

CovidInCanadaAnalysis

July 9, 2020

1 AUTOMATIC

2020-04-03

1.1 CDF Fitting and testing rates

1.1.1 The Cruve for everywhere

1.1.2 Main calls

Last updated: 2020-07-09 12:11:21

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NOTE:

All of the following was data is from Health Canada.

The CDF fit is a logicitsts curve fit.

The PDF fit is a simple gaussian fit.

Day 0 is:

-> 31-01-2020 for Canada

-> 08-03-2020 for AB

-> 31-01-2020 for BC

-> 11-03-2020 for MN

-> 11-03-2020 for NB

-> 11-03-2020 for NL

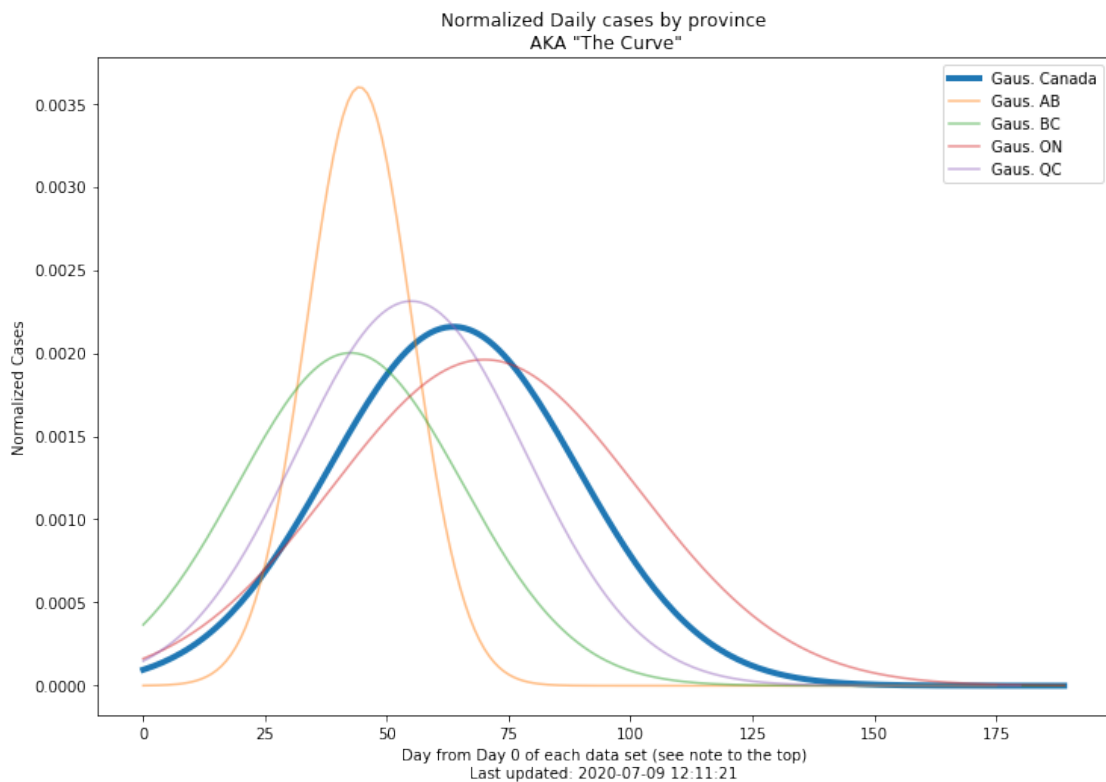
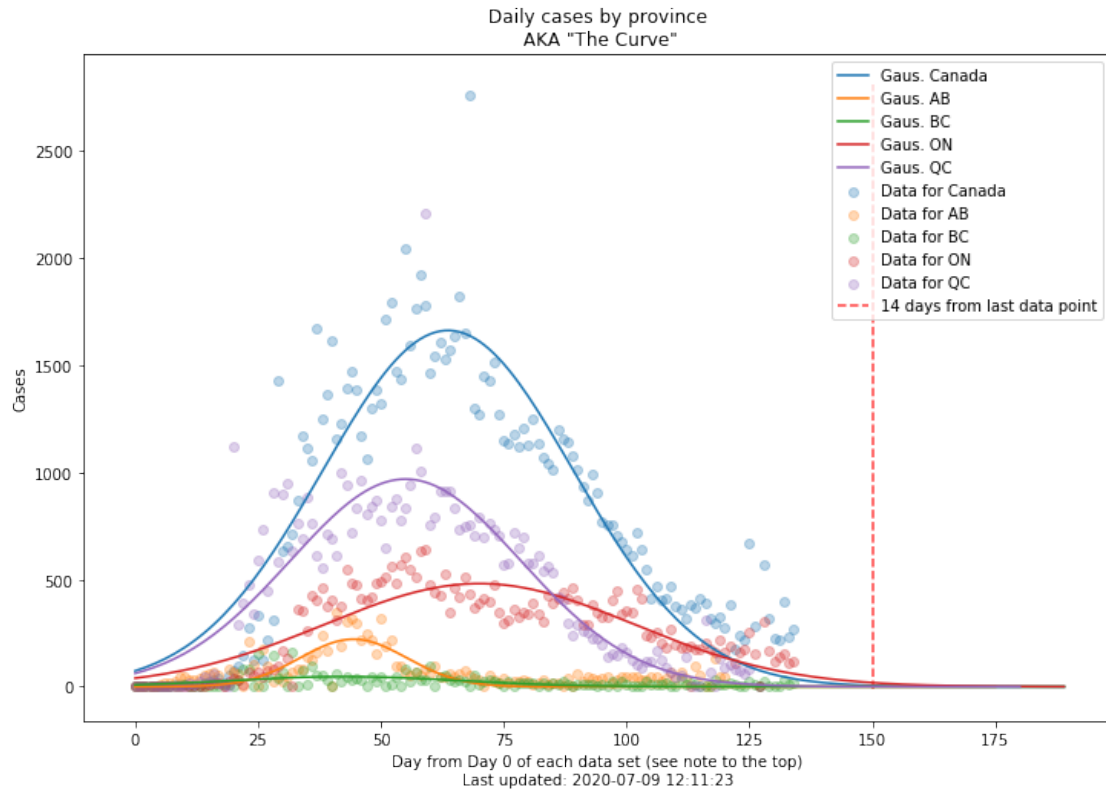
-> 11-03-2020 for NS

