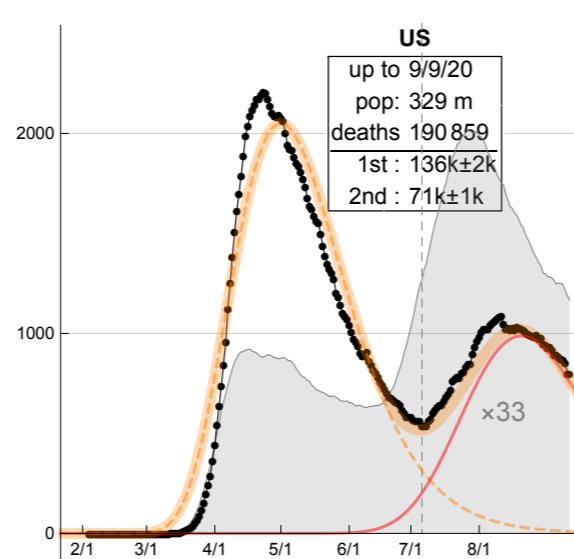
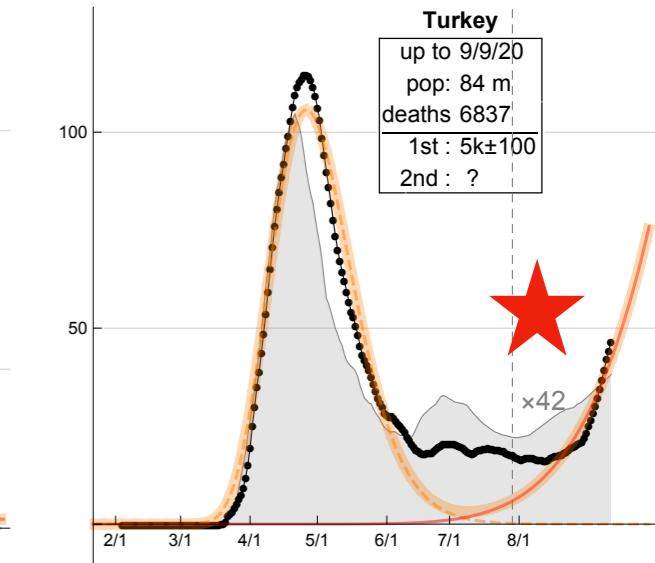
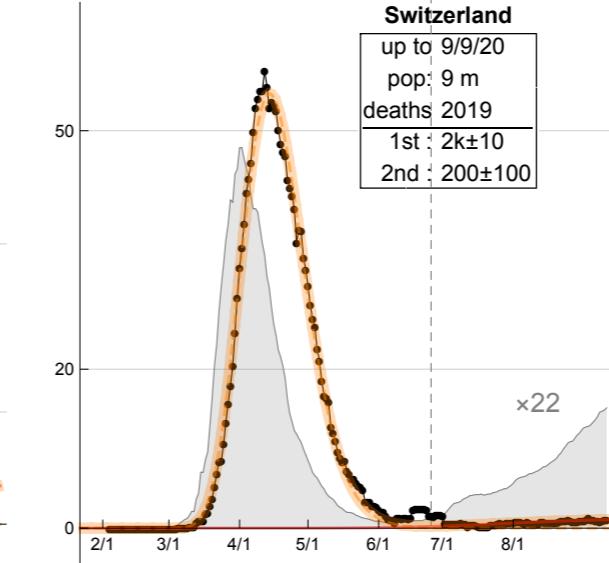
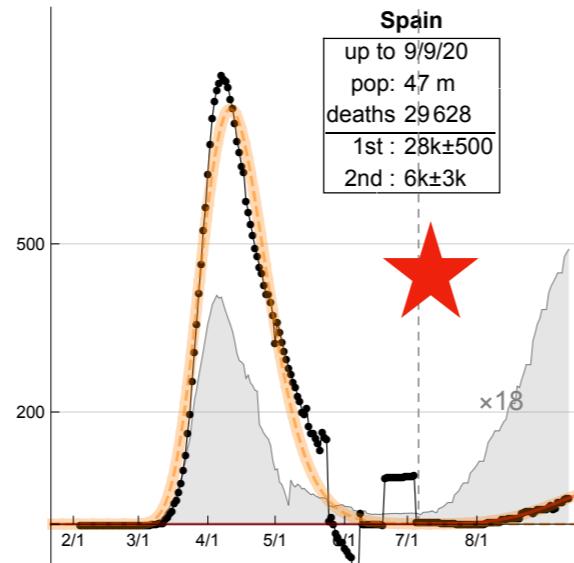
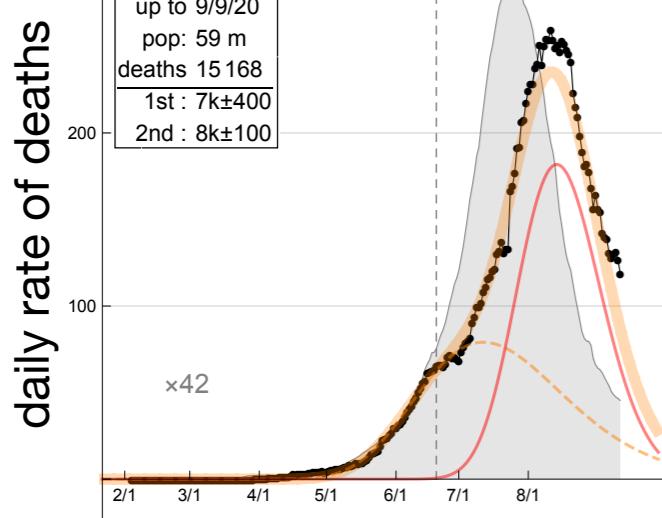
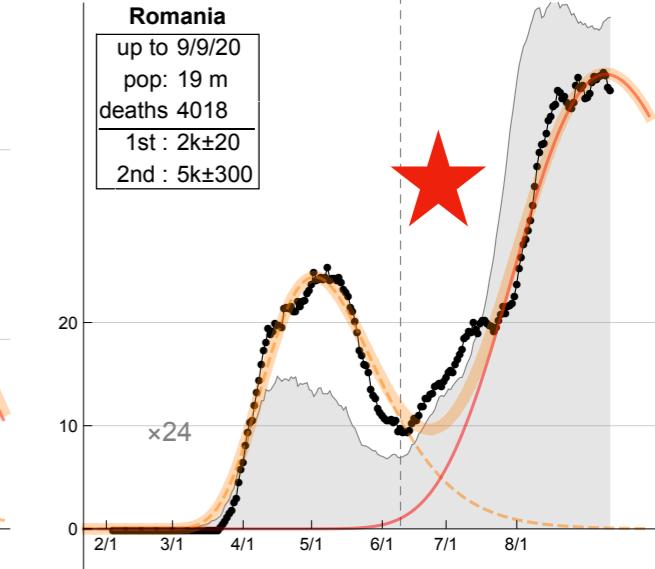
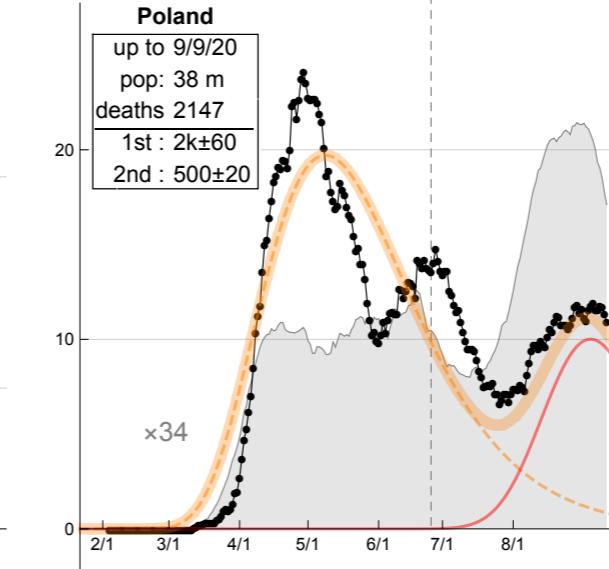
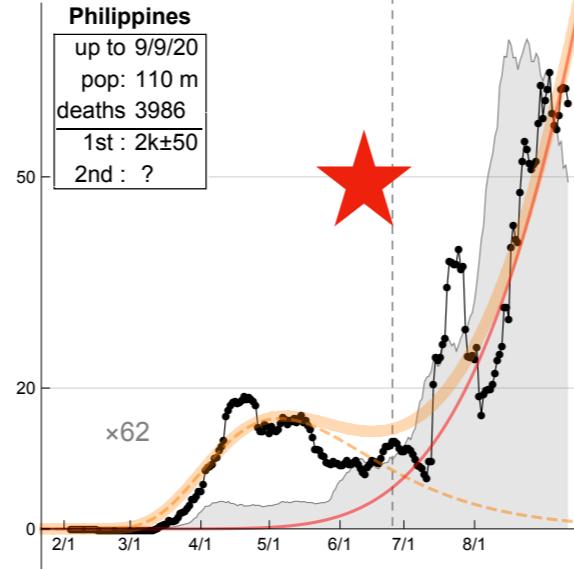
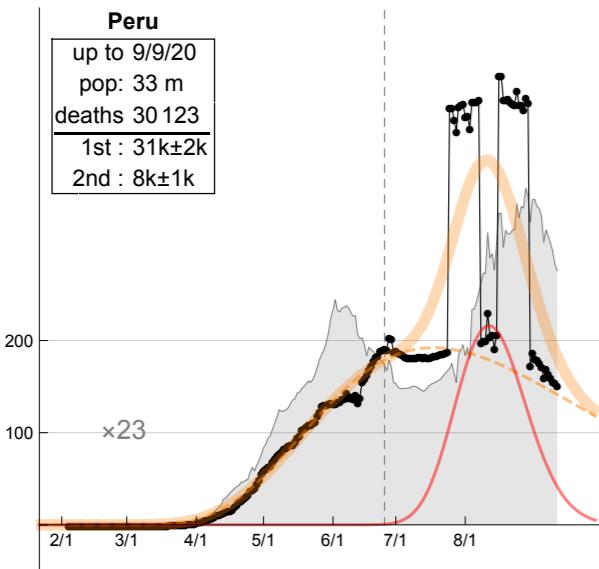
Black points : 14-day moving average. Region to left of vertical dashed black line is considered for LogNormal fit of first wave. Orange dashed: first wave . Red dashed: second wave. Orange band: sum of both

second waves, part 2



Black points : 14-day moving average. Region to left of vertical dashed black line is considered for LogNormal fit of first wave. Orange dashed: first wave . Red dashed: second wave. Orange band: sum of both

second waves, part 3

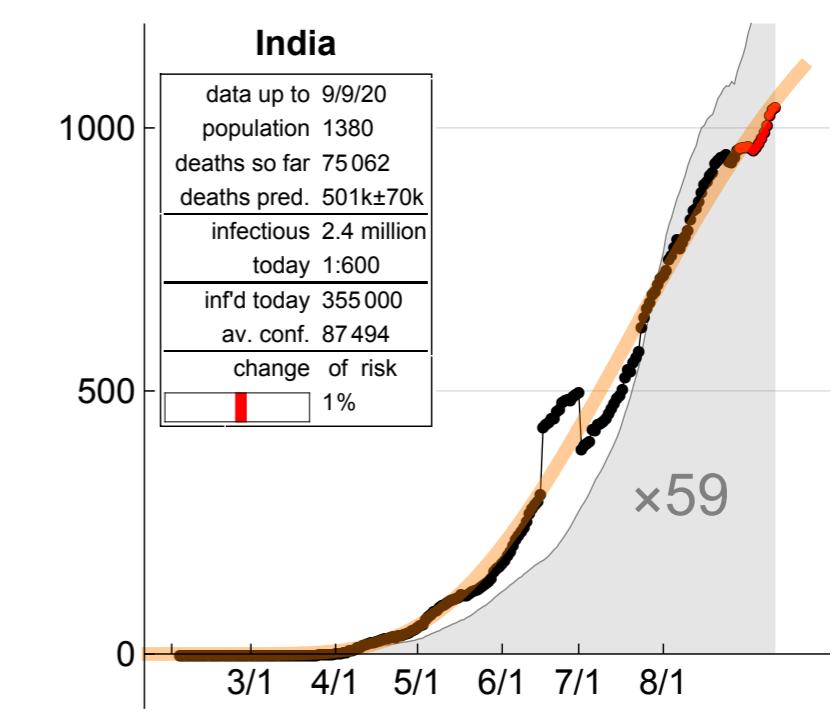
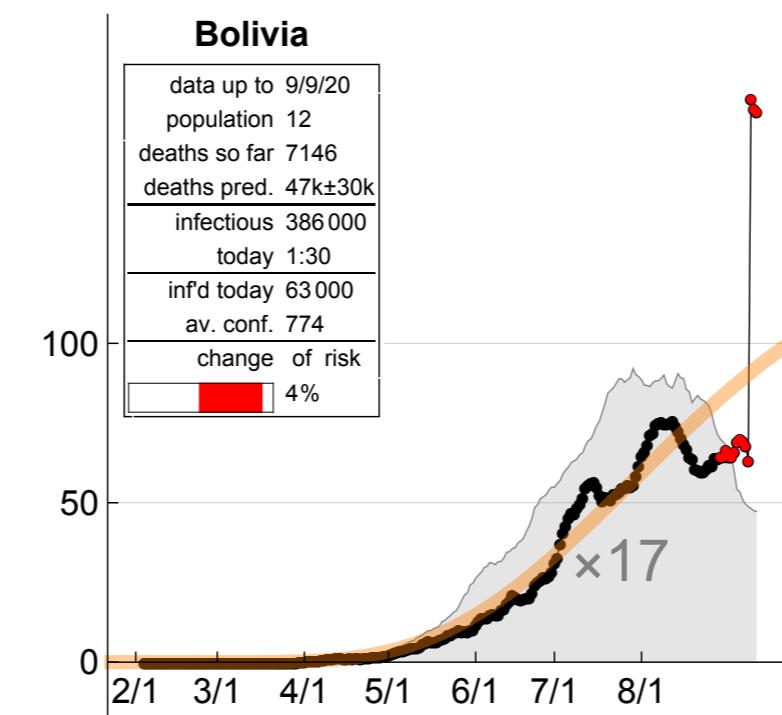
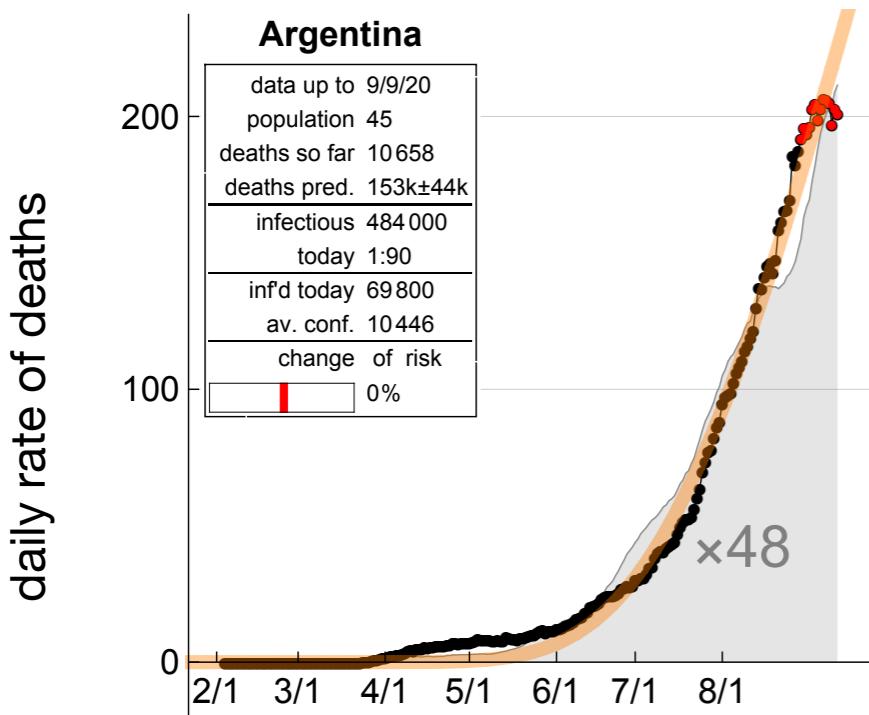