-> 31-01-2020 for ON

-> 11-03-2020 for PEI

-> 01-03-2020 for QC

-> 11-03-2020 for SW

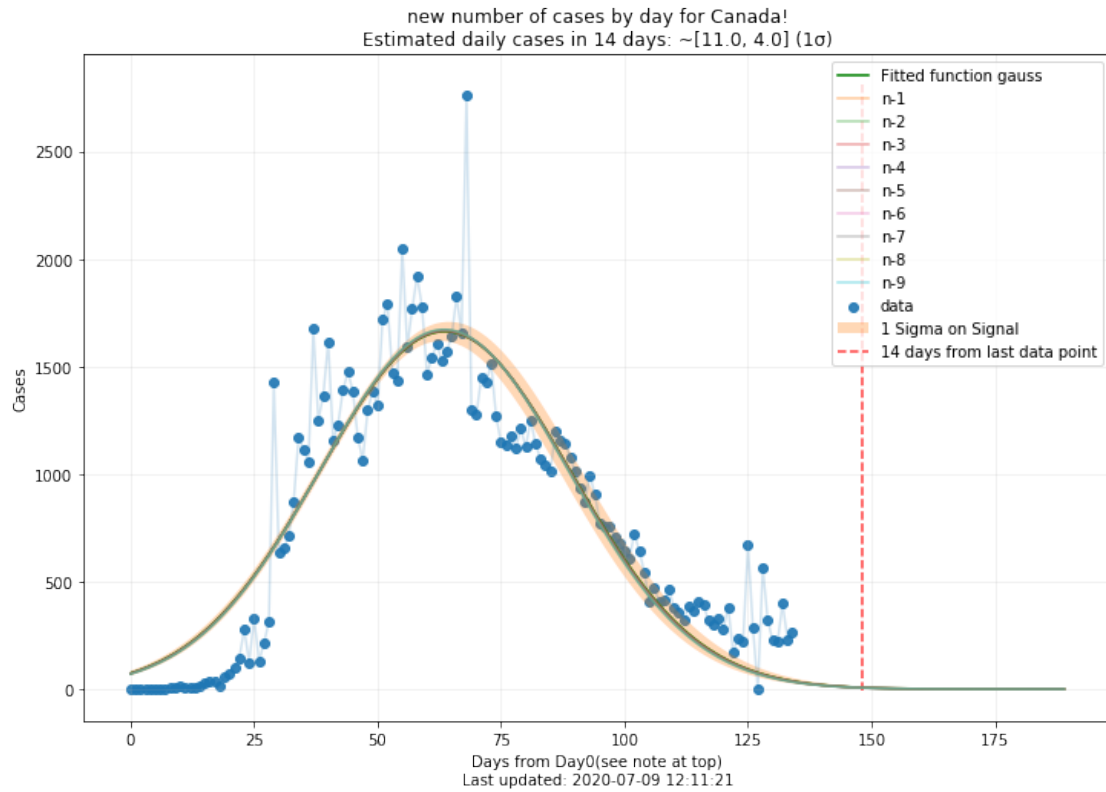


The plot above shows total cases normalized to 1 for each province

-----Canada-----

/Users/mwaqar/anaconda3/lib/python3.7/site-packages/ipykernel_launcher.py:5: RuntimeWarning: o
"""

```
cases: [4.00000e+00 7.00000e+00 8.00000e+00 9.00000e+00 1.00000e+01 1.10000e+01
1.20000e+01 1.30000e+01 1.50000e+01 2.40000e+01 3.30000e+01 4.50000e+01
5.10000e+01 5.70000e+01 6.20000e+01 7.70000e+01 1.03000e+02 1.38000e+02
1.76000e+02 1.93000e+02 2.49000e+02 3.24000e+02 4.24000e+02 5.69000e+02
8.46000e+02 9.71000e+02 1.30200e+03 1.43000e+03 1.64600e+03 1.95900e+03
3.38500e+03 4.01800e+03 4.67500e+03 5.38600e+03 6.25500e+03 7.42400e+03
8.53600e+03 9.59500e+03 1.12680e+04 1.25190e+04 1.38820e+04 1.54960e+04
1.66530e+04 1.78830e+04 1.92740e+04 2.07480e+04 2.21330e+04 2.33010e+04
2.43650e+04 2.56630e+04 2.70460e+04 2.83640e+04 3.00810e+04 3.18720e+04
3.33410e+04 3.47770e+04 3.68230e+04 3.84130e+04 4.01790e+04 4.20990e+04
4.38770e+04 4.53410e+04 4.68840e+04 4.84890e+04 5.00150e+04 5.15870e+04
5.32250e+04 5.50500e+04 5.67030e+04 5.94630e+04 6.07610e+04 6.20350e+04
6.34850e+04 6.49110e+04 6.64230e+04 6.76910e+04 6.88370e+04 6.99700e+04
7.11460e+04 7.22670e+04 7.34770e+04 7.46020e+04 7.58530e+04 7.69910e+04
7.80610e+04 7.91010e+04 8.01120e+04 8.13130e+04 8.24690e+04 8.36100e+04
8.46880e+04 8.57000e+04 8.66360e+04 8.75080e+04 8.85010e+04 8.94070e+04
9.01790e+04 9.09360e+04 9.16940e+04 9.23990e+04 9.30740e+04 9.37150e+04
9.43240e+04 9.50460e+04 9.56880e+04 9.62330e+04 9.66420e+04 9.71140e+04
9.75190e+04 9.79320e+04 9.83990e+04 9.87760e+04 9.91360e+04 9.94560e+04
9.98420e+04 1.00209e+05 1.00618e+05 1.01008e+05 1.01326e+05 1.01626e+05
1.01952e+05 1.02231e+05 1.02611e+05 1.02783e+05 1.03021e+05 1.03239e+05
1.03907e+05 1.04193e+05 1.04193e+05 1.04760e+05 1.05079e+05 1.05305e+05
1.05524e+05 1.05923e+05 1.06155e+05 1.06422e+05]
New cases today: 267.0
```