★ indication for
lack of containment

grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

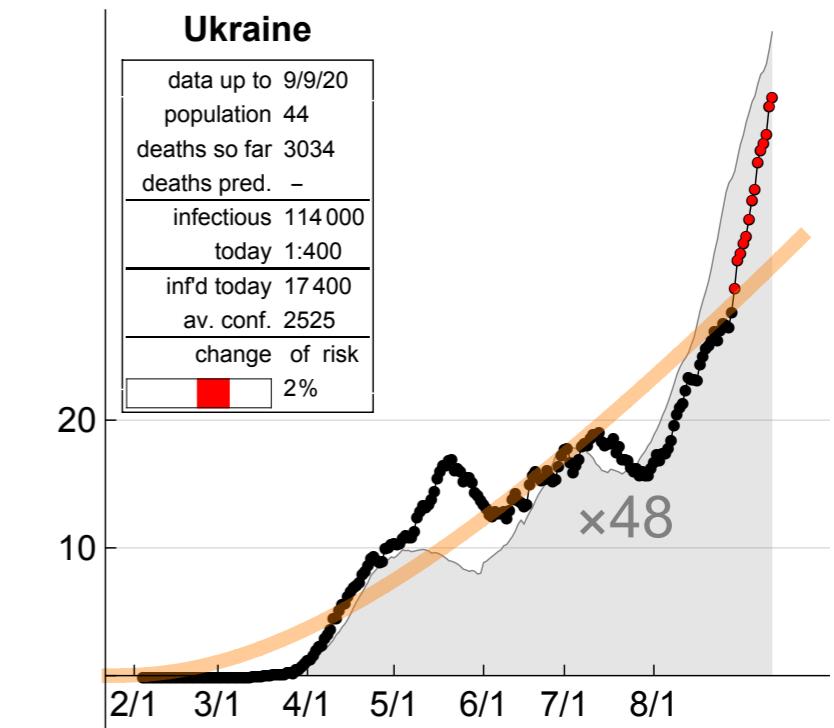
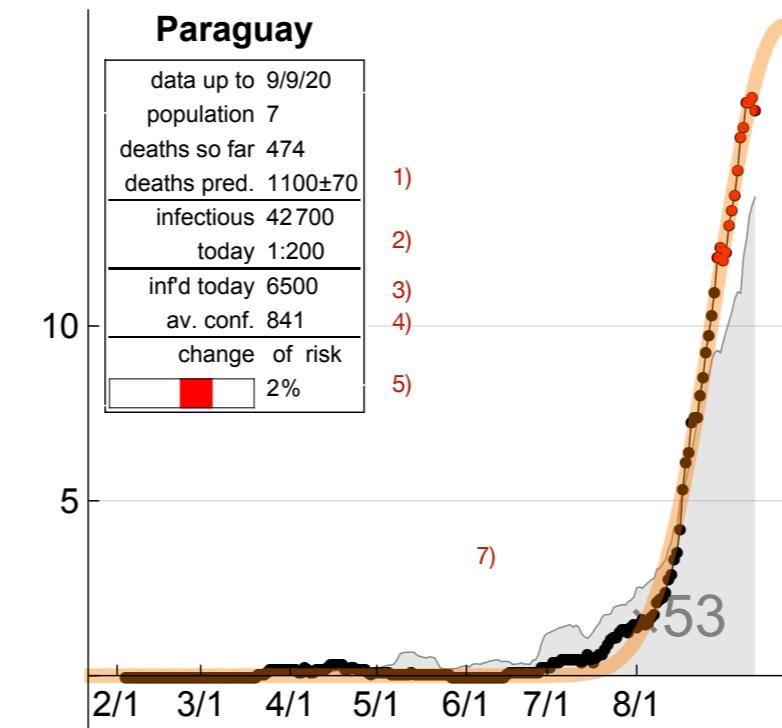
Points : 14-day moving average
 Red Points: region to estimate trend of risk
 Orange: Log-Normal fit to entire distribution

alarming growth of daily rates



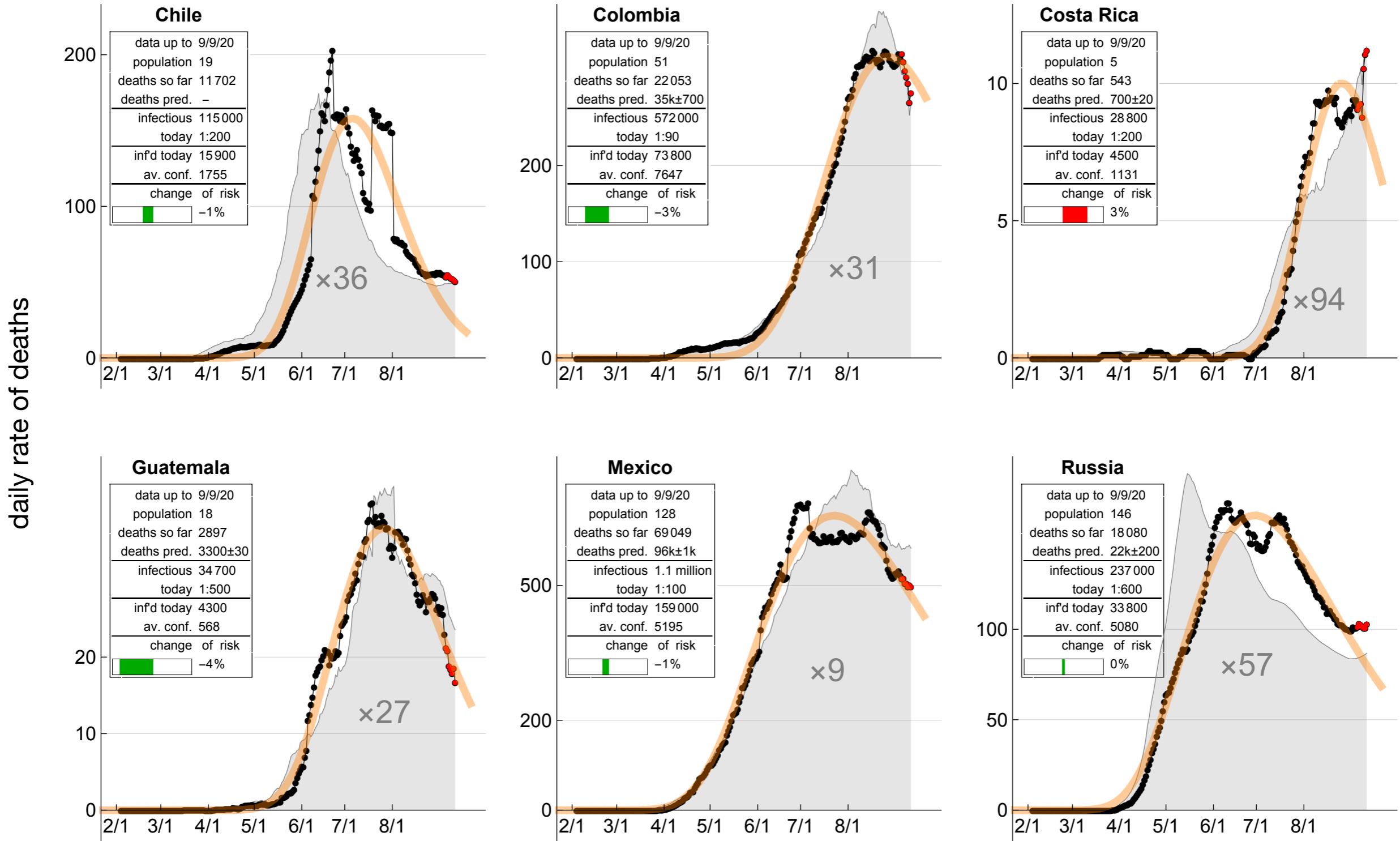
- 2) deaths on record up to today and total deaths predicted
- 2) estimate of "infectious persons today"
- 3) number who will be infected today,
- 4) 7-day average of confirmed cases
- 5) trend of risk to be infected today as compared to yesterday's risk

see page 27 for method of calculation of "infectious persons today"



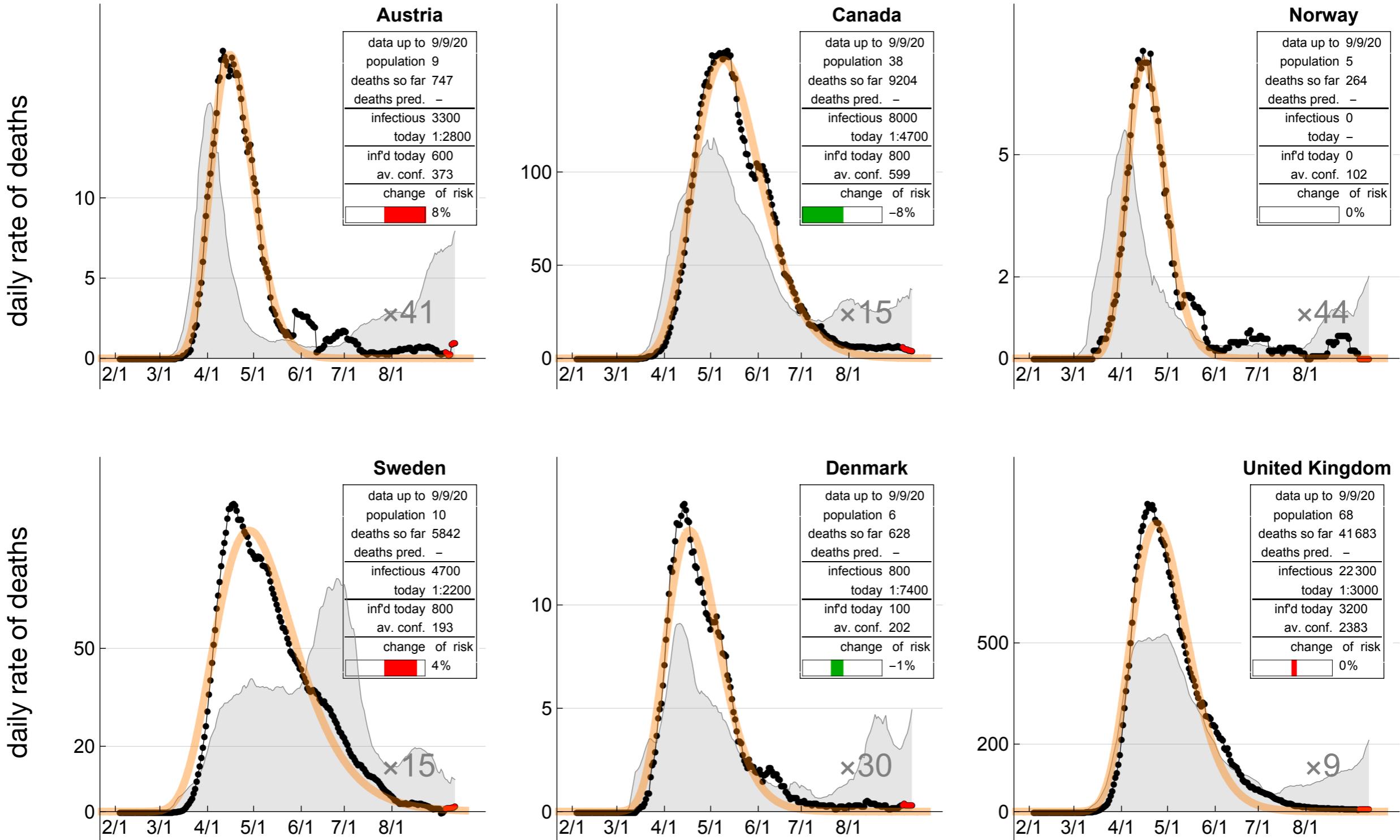
grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

first peak passed !



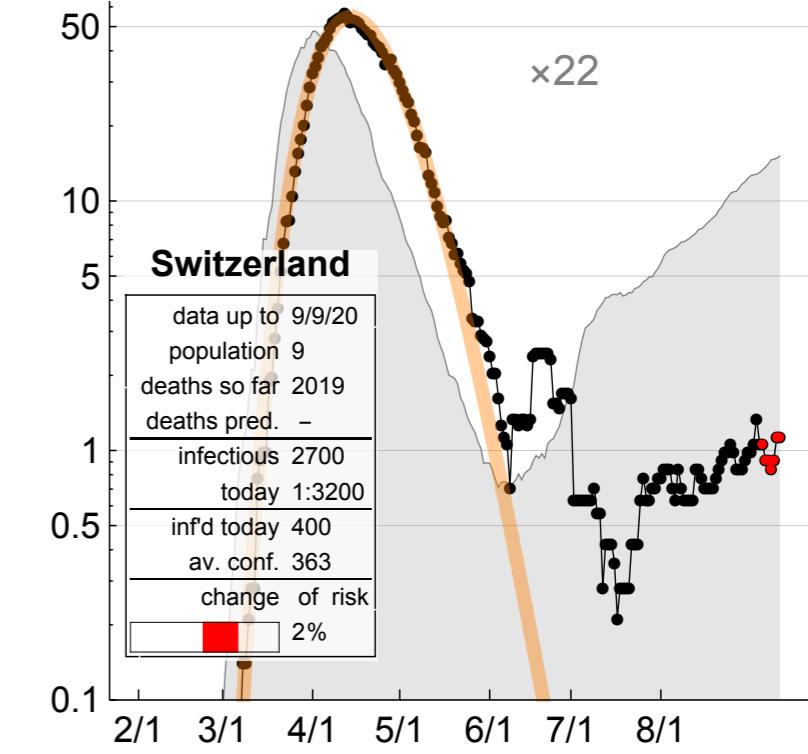
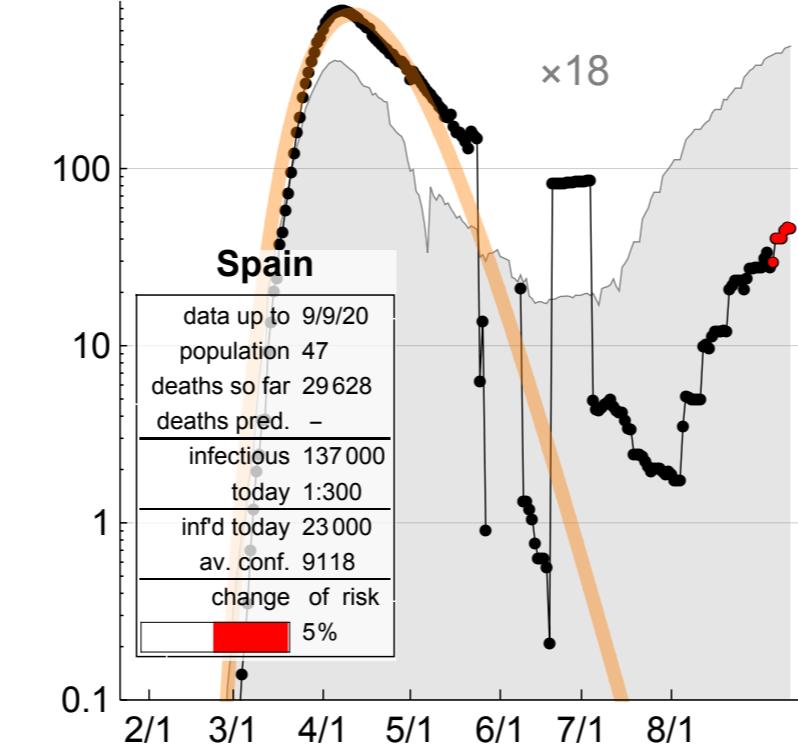
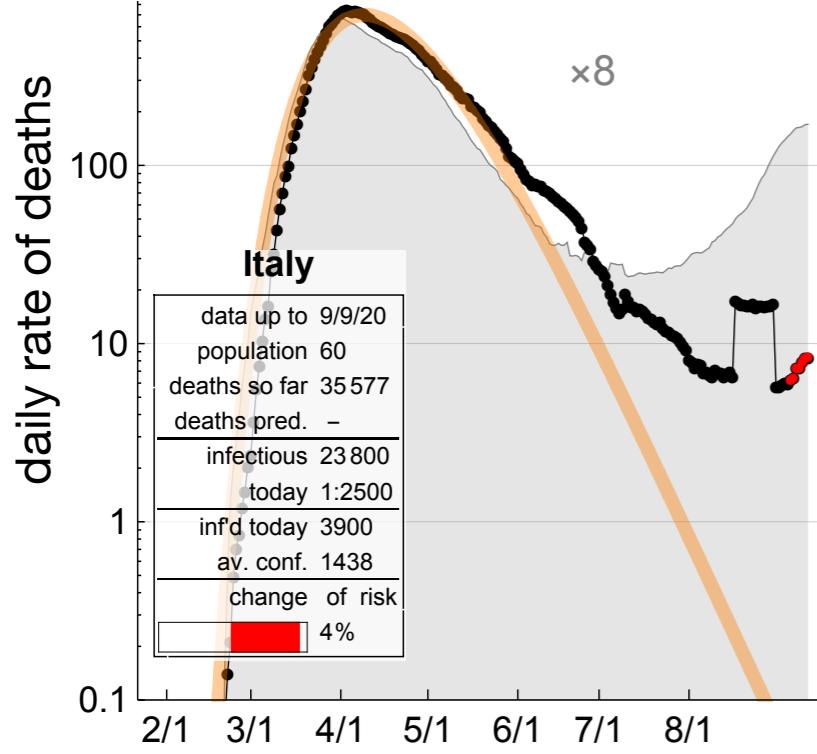
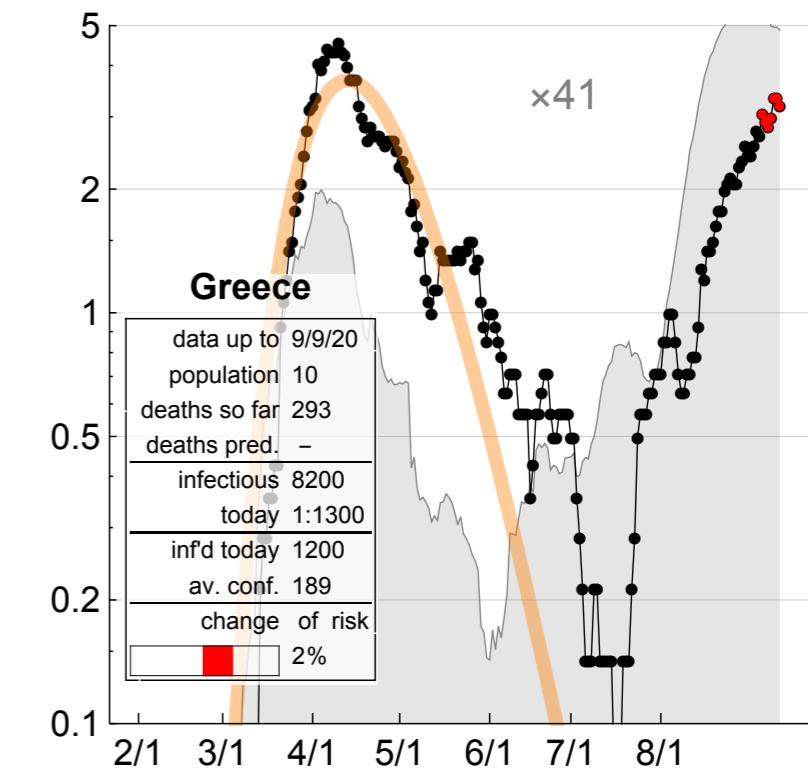
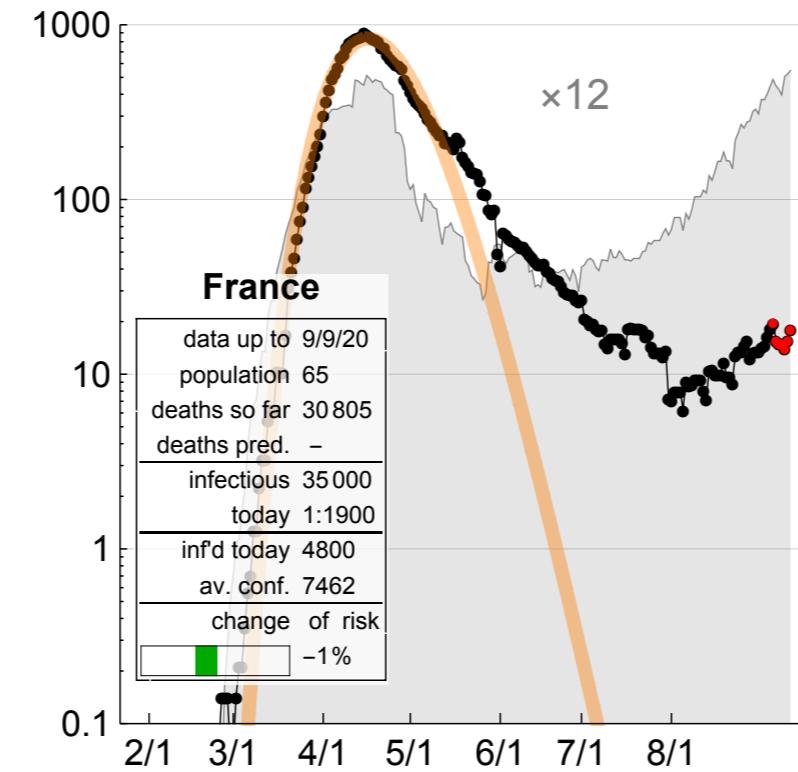
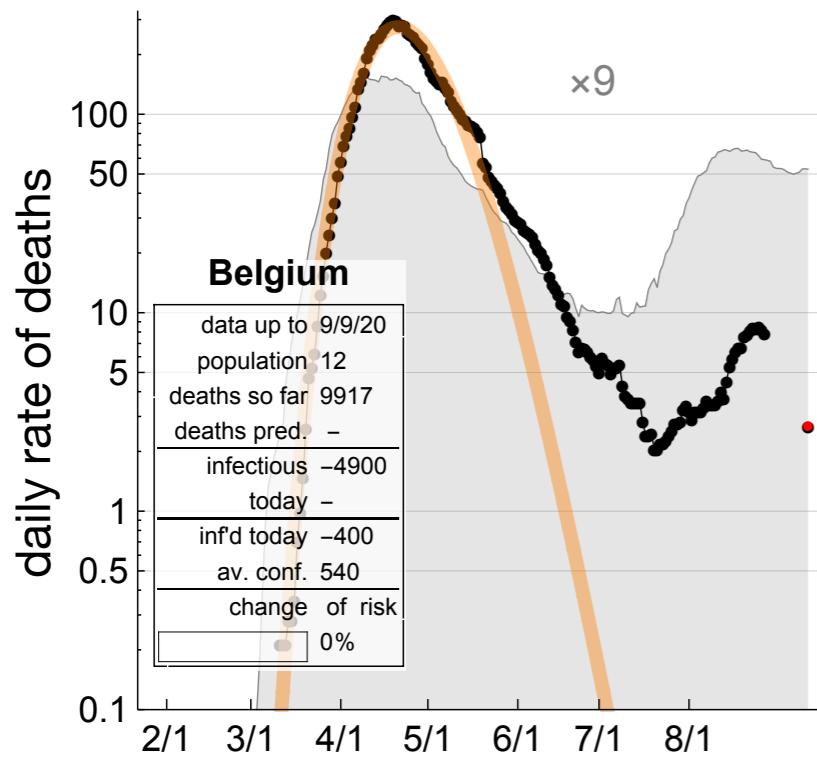
grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

past first peak



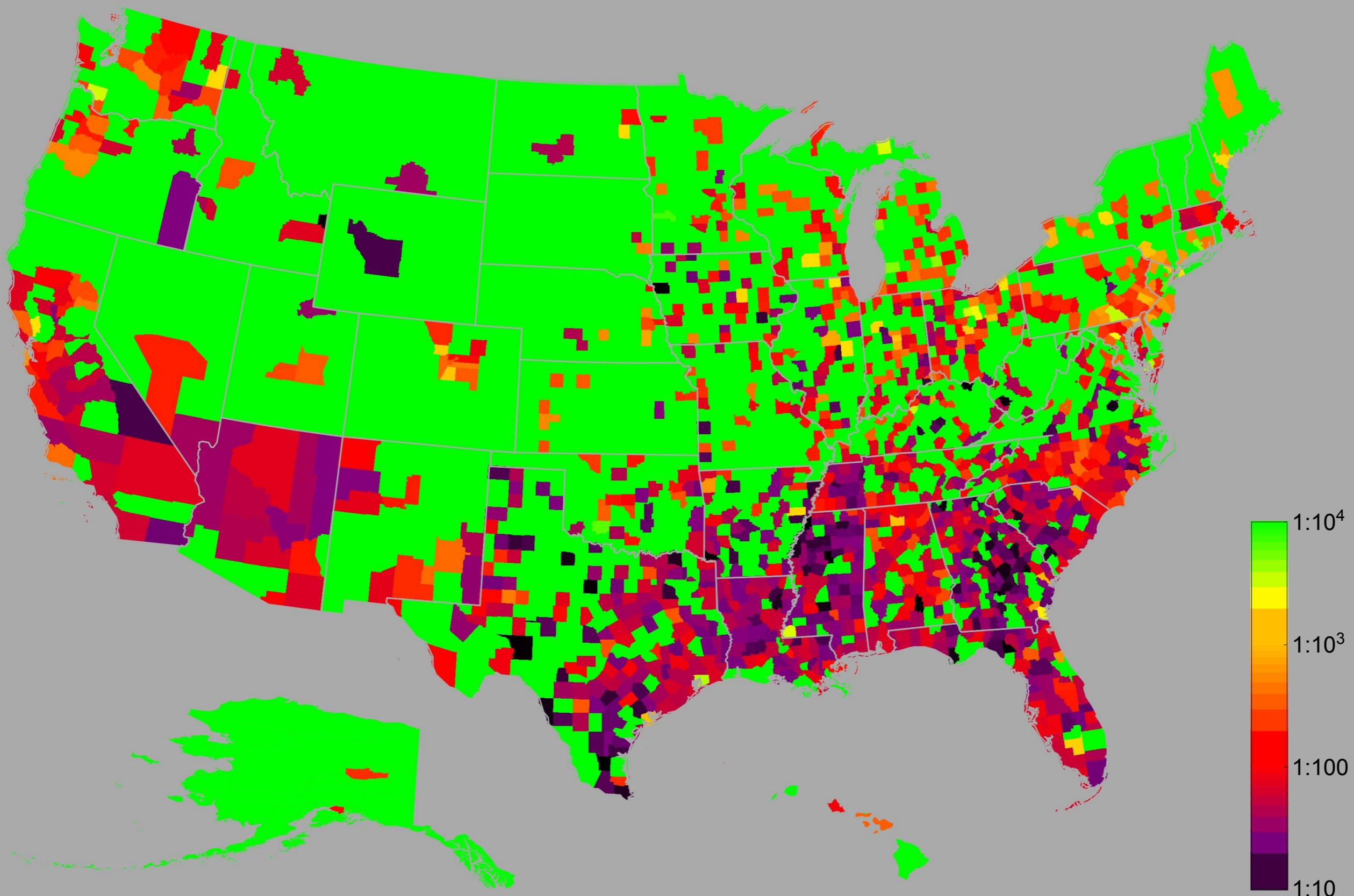
grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