sigma+: 103392.0

n+1: 102799.0

Sigma-: 102199.0

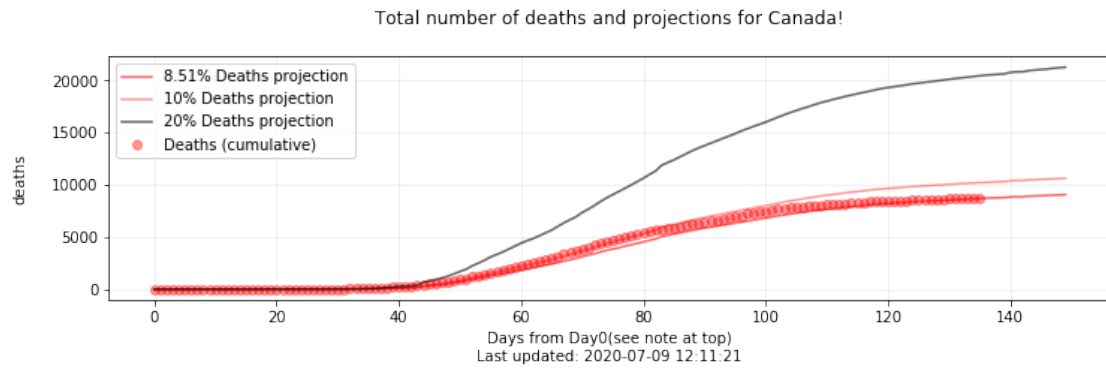
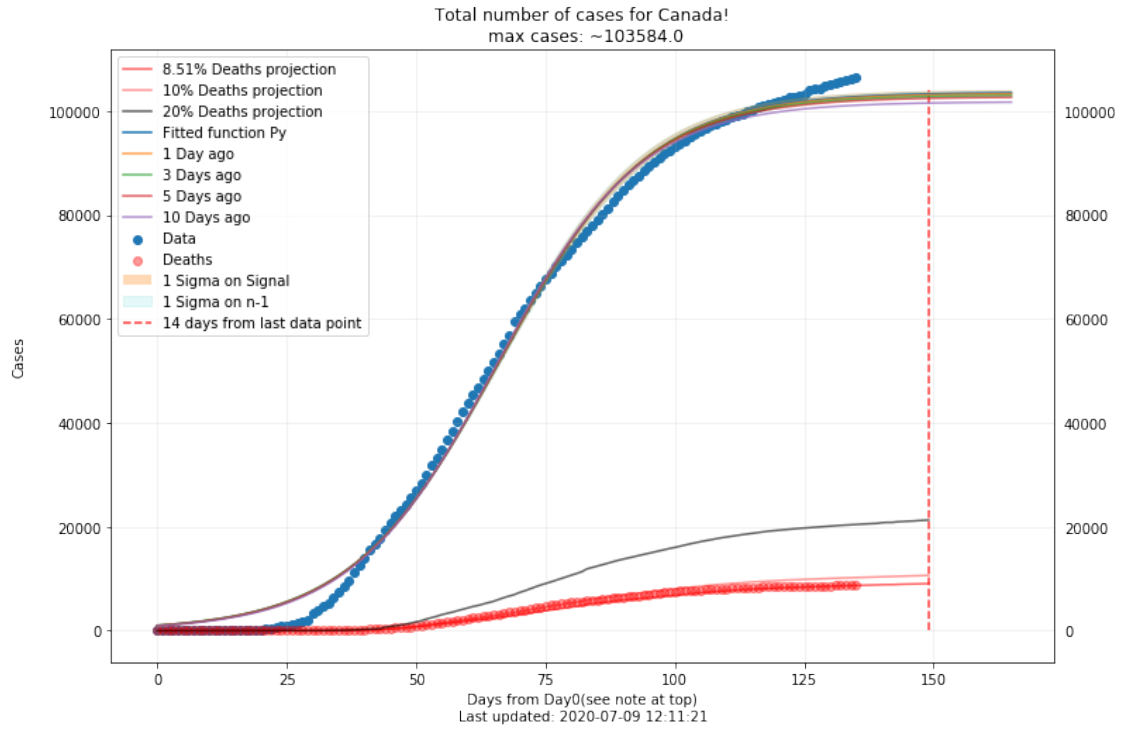
params PY: [1.03583780e+05 6.97500513e-02 6.61002335e+01]