recent development is better visible on log-scale



grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

county maps of infectious cases today

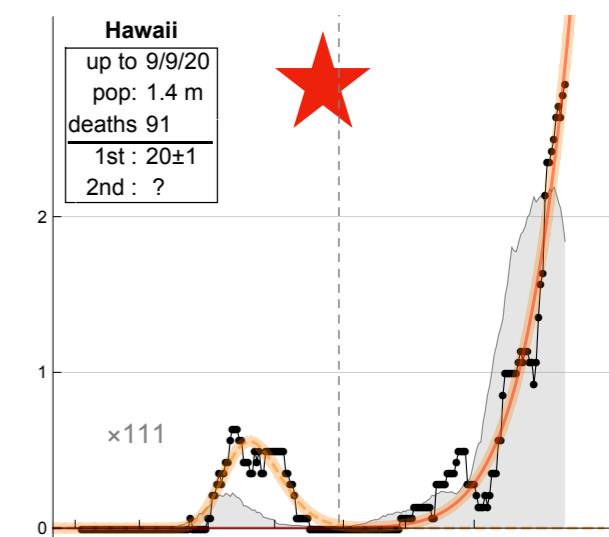
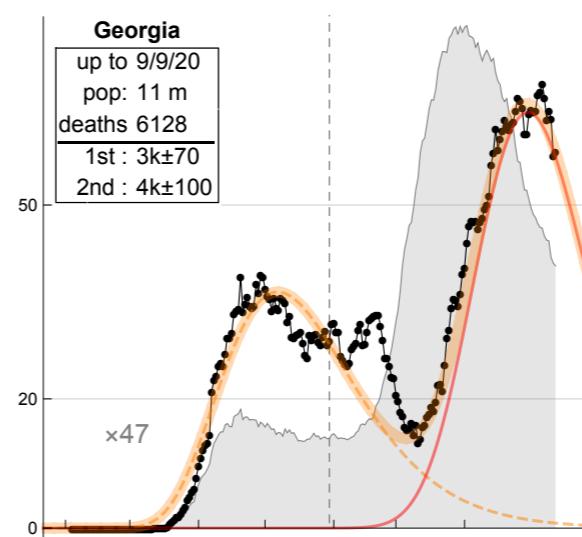
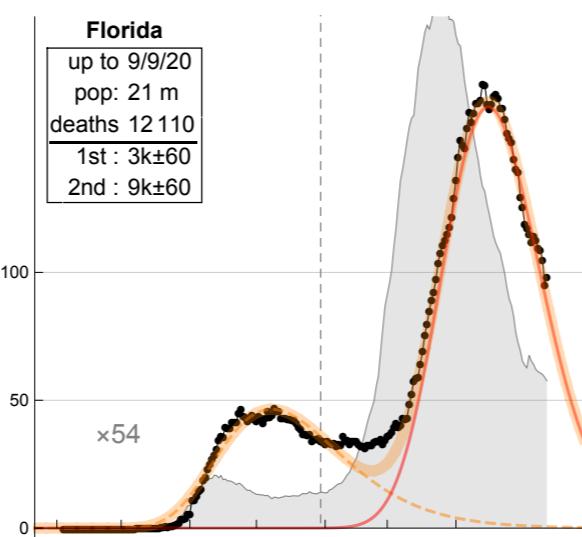
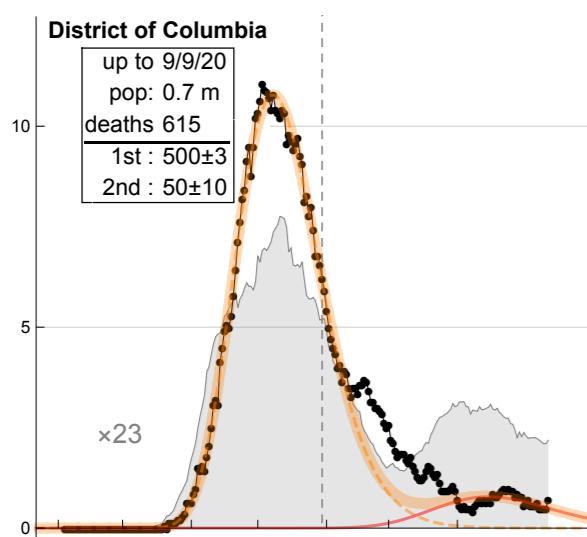
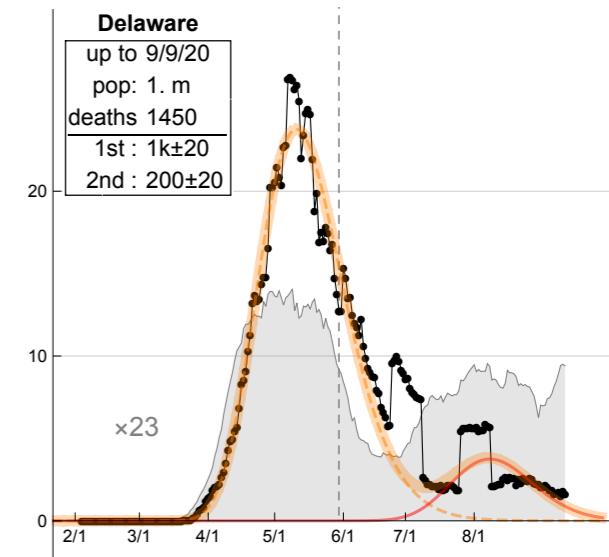
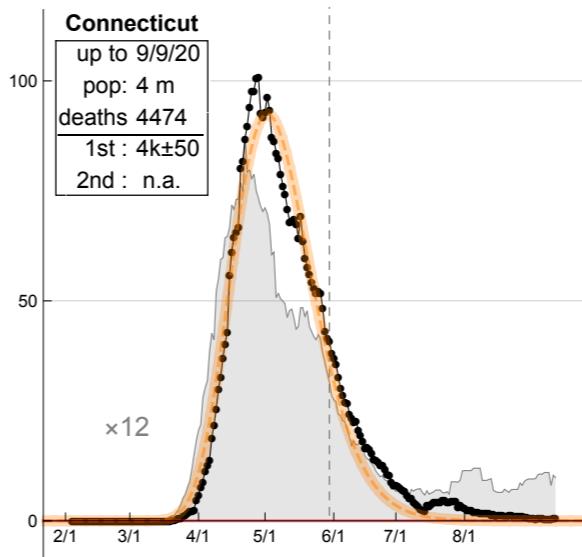
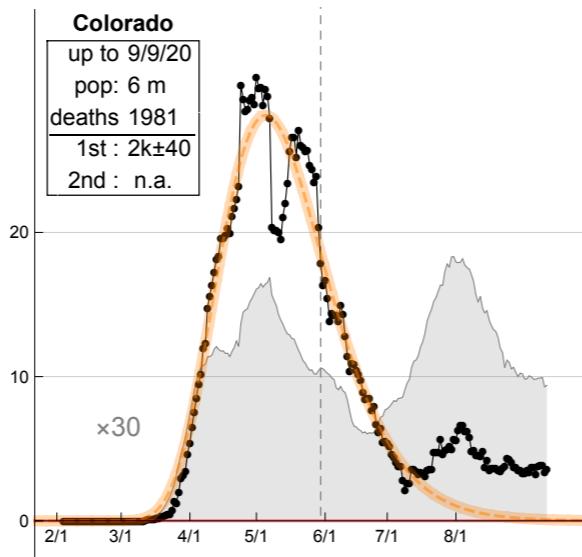
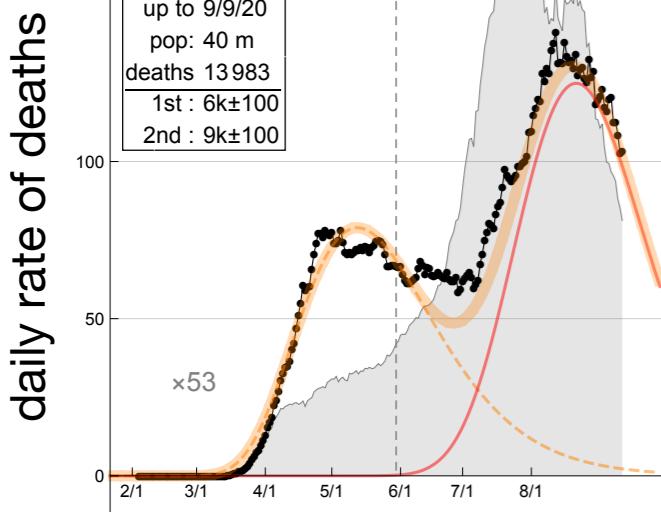
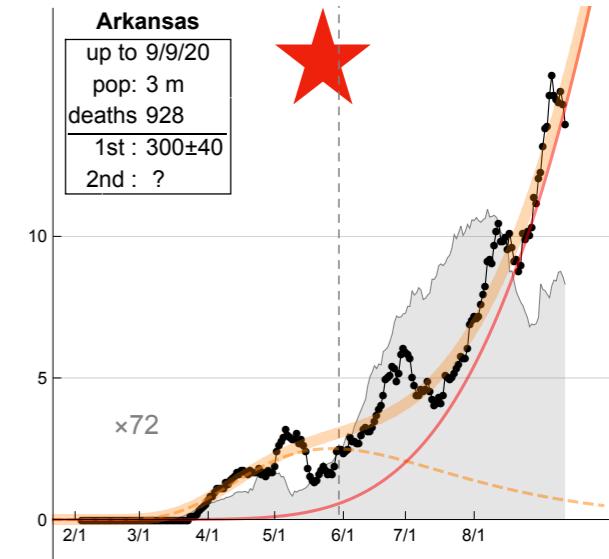
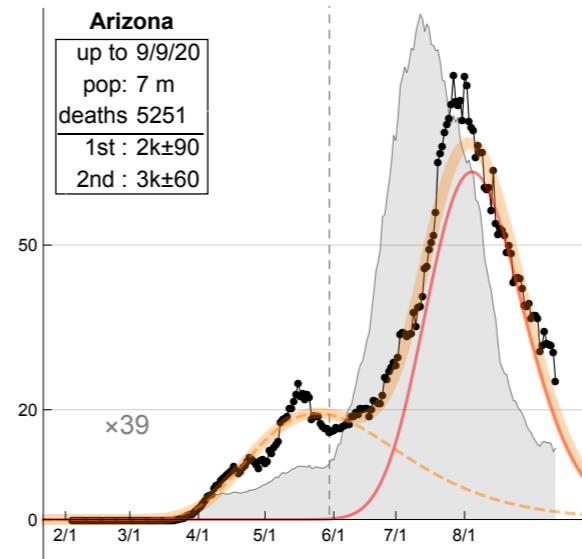
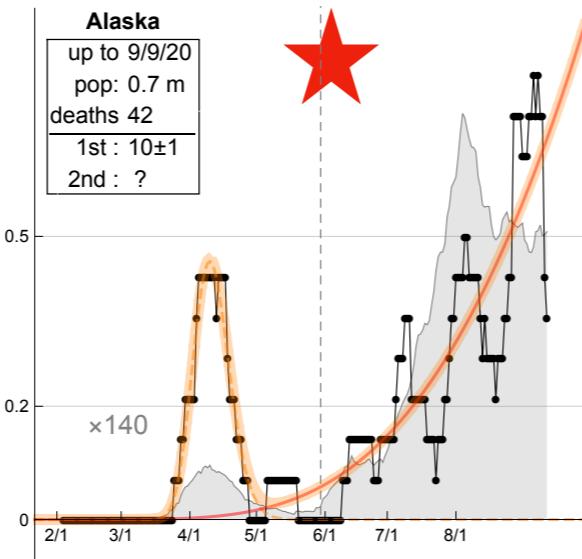
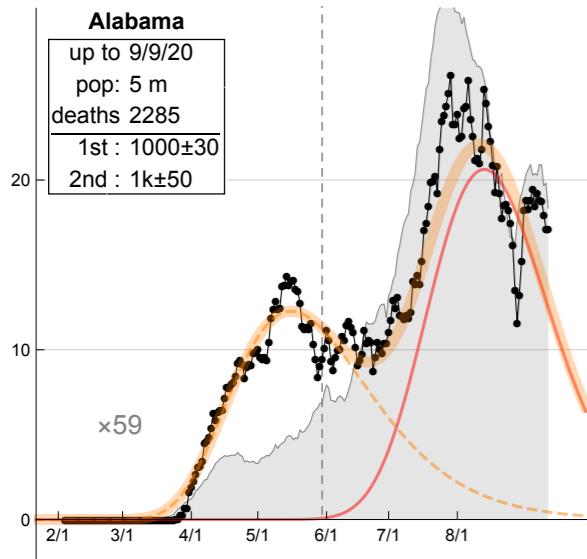


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see page 27 for method of calculation
of "infectious persons today"

all US states, two-waves fit, part 1

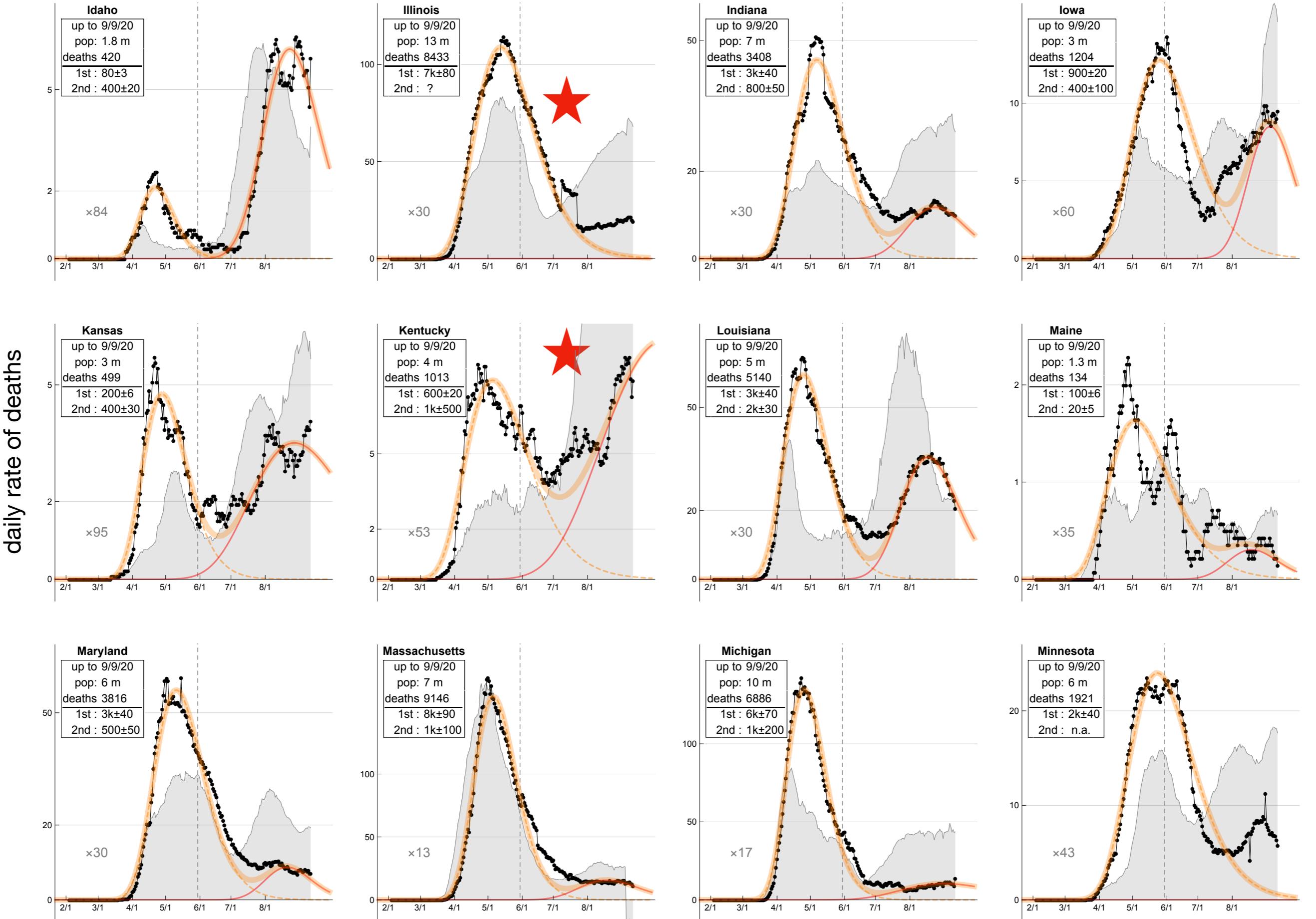
15



daily rate of deaths

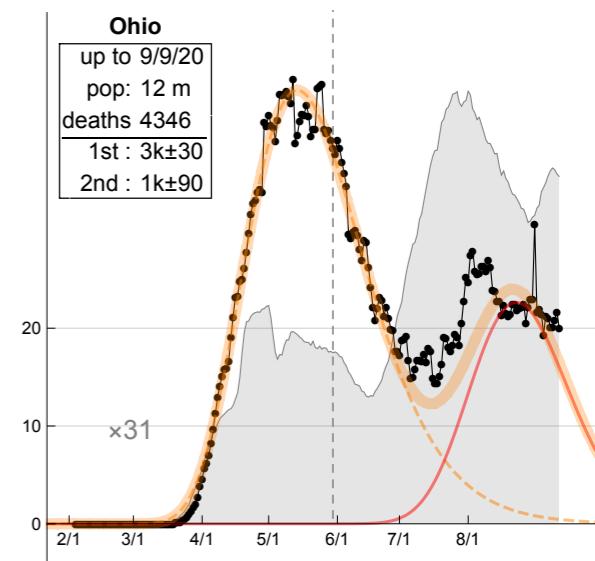
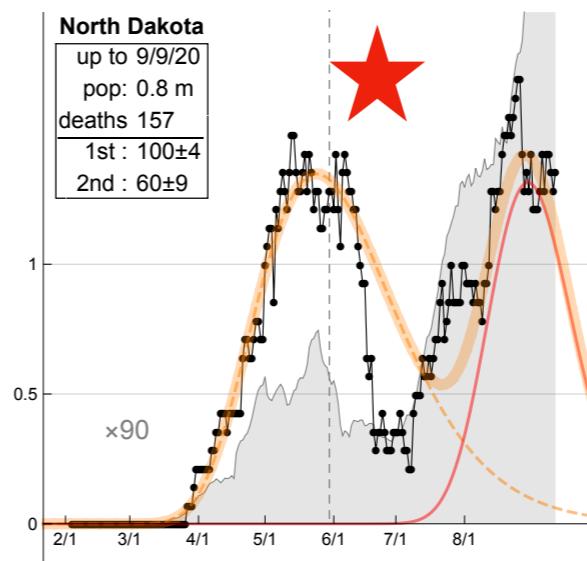
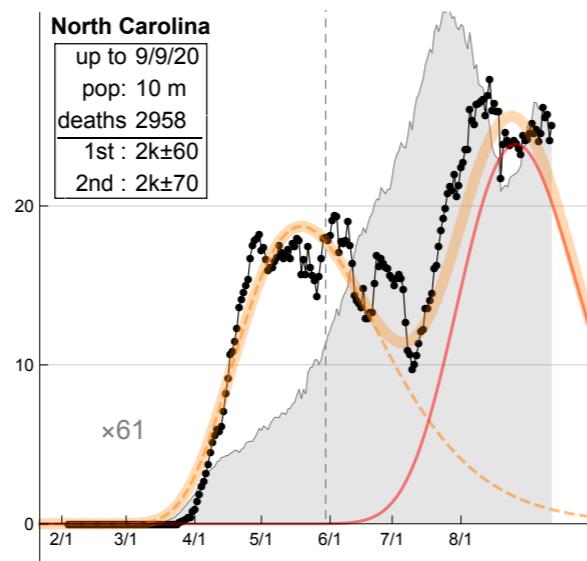
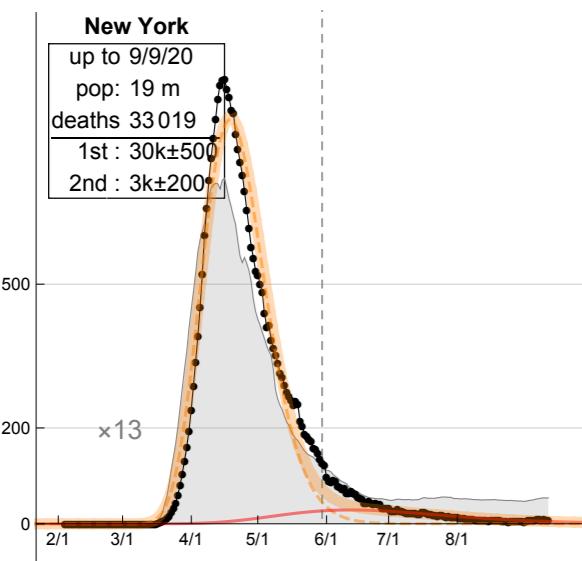
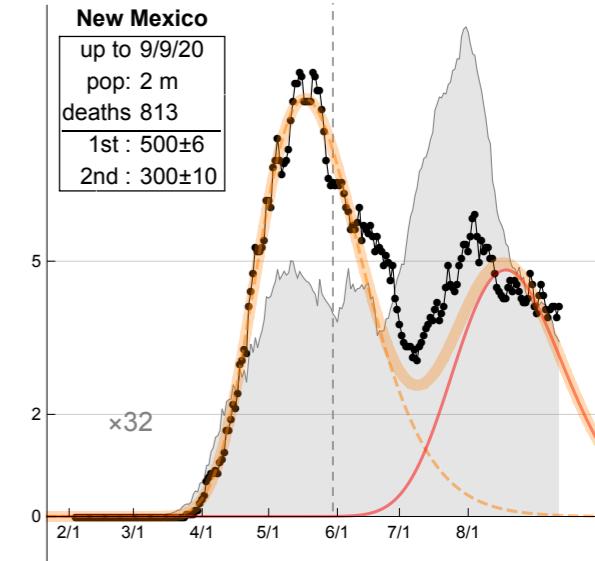
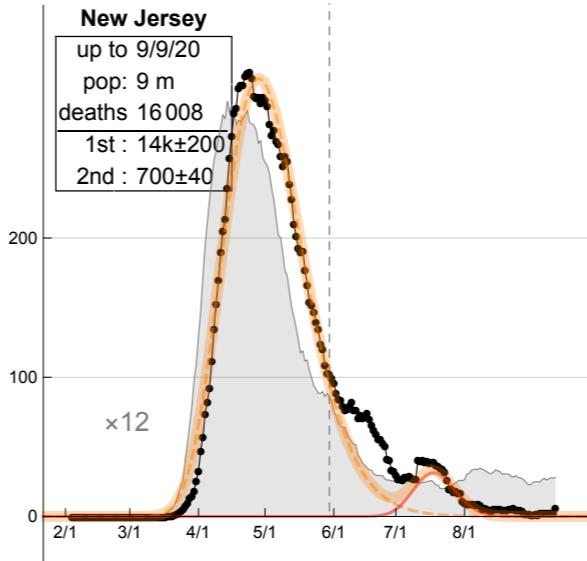
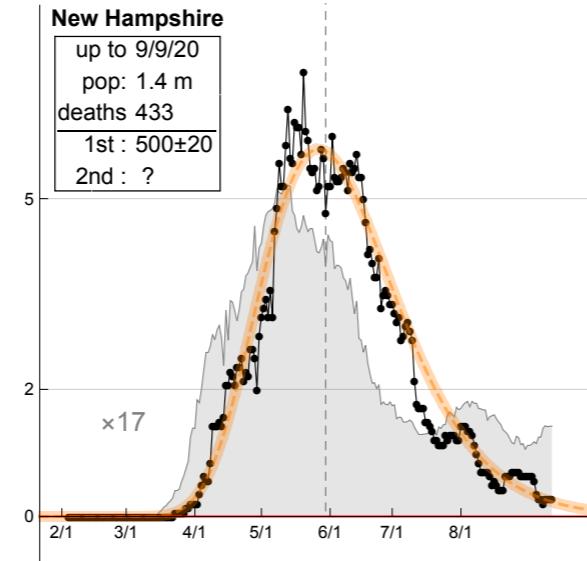
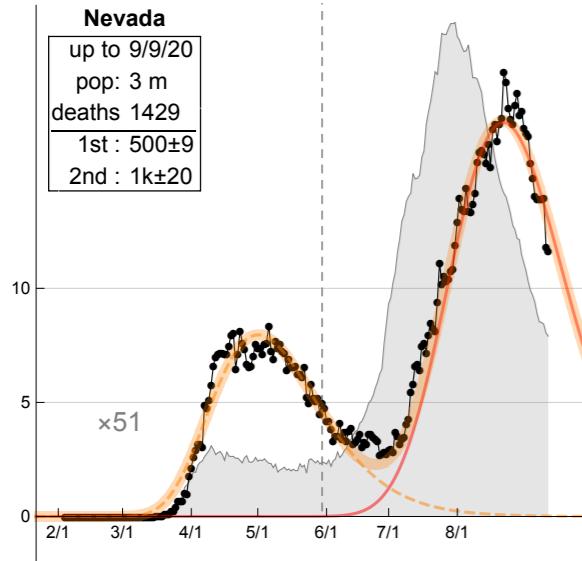
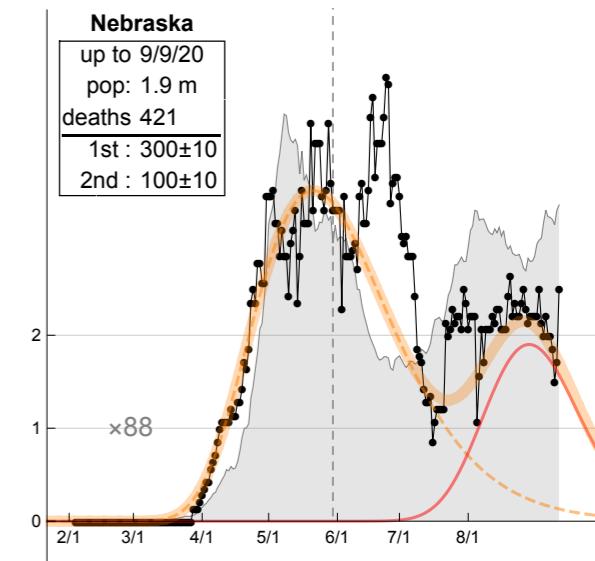
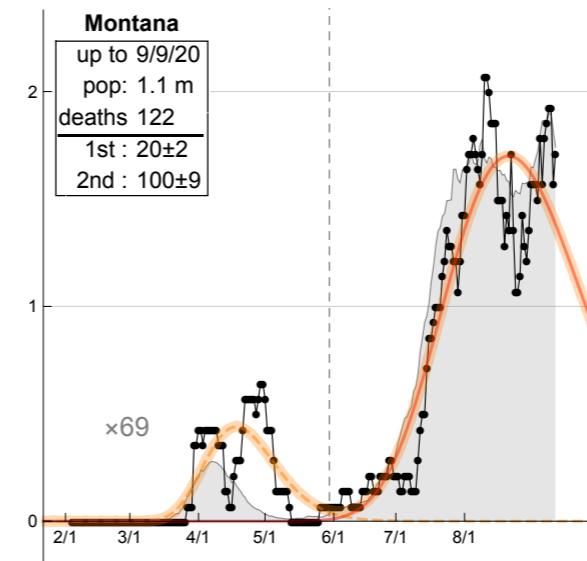
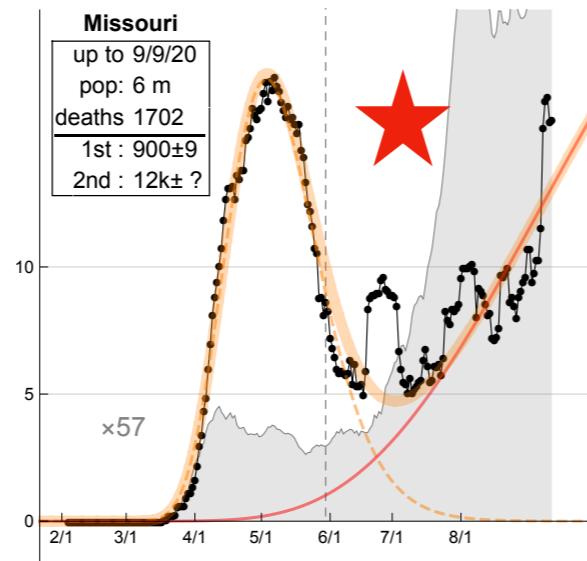
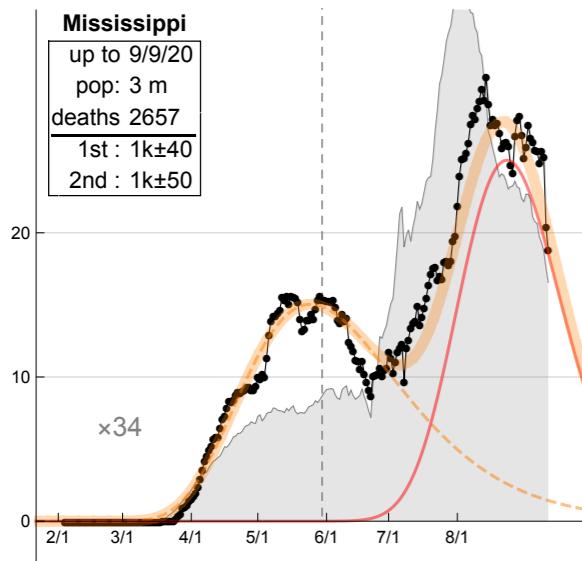
grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