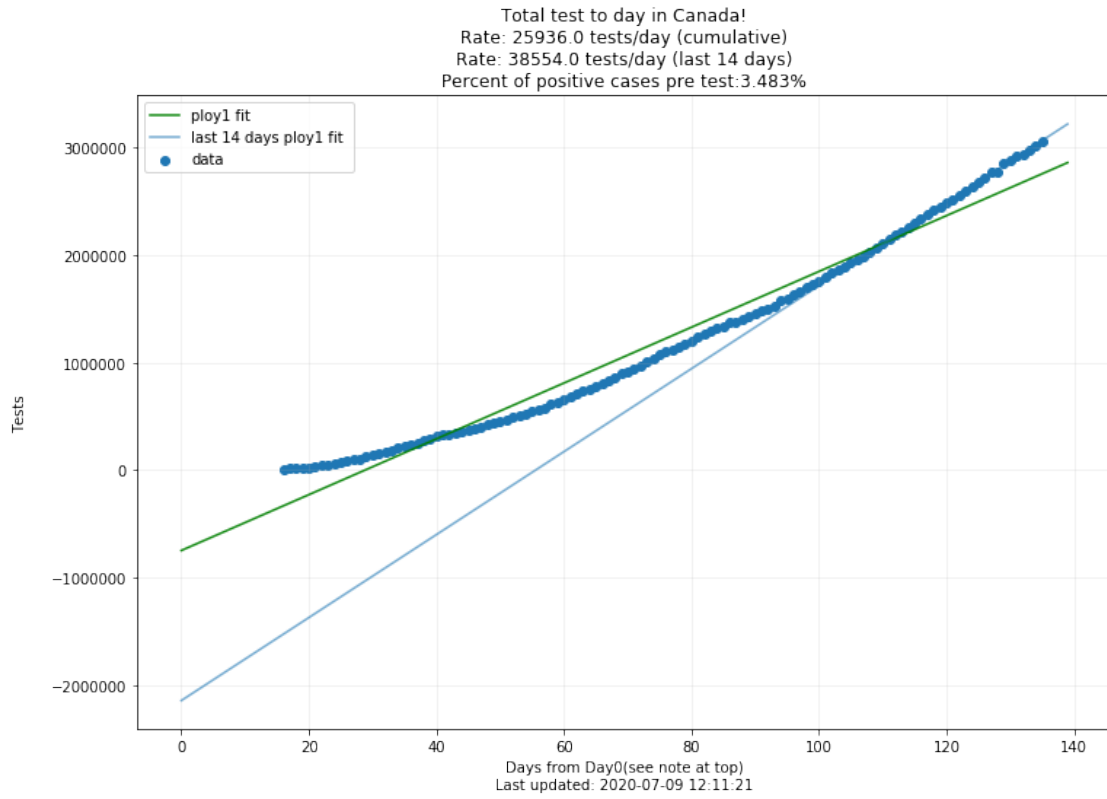
PY sigma: [5.20107754e+02 1.17650717e-03 2.99606643e-01]