all US states, two-waves fit, part 2



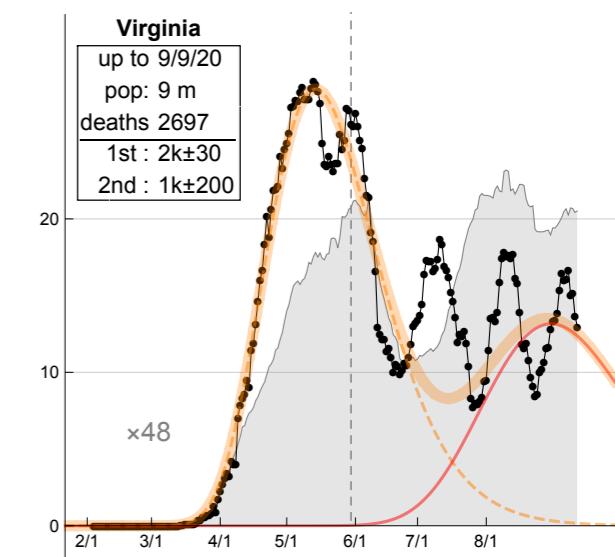
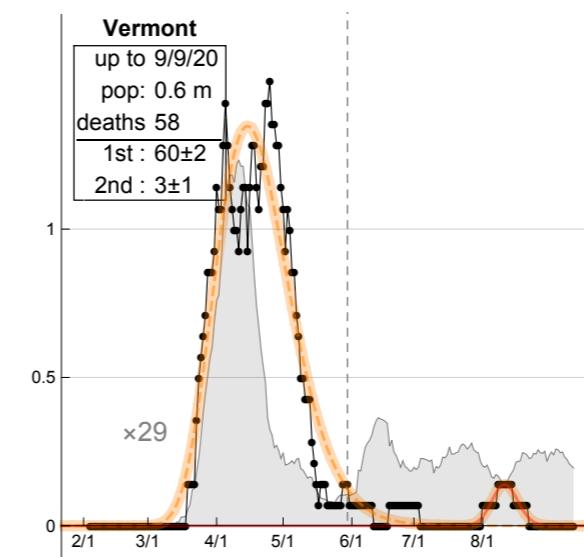
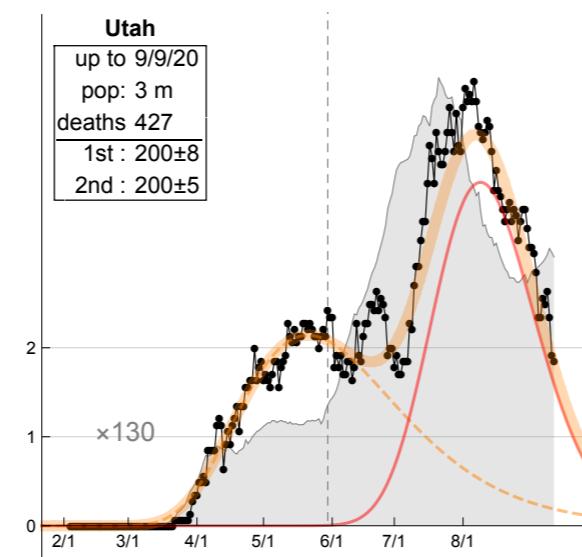
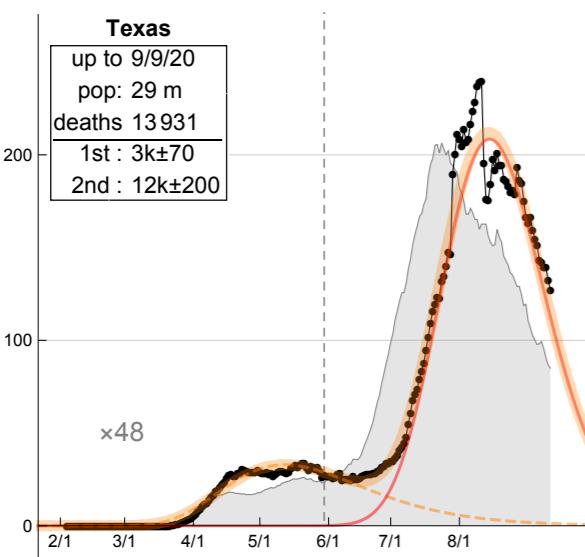
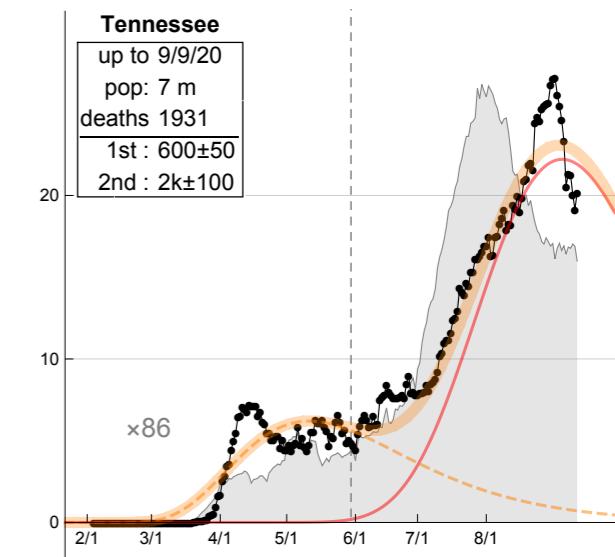
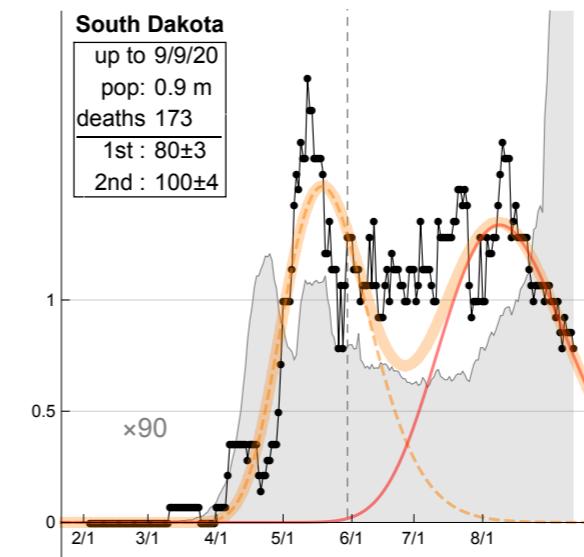
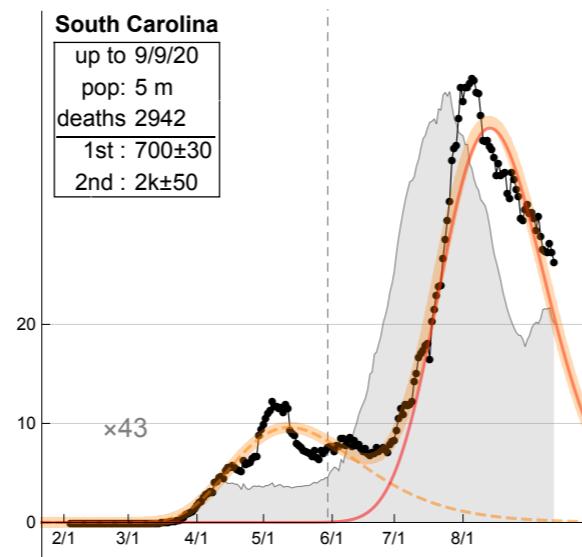
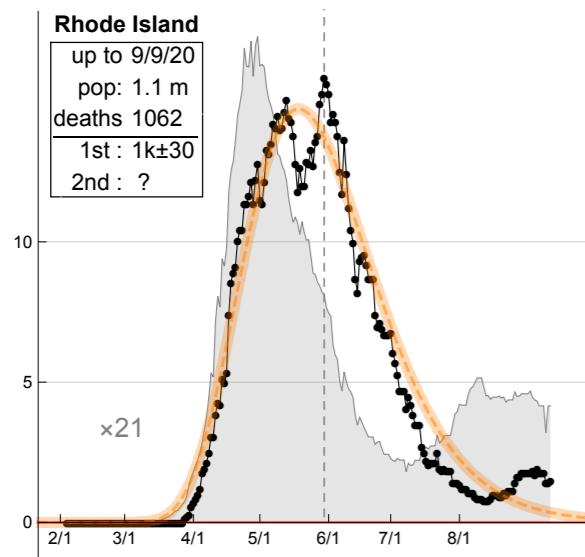
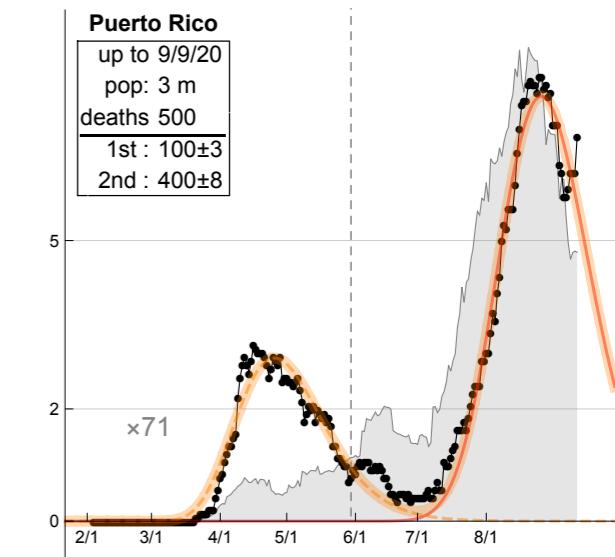
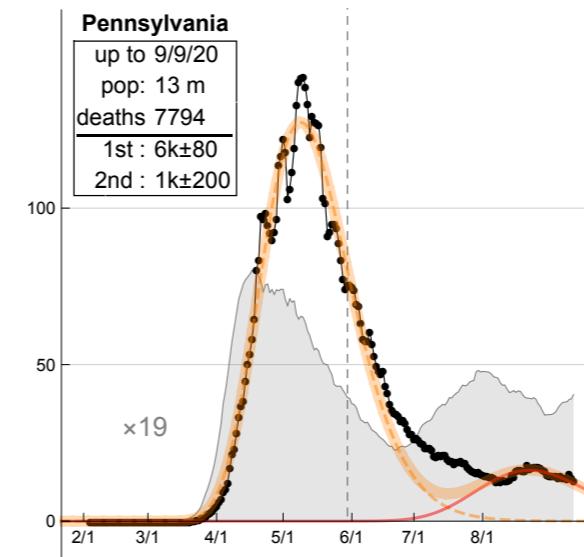
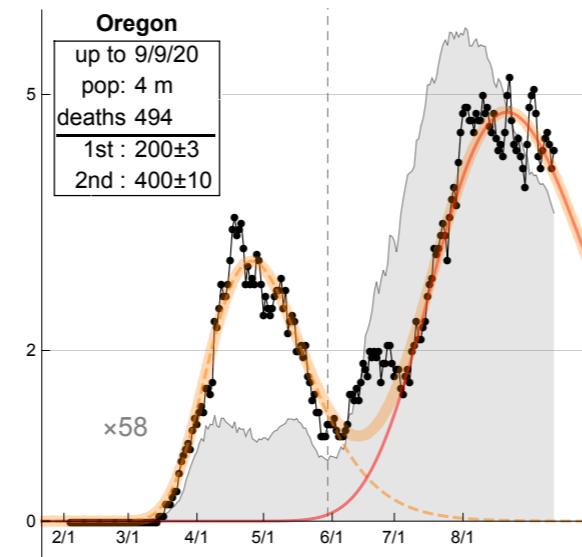
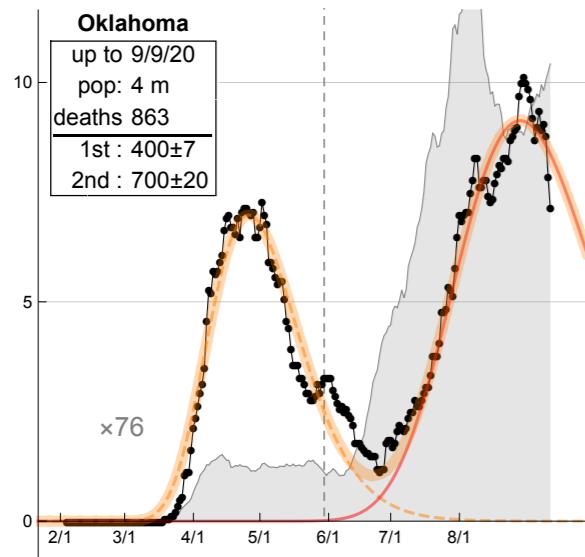
all US states, two-waves fit, part 3

daily rate of deaths



grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

all US states, two-waves fit, part 4

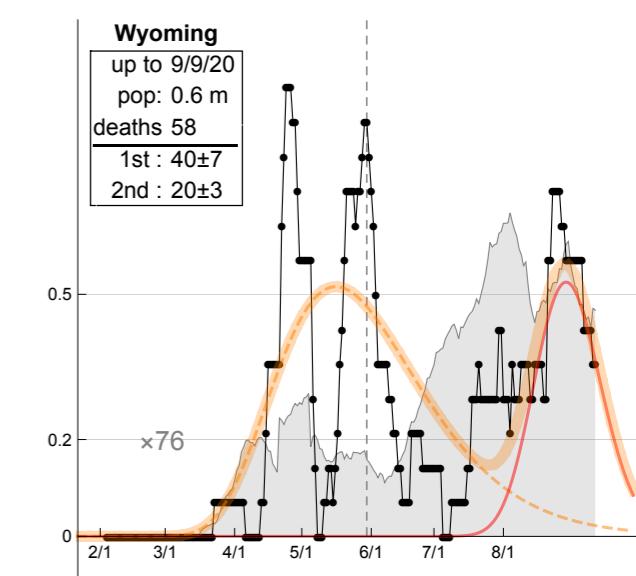
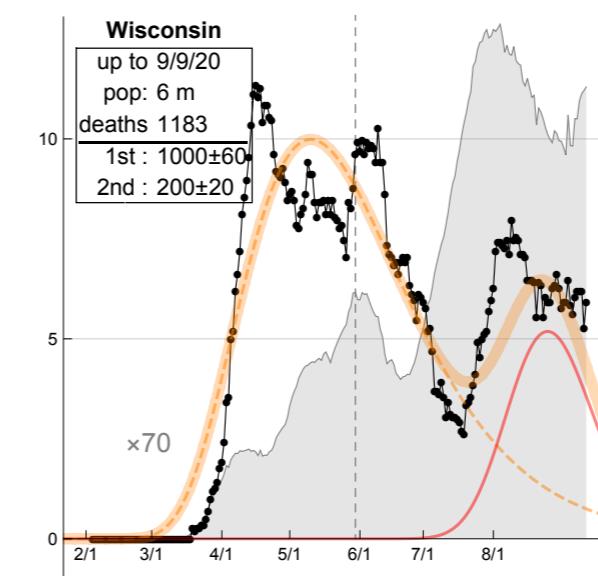
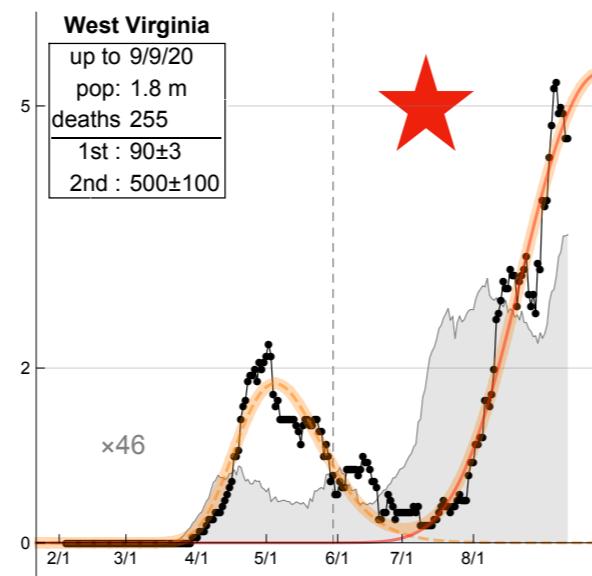
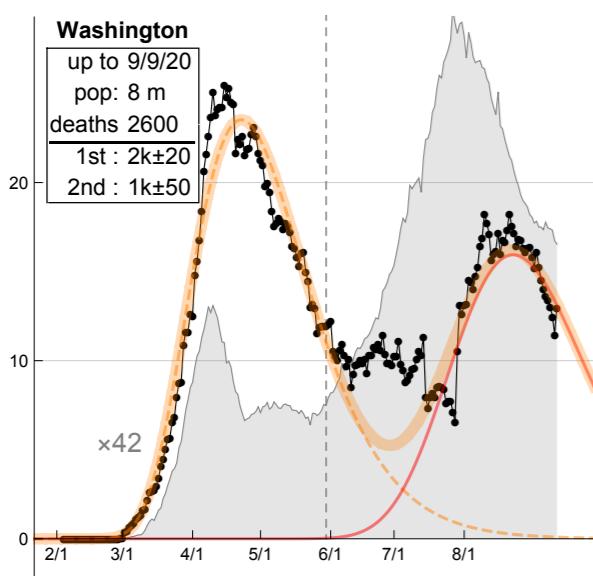


grey area gives the daily rate of confirmed cases, scaled by factor shown (grey number)

all US states, two-waves fit, part 5

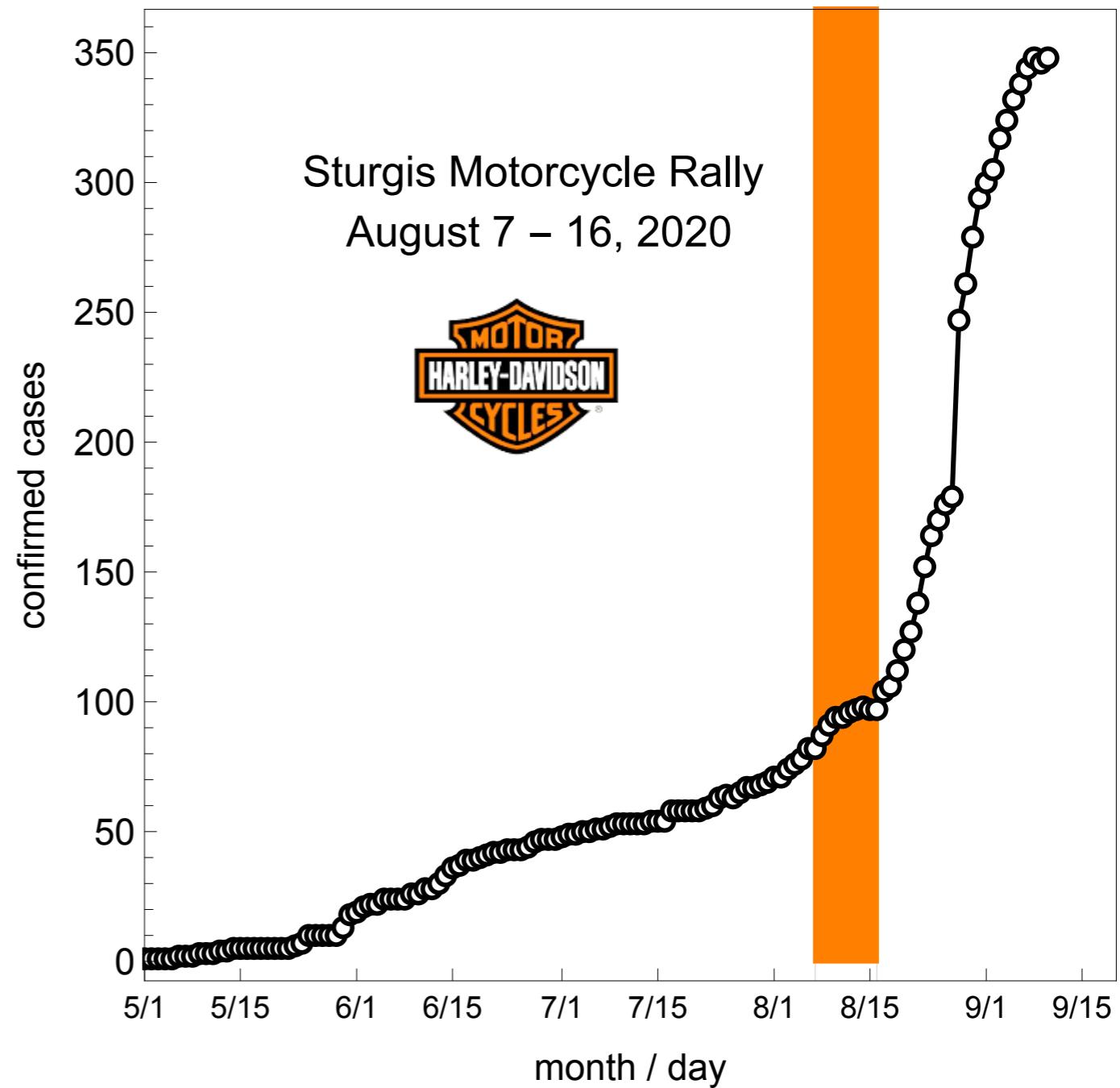
19

daily rate of deaths





Meade County, South Dakota



The city of Sturgis (7000 inhabitants) in Meade County, South Dakota, is home of a famous annual motorcycle rally. Now cases are rising rapidly in Meade county, and the 460000 participants in this year's rally gave * a free ride into neighbouring states...

Needless to say : only selected cyclists wore masks ...

infectious counties in US states

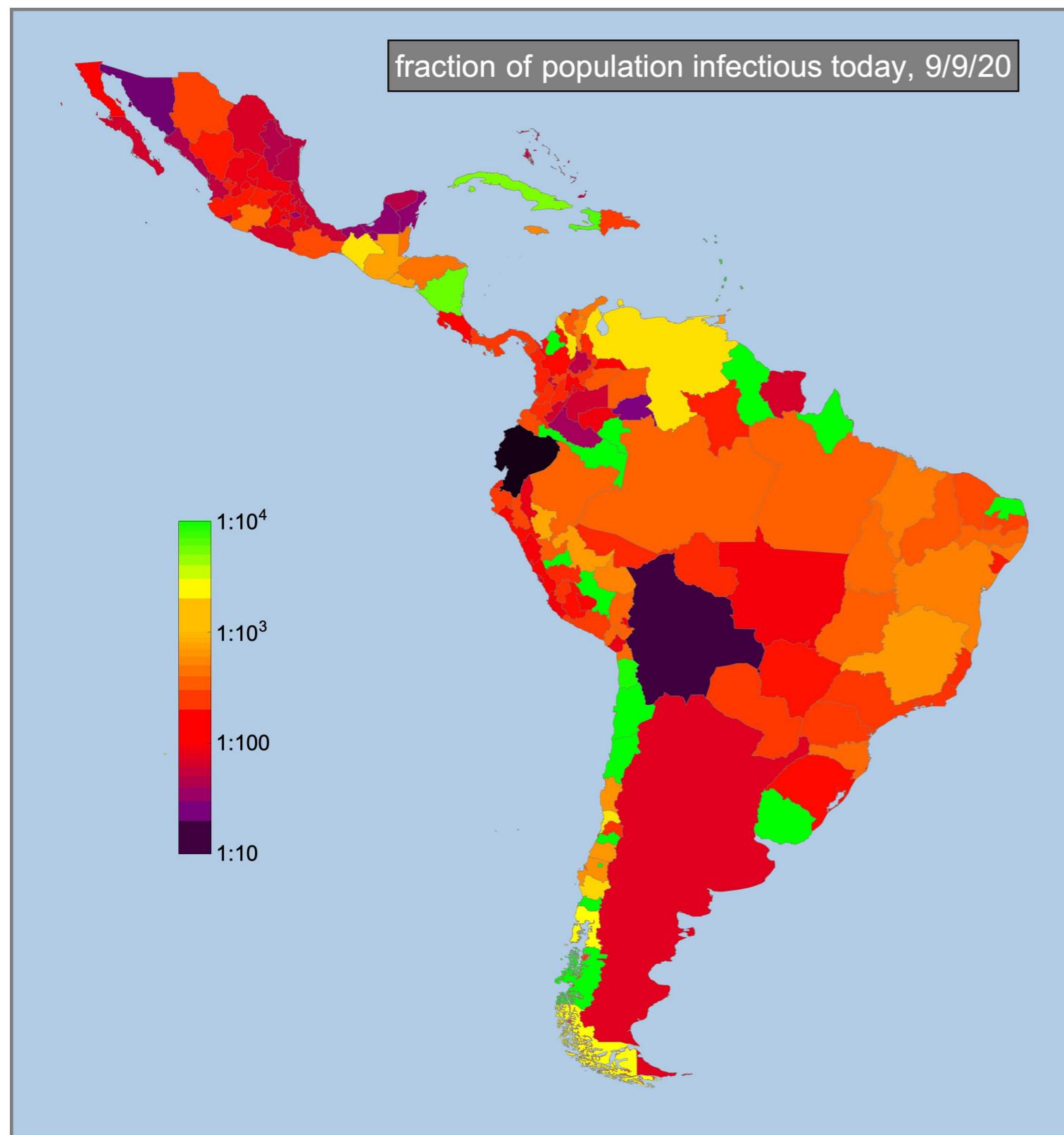
	population	deaths total	infectious fraction		population millions	deaths total	infectious fraction
Crenshaw, Alabama	13 772	32	1:2	Los Angeles, California	10	6090	1:60
Brooks, Texas	7093	20	1:3	Cook, Illinois	5.2	5100	1:200
Tishomingo, Mississippi	19 383	31	1:4	Harris, Texas	4.7	2363	1:40
Montgomery, Mississippi	9775	19	1:4	Maricopa, Arizona	4.5	3116	1:40
Lewis, Kentucky	13 275	14	1:4	San Diego, California	3.3	721	1:200
Winnebago, Iowa	10 354	10	1:4	Orange, California	3.2	1065	1:60
Lafayette, Florida	8422	10	1:4	Miami-Dade, Florida	2.7	2740	1:20
Logan, West Virginia	32 019	34	1:5	Dallas, Texas	2.6	1021	1:60
Starr, Texas	64 633	145	1:5	Kings, New York	2.6	7298	1:300
Crockett, Texas	3464	6	1:5	Riverside, California	2.5	1085	1:60
Shoshone, Idaho	12 882	17	1:5	Clark, Nevada	2.3	1223	1:30
Wheeler, Georgia	7855	8	1:5	Queens, New York	2.3	7233	1:200
Toombs, Georgia	26 830	30	1:5	King, Washington	2.3	743	1:200
Little River, Arkansas	12 259	18	1:5	San Bernardino, California	2.2	791	1:60
Emporia, Virginia	5346	19	1:6	Tarrant, Texas	2.1	643	1:70
Maverick, Texas	58 722	101	1:6	Bexar, Texas	2.	1172	1:30
Knox, Texas	3664	8	1:6	Broward, Florida	2.	1244	1:40
Sharkey, Mississippi	4321	10	1:6	Santa Clara, California	1.9	263	1:200
Wilkinson, Georgia	8954	17	1:6	Wayne, Michigan	1.7	2929	1:100
Laurens, Georgia	47 546	52	1:6	Alameda, California	1.7	303	1:90
Candler, Georgia	10 803	16	1:6	New York, New York	1.6	3176	1:500
Ben Hill, Georgia	16 700	18	1:6	Middlesex, Massachusetts	1.6	2089	1:100
Gulf, Florida	13 639	13	1:6	Philadelphia, Pennsylvania	1.6	1763	1:200
La Salle, Texas	7520	9	1:7	Sacramento, California	1.6	339	1:50
Cameron, Texas	423 163	824	1:7	Palm Beach, Florida	1.5	1178	1:40
Hampton, South Carolina	19 222	25	1:7	Suffolk, New York	1.5	2006	1:1000
Greenwood, South Carolina	70 811	59	1:7	Hillsborough, Florida	1.5	568	1:90
Bolivar, Mississippi	30 628	58	1:7	Bronx, New York	1.4	4928	1:100
Franklin, Louisiana	20 015	32	1:7	Orange, Florida	1.4	394	1:100
Taylor, Georgia	8020	8	1:7	Nassau, New York	1.4	2199	1:1400
Pulaski, Georgia	11 137	11	1:7	Franklin, Ohio	1.3	572	1:200
Jefferson, Georgia	15 362	20	1:7	Travis, Texas	1.3	399	1:90
Bleckley, Georgia	12 873	17	1:7	Hennepin, Minnesota	1.3	895	1:100
Zavala, Texas	11 840	13	1:8	Oakland, Michigan	1.3	1179	1:200
Tunica, Mississippi	9632	13	1:8	Cuyahoga, Ohio	1.2	608	1:70
Humphreys, Mississippi	8064	15	1:8	Allegheny, Pennsylvania	1.2	330	1:90
Green, Kentucky	10 941	7	1:8	Salt Lake, Utah	1.2	239	1:200
Stephens, Georgia	25 925	29	1:8	Contra Costa, California	1.2	187	1:200
Monroe, Georgia	27 578	44	1:8	Fairfax, Virginia	1.1	566	1:100
Willacy, Texas	21 358	44	1:9	Wake, North Carolina	1.1	212	1:200

most infectious

most populous

see page 27 for method of calculation
of “infectious persons today”

infectious fraction, Central & South America



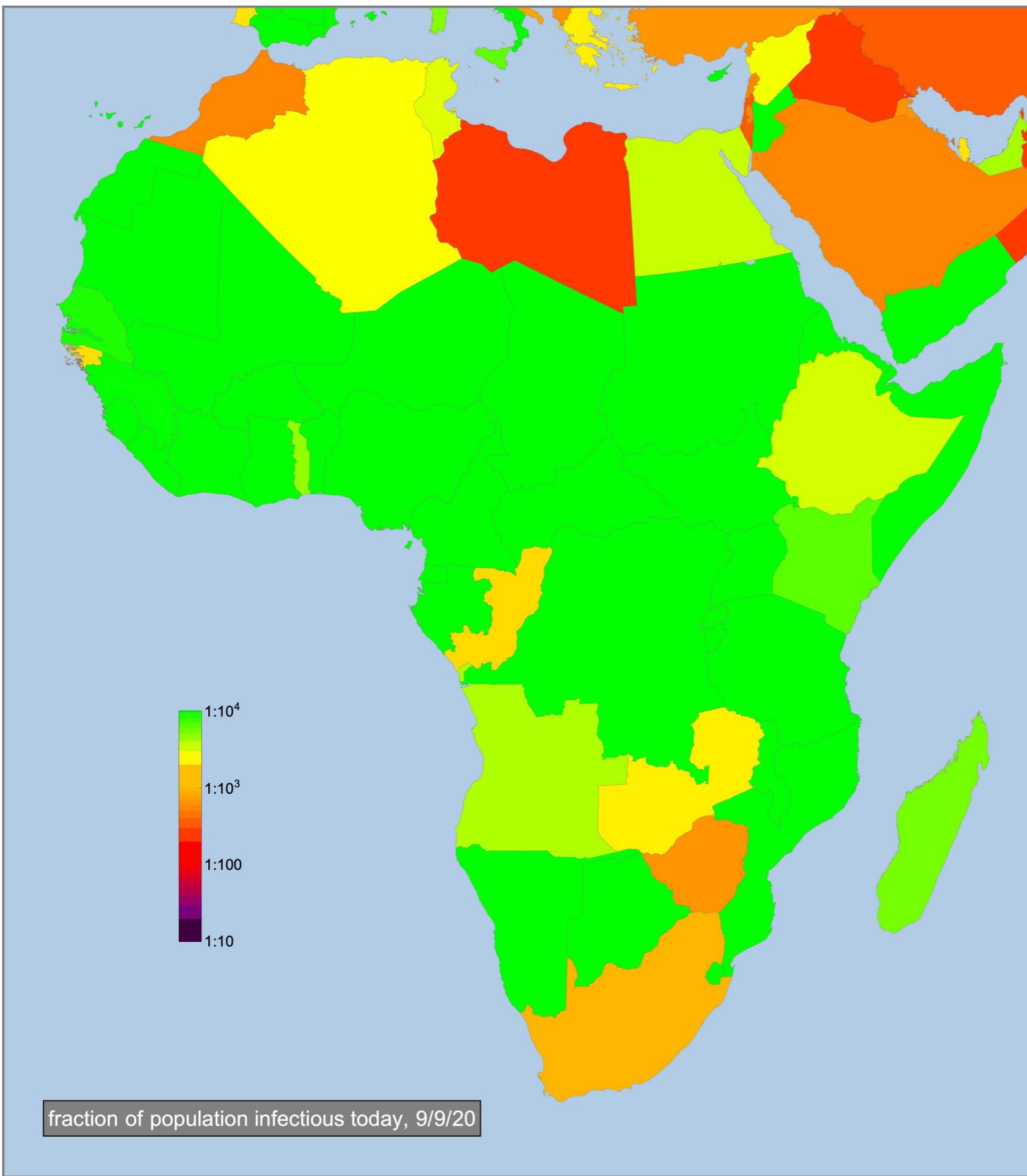
province, country	population	infectious
Ecuador	18	1 : 6
Bolivia	12	1 : 10
Sonora, Mexico	2.7	1 : 20
Guainia, Colombia	0.05	1 : 20
Quintana Roo, Mexico	1.3	1 : 30
Campeche, Mexico	0.8	1 : 30
Tabasco, Mexico	2.2	1 : 30
Tlaxcala, Mexico	1.2	1 : 30
Distrito Federal, Brazil	3.	1 : 30
Caqueta, Colombia	0.4	1 : 30
Sinaloa, Mexico	2.8	1 : 40
Nuevo Leon, Mexico	4.6	1 : 40
Yucatan, Mexico	2.	1 : 40
Santander, Colombia	2.2	1 : 40
Colima, Mexico	0.7	1 : 40
Ciudad de Mexico, Mexico	8.8	1 : 40
Tamaulipas, Mexico	3.3	1 : 50
Nayarit, Mexico	1.1	1 : 50
Bahamas	0.4	1 : 50
Veracruz, Mexico	7.6	1 : 50
Meta, Colombia	1.	1 : 60
Capital District, Colombia	7.4	1 : 60
Baja California Sur, Mexico	0.6	1 : 60
Huila, Colombia	1.1	1 : 60
Suriname	0.6	1 : 60
Coahuila, Mexico	2.8	1 : 60
Risaralda, Colombia	0.9	1 : 60
Guerrero, Mexico	3.4	1 : 60
Puebla, Mexico	5.8	1 : 70
Colombia	51	1 : 70

million
inhabitants

French Guiana is missing from this map,
its ratio today is 1:485 (color as this text)

see page 27 for method of calculation
of “infectious persons today”

infectious regions Africa



country	population	infectious
Libya	6.9	1 : 100
Zimbabwe	15	1 : 600
Morocco	37	1 : 700
South Africa	59	1 : 900
Congo (Brazzaville)	5.5	1 : 1400
Guinea-Bissau	2.	1 : 1500
Zambia	18	1 : 1800
Algeria	44	1 : 1900
Egypt	102	1 : 2700
Ethiopia	115	1 : 2800
Angola	33	1 : 3500
Togo	8.3	1 : 4100
Madagascar	28	1 : 4900
Kenya	54	1 : 5800
Senegal	17	1 : 8400
Rwanda	13	1 : 9700
Guinea	13	1 : 9800

million
inhabitants

see page 27 for method of calculation
of "infectious persons today"

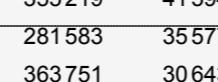
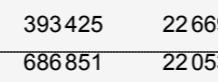
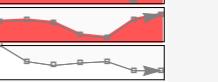
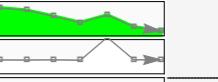
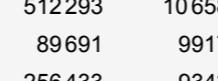
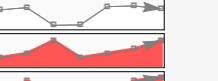
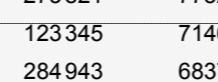
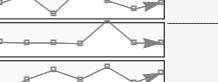
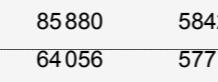
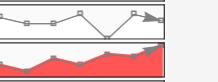
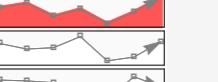
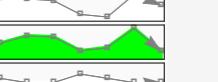
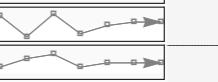
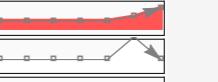
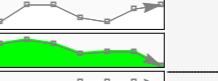
raw data : collection of countries with >1400 fatalities

Graphs which give development over the past week are shown in columns 3 and 6.