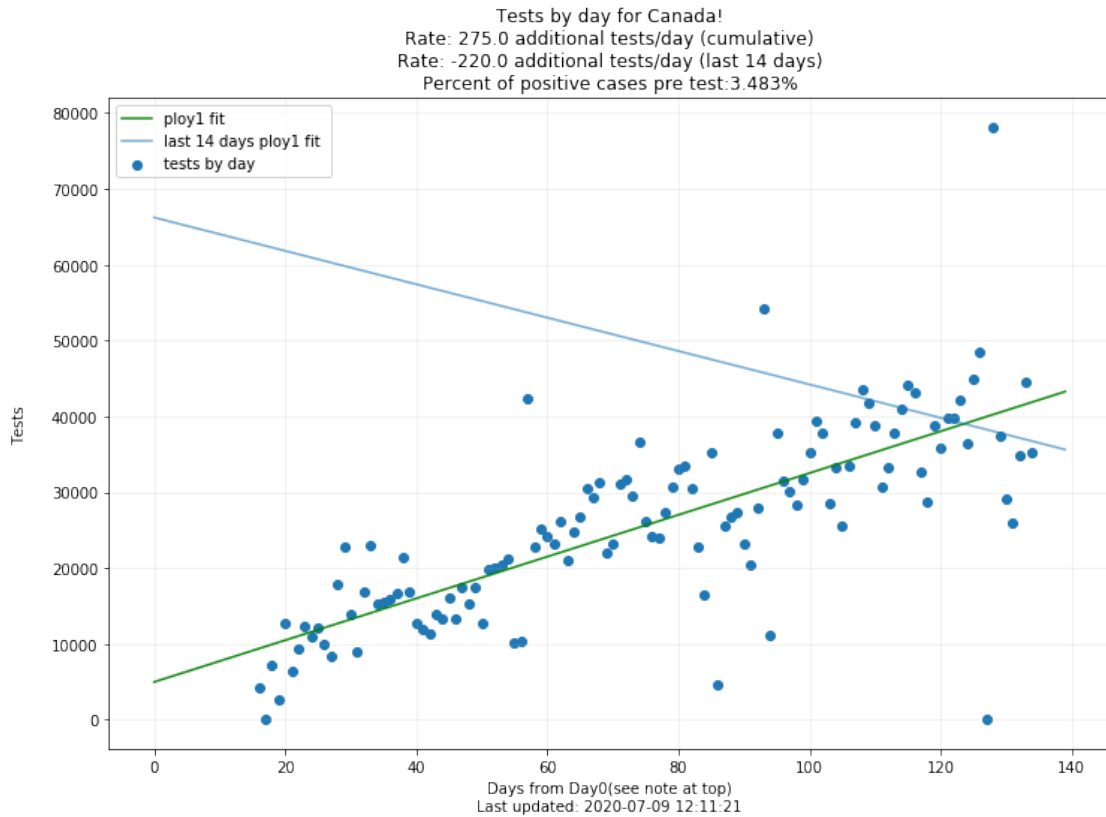
max cases: 103584.0

infection point: 66.0

infection point date: 2020-04-06







Percent of positive cases pre test: 3.483 %

8.514681661810137

-----Alberta-----

cases: [1.000e+00 7.000e+00 1.400e+01 1.900e+01 2.300e+01 2.900e+01 3.900e+01

5.600e+01 7.400e+01 9.700e+01 1.460e+02 1.950e+02 2.260e+02 2.590e+02

3.010e+02 3.580e+02 4.190e+02 4.860e+02 5.420e+02 5.420e+02 6.210e+02

6.900e+02 7.540e+02 7.540e+02 9.680e+02 1.075e+03 1.075e+03 1.250e+03

1.348e+03 1.373e+03 1.423e+03 1.451e+03 1.500e+03 1.569e+03 1.651e+03

1.732e+03 1.870e+03 1.996e+03 2.158e+03 2.397e+03 2.562e+03 2.562e+03

2.908e+03 3.095e+03 3.401e+03 3.720e+03 4.017e+03 4.233e+03 4.480e+03

4.696e+03 4.850e+03 5.165e+03 5.355e+03 5.573e+03 5.670e+03 5.766e+03

5.836e+03 5.893e+03 5.963e+03 6.017e+03 6.098e+03 6.157e+03 6.253e+03

6.300e+03 6.345e+03 6.407e+03 6.457e+03 6.515e+03 6.587e+03 6.644e+03

6.683e+03 6.716e+03 6.716e+03 6.768e+03 6.800e+03 6.818e+03 6.860e+03

6.879e+03 6.901e+03 6.926e+03 6.955e+03 6.979e+03 6.992e+03 7.010e+03

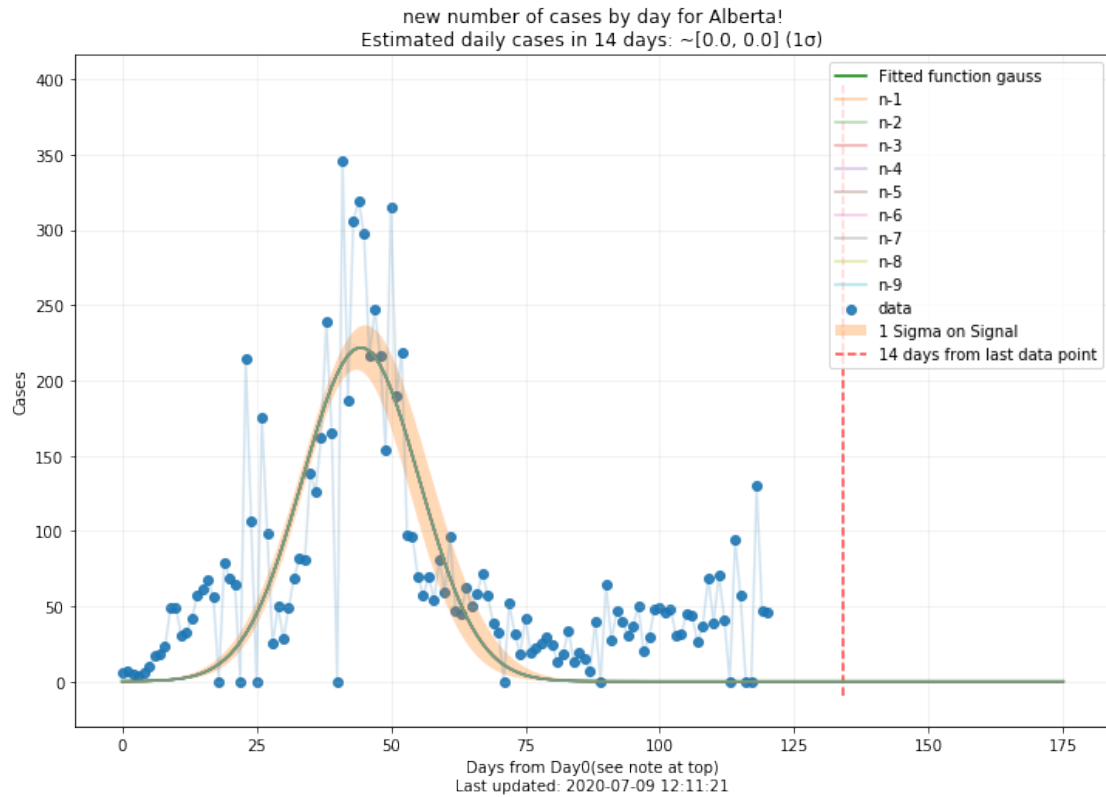
7.044e+03 7.057e+03 7.076e+03 7.091e+03 7.098e+03 7.138e+03 7.138e+03

7.202e+03 7.229e+03 7.276e+03 7.316e+03 7.346e+03 7.383e+03 7.433e+03

7.453e+03 7.482e+03 7.530e+03 7.579e+03 7.625e+03 7.673e+03 7.704e+03

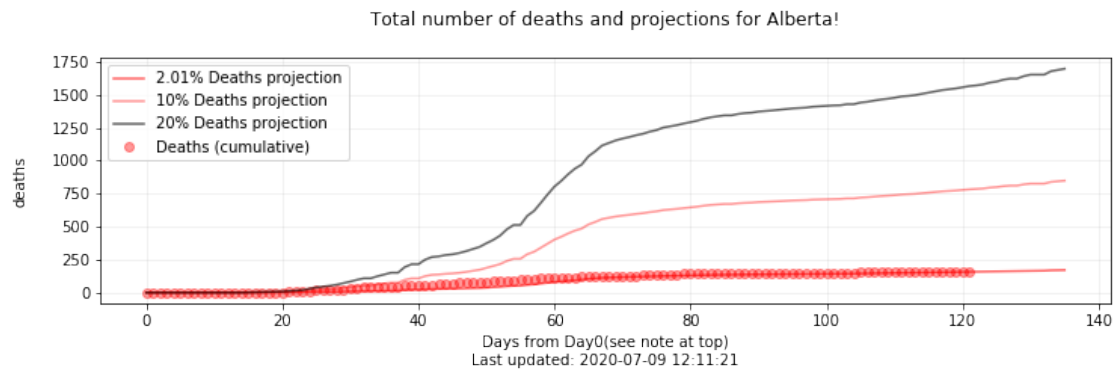
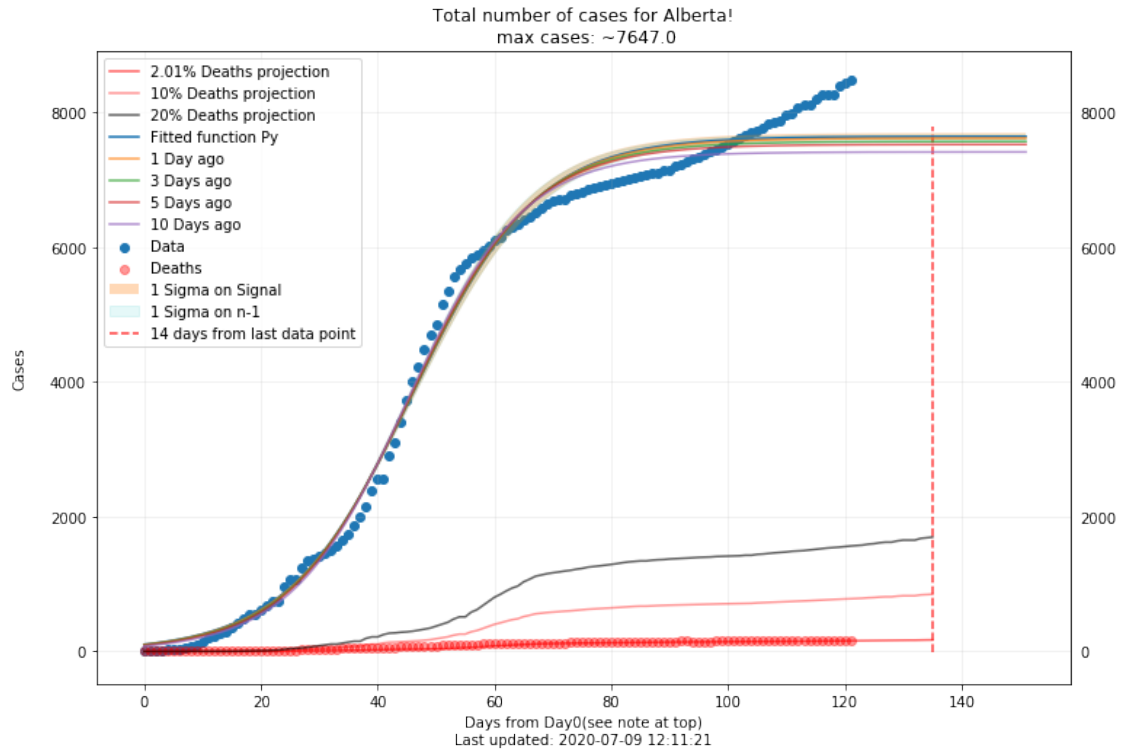
7.736e+03 7.781e+03 7.825e+03 7.851e+03 7.888e+03 7.957e+03 7.996e+03

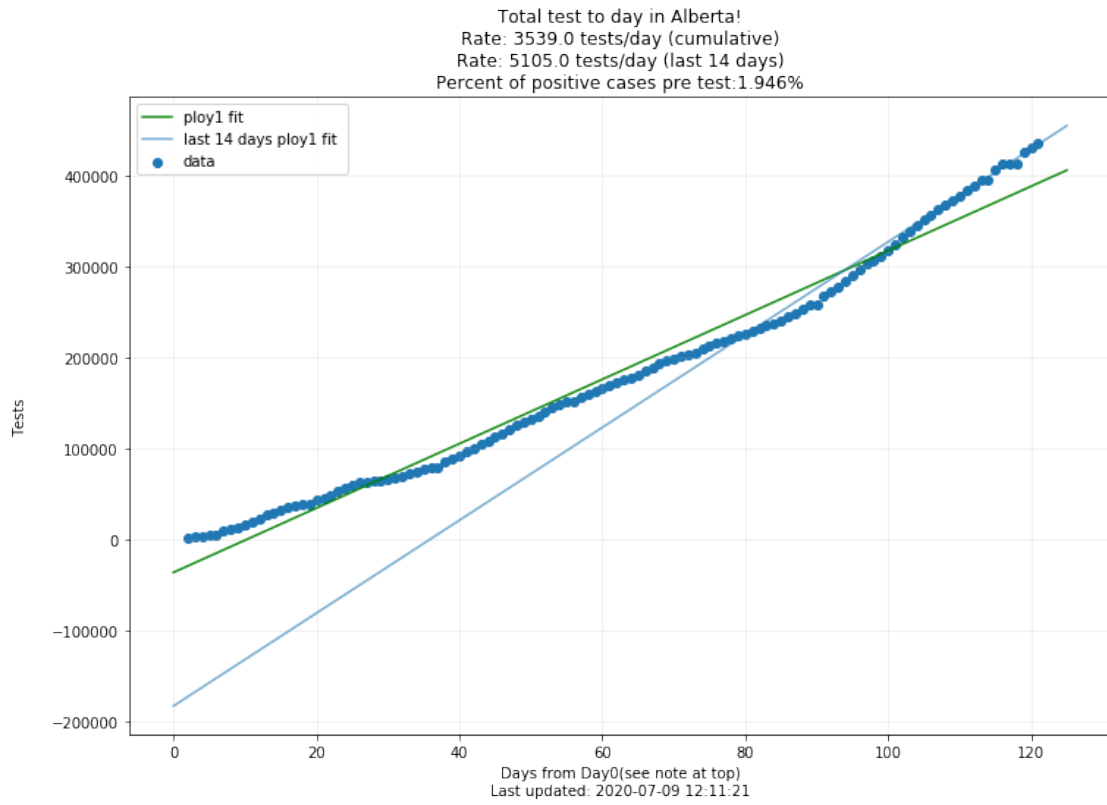
8.067e+03 8.108e+03 8.108e+03 8.202e+03 8.259e+03 8.259e+03 8.259e+03
 8.389e+03 8.436e+03 8.482e+03]
 New cases today: 46.0

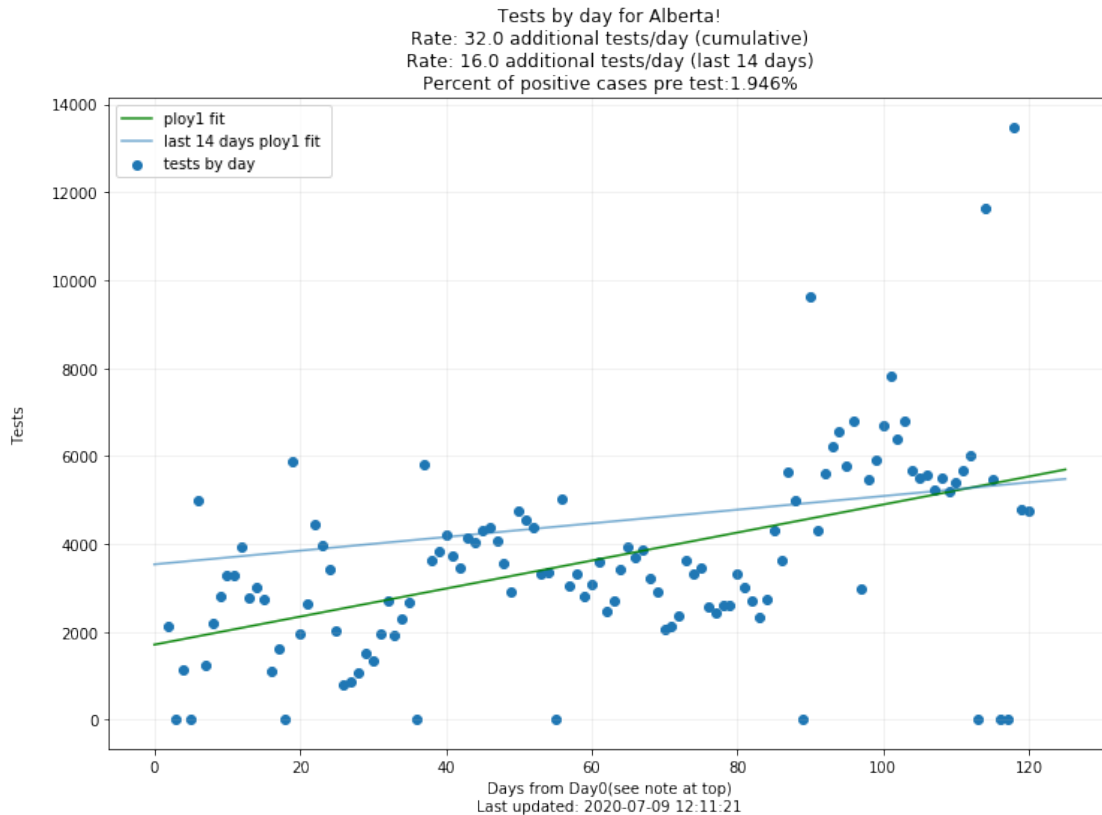


sigma+: 7691.0
 n+1: 7640.0
 Sigma-: 7589.0

params PY: [7.64655239e+03 9.32702492e-02 4.59656520e+01]
 PY sigma: [4.97957560e+01 2.80781146e-03 3.78821360e-01]
 max cases: 7647.0
 infection point: 46.0
 infection point date: 2020-03-17







Percent of positive cases pre test: 1.946 %
 2.012482486307477

-----British Columbia-----

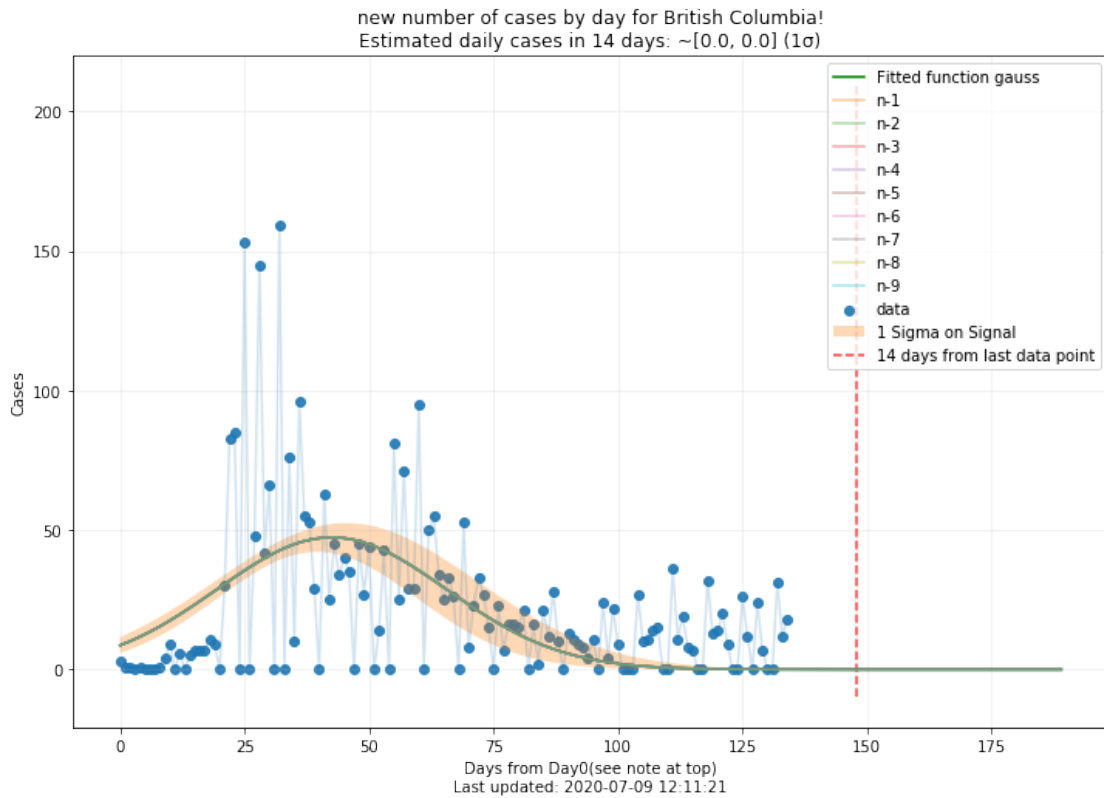
cases: [1.000e+00 4.000e+00 5.000e+00 6.000e+00 6.000e+00 7.000e+00 7.000e+00
 7.000e+00 7.000e+00 8.000e+00 1.200e+01 2.100e+01 2.100e+01 2.700e+01
 2.700e+01 3.200e+01 3.900e+01 4.600e+01 5.300e+01 6.400e+01 7.300e+01
 7.300e+01 1.030e+02 1.860e+02 2.710e+02 2.710e+02 4.240e+02 4.240e+02
 4.720e+02 6.170e+02 6.590e+02 7.250e+02 7.250e+02 8.840e+02 8.840e+02
 9.600e+02 9.700e+02 1.066e+03 1.121e+03 1.174e+03 1.203e+03 1.203e+03
 1.266e+03 1.291e+03 1.336e+03 1.370e+03 1.410e+03 1.445e+03 1.445e+03
 1.490e+03 1.517e+03 1.561e+03 1.561e+03 1.575e+03 1.618e+03 1.618e+03
 1.699e+03 1.724e+03 1.795e+03 1.824e+03 1.853e+03 1.948e+03 1.948e+03
 1.998e+03 2.053e+03 2.087e+03 2.112e+03 2.145e+03 2.171e+03 2.171e+03
 2.224e+03 2.232e+03 2.255e+03 2.288e+03 2.315e+03 2.330e+03 2.330e+03
 2.353e+03 2.360e+03 2.376e+03 2.392e+03 2.407e+03 2.428e+03 2.428e+03
 2.444e+03 2.446e+03 2.467e+03 2.479e+03 2.507e+03 2.517e+03 2.517e+03
 2.530e+03 2.541e+03 2.550e+03 2.558e+03 2.562e+03 2.573e+03 2.573e+03
 2.597e+03 2.601e+03 2.623e+03 2.632e+03 2.632e+03 2.632e+03 2.632e+03
 2.659e+03 2.669e+03 2.680e+03 2.694e+03 2.709e+03 2.709e+03 2.709e+03]

```

2.745e+03 2.756e+03 2.775e+03 2.783e+03 2.790e+03 2.790e+03 2.790e+03
2.822e+03 2.835e+03 2.849e+03 2.869e+03 2.878e+03 2.878e+03 2.878e+03
2.904e+03 2.916e+03 2.916e+03 2.940e+03 2.947e+03 2.947e+03 2.947e+03
2.978e+03 2.990e+03 3.008e+03]

```

New cases today: 18.0



sigma+: 2791.0

n+1: 2768.0

Sigma-: 2744.0

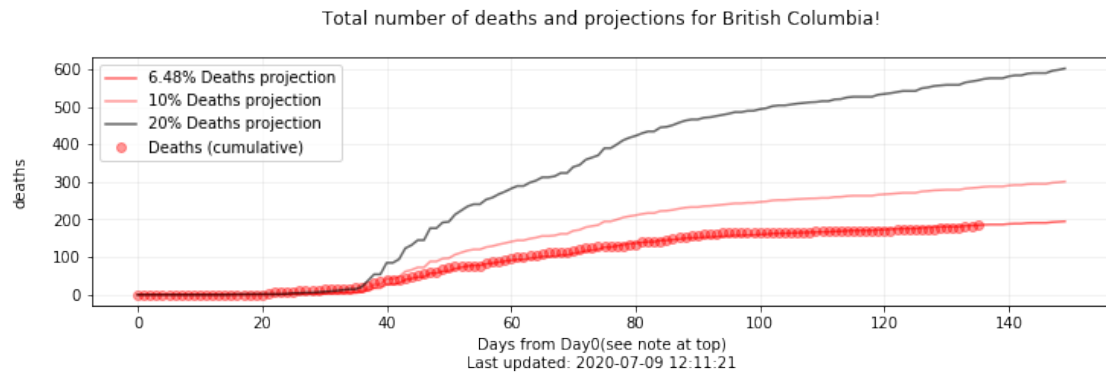