Height of each graph is 4 STDs of average.

Underlay is red (green) if last entry - average is larger (smaller) than one STD of average.

data including 9/9/20, <https://github.com/CSSEGISandData/2019-nCoV/>

confirmed	deaths	confirmed rate past 7 days	/ day average	yesterday	death rate past 7 days	/ day average	yesterday	
6361265	190859		35394	34256		735	1206	US
4197889	128539		28575	35816		680	1075	Brazil
4465863	75062		87494	95735		1098	1172	India
647321	69049		5195	4461		462	565	Mexico
355219	41594		2363	2659		12	8	UK
281583	35577		1438	1430		12	14	Italy
363751	30643		7146	8507		15	30	France
696190	30123		5580	4615		151	147	Peru
543379	29628		9118	8866		62	34	Spain
393425	22669		2096	2313		125	127	Iran
686851	22053		7647	15318		244	442	Colombia
1037526	18080		5080	5172		103	141	Russia
642431	15168		1691	1990		112	82	South Africa
427027	11702		1755	1486		52	20	Chile
112166	10701		-470	1409		584	74	Ecuador
512293	10658		10446	12259		220	253	Argentina
89691	9917		540	550		3	5	Belgium
256433	9342		1289	1476		3	6	Germany
203342	8336		3242	3307		103	106	Indonesia
273821	7732		4505	4243		76	75	Iraq
123345	7146		774	1037		278	49	Bolivia
284943	6837		1663	1673		54	55	Turkey
300030	6365		431	371		6	6	Pakistan
77688	6246		832	1140		2	2	Netherlands
85880	5842		193	173		4	4	Sweden
64056	5771		187	180		1	1	Quebec, CA
100403	5577		160	175		17	17	Egypt
331078	4593		1936	1827		35	41	Bangladesh
68139	4512		0	0		0	0	Hubei, China
323012	4165		789	775		30	28	Saudi Arabia
98304	4018		1202	1271		43	51	Romania
245143	3986		2672	3156		52	70	Philippines
146511	3034		2525	2597		47	46	Ukraine
79622	2897		568	901		16	7	Guatemala
45724	2862		165	179		1	0	Ontario, CA
71947	2147		490	421		10	11	Poland
99042	2116		708	635		13	9	Panama
65597	2044		439	379		18	10	Honduras
45306	2019		363	469		2	1	Switzerland
100937	1914		759	806		22	25	Domin. Rep.
61541	1849		415	646		4	3	Portugal
30164	1781		150	84		1	3	Ireland
106584	1634		79	86		7	0	Kazakhstan
47216	1581		294	278		9	10	Algeria
77878	1453		1775	2157		34	26	Morocco
38544	1420		43	24		2	2	Afghanistan
73264	1412		521	540		13	14	Japan

daily rates &
averages

significant rise
significant drop

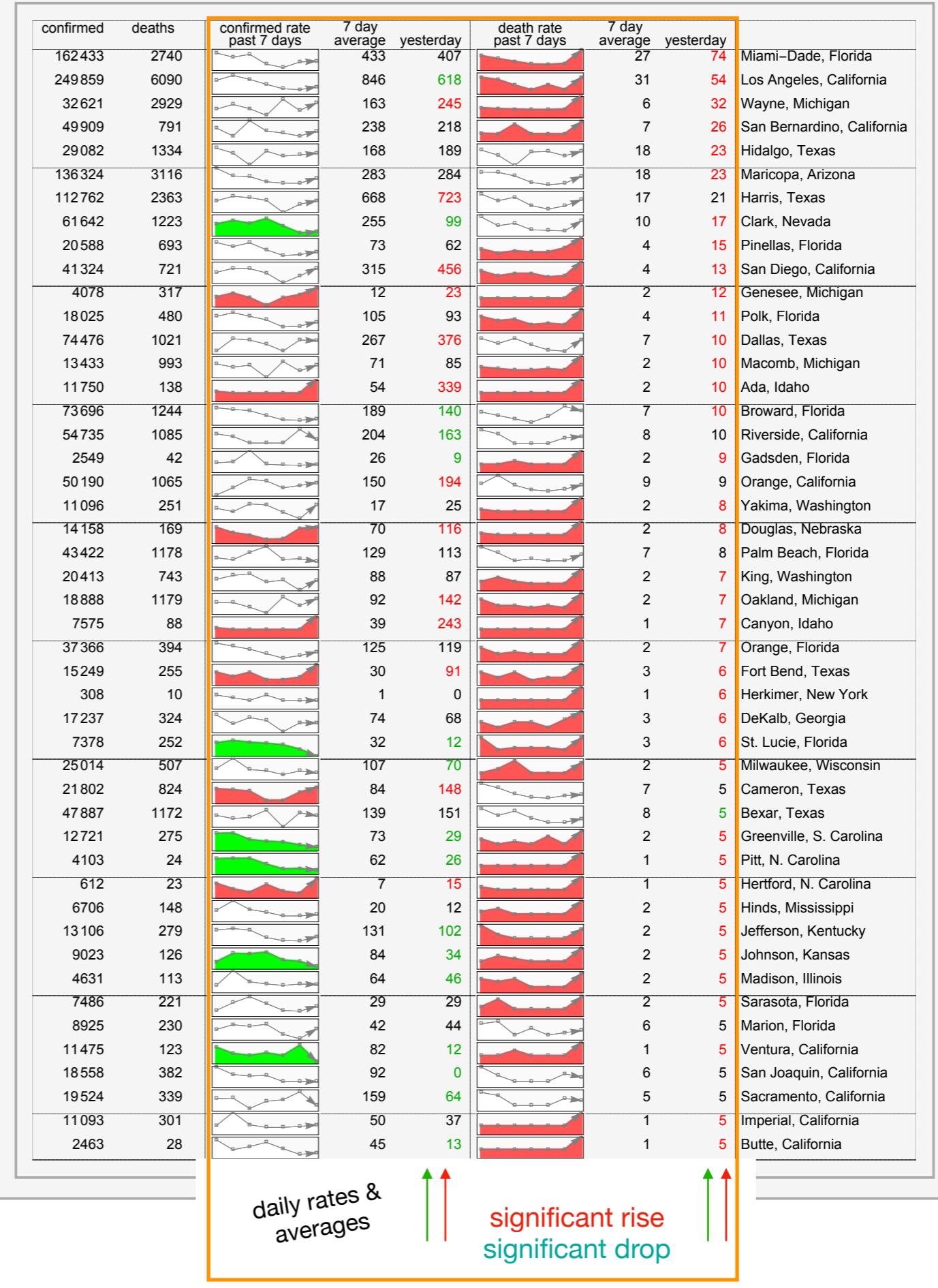
raw data: collection of US counties with > 4 fatalities yesterday

Graphs which give development over the past week are shown in columns 3 and 6.

Height of each graph is 4 STDs of average.

Underlay is red (green) if last entry - average is larger (smaller) than one STD of average.

data including 9/9/20, <https://github.com/CSSEGISandData/2019-nCoV/>



definition of significant:

$$\sqrt{\text{Abs}[\hat{n}]} + \sqrt{\text{Abs}[n_y]} < \text{Abs}[-\hat{n} + n_y]$$

ESTIMATE OF INFESTATION

Based on the current accepted lower limit of the infection mortality ratio $R = 0.3\%$ we estimate the total number of persons infected in a country from the number of COVID-19 fatalities in this country. With f being the total number of fatalities we obtain for the total number of persons infected,

$$I = 100 \frac{f}{R}. \quad (1)$$

Knowing the population P of the country we can now determine the infestation (in German Durchseuchung)

$$D = 100 \frac{I}{P} = 10^4 \frac{f}{RP} \quad (2)$$

where D is given in percent.

We consider Sweden, $P = 10$ million, as example. Today's total $f = 5820$ yields :

$$D = 10^4 \frac{5842}{0.3 \cdot 10^7} = 19.47 \quad (3)$$

The epidemic has infected about 20 % of Sweden's inhabitants. This amounts to 1.9 million Swedes. Official data say that 85880 Swedes were tested positive up to today (confirmed cases), about 4 % of 1.9 million.

The remaining 96 % (1.8 million Swedes) are unaware that they contracted COVID-19 at some time. Note that this is not the number of Swedes infectious today.

COVID-19 infestation & undetected infections (Durchseuchung & Dunkelziffer)

world regions and selected countries

population (millions)	confirmed cases	fatalities total	undetected fraction	infestation fraction	on 9/9/20
33	696 190	30 123	93 %	30 %	Peru
12	89 691	9917	97 %	28 %	Belgium
10	85 880	5842	96 %	19 %	Sweden
329	6 361 265	190 859	90 %	19 %	US
651	7 943 973	301 996	92 %	16 %	C & S America
604	2 929 619	193 579	95 %	11 %	Europe
38	136 135	9204	96 %	8 %	Canada
362	1 993 058	47 182	87 %	4 %	Near East
59	68 139	4512	95 %	2 %	Hubei, China
2058	6 386 299	107 875	82 %	2 %	Central Asia
25	26 524	788	90 %	1 %	Australia
1336	1 315 482	31 844	88 %	0.8 %	Africa
880	618 262	14 359	87 %	0.5 %	Far East
1405	90 100	4733	94 %	0.1 %	China

[WHO link : COVID-19 Infection Mortality Ratio](#)

How do I estimate the number of “infectious persons today” :

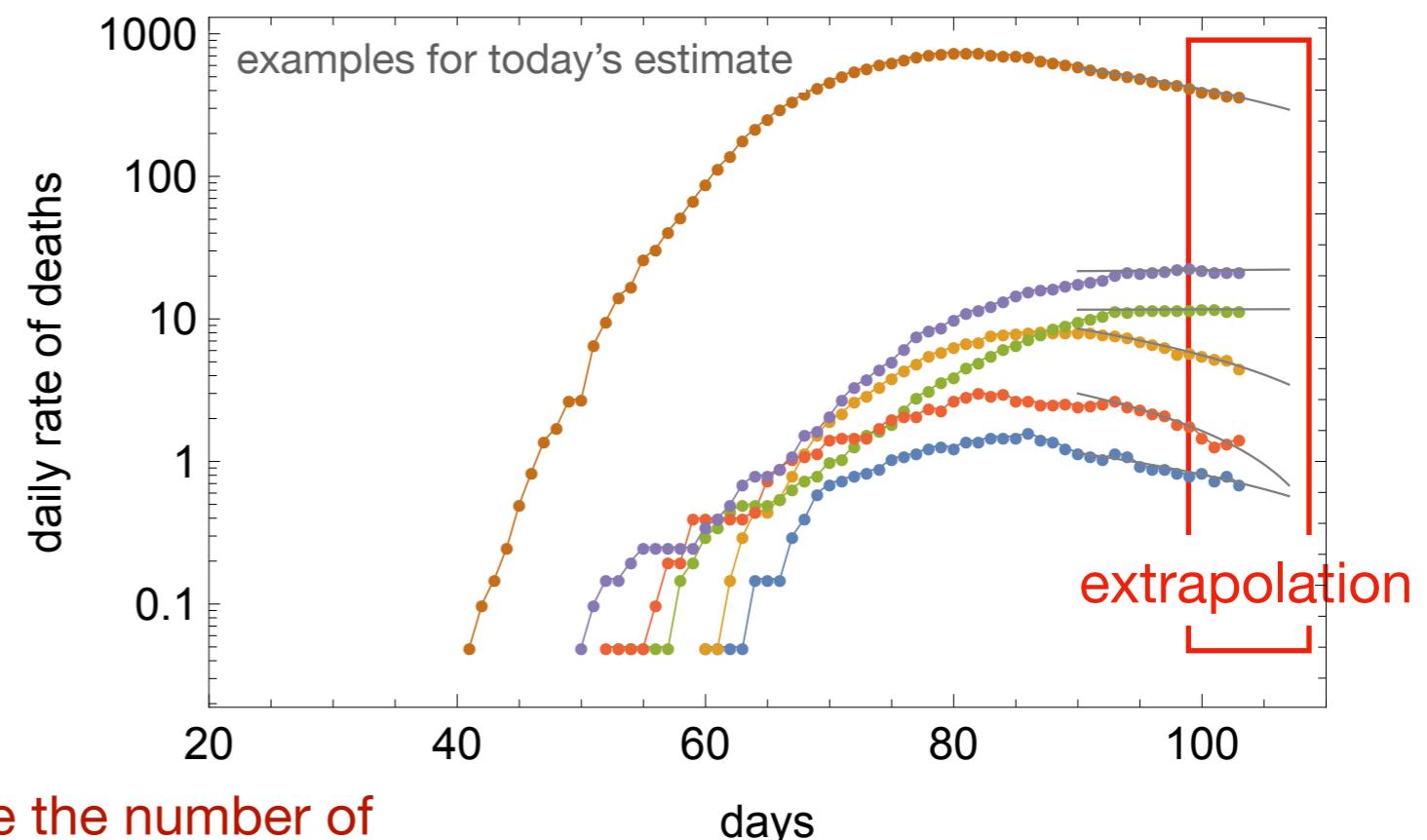
Simple man’s model : A person who is infected becomes infectious after 3 days and stays infectious for 7 days after which time he/she either dies or recovers from COVID-19. The exact number of days does not greatly affect the general picture. In case the period of infectiousness is longer the number of “infectious persons today” will increase. Absolute numbers rely on the lethality fraction, if the lethality fraction is lower the number of “infectious persons today” will be accordingly higher. Recent data indicate even longer period of infectiousness, see [this link](#).

Calculation: According to this model the number of “infectious persons today” is the sum of persons infected 10,9,8,7,6,5,4 days ago.

Using the **infection lethality fraction 0.3 %** we calculate the number infected ten days ago from today's rate of deaths.

An estimate of people infected later is obtained by extrapolating recent death rates for 6 days.

In this way we obtain a value for the number of “infectious persons today” and a quantitative trend of rising/decreasing risk for being infected.



If your county is not listed you can estimate the number of “infectious persons today” by multiplying the most recent average number of deaths per day by $(7 / 0.003) = 2300$.

[WHO link : COVID-19 Infection Mortality Ratio](#)

QUOTATION : “the most probable lethality is between 0.26% and 0.4% and the range of lethality is between 0.12% and 0.87%. These figures correspond very well with the findings on the “Diamond Princess”, where the lethality rate was given as 0.5% and the probable range for lethality as 0.25% to 0.75%. “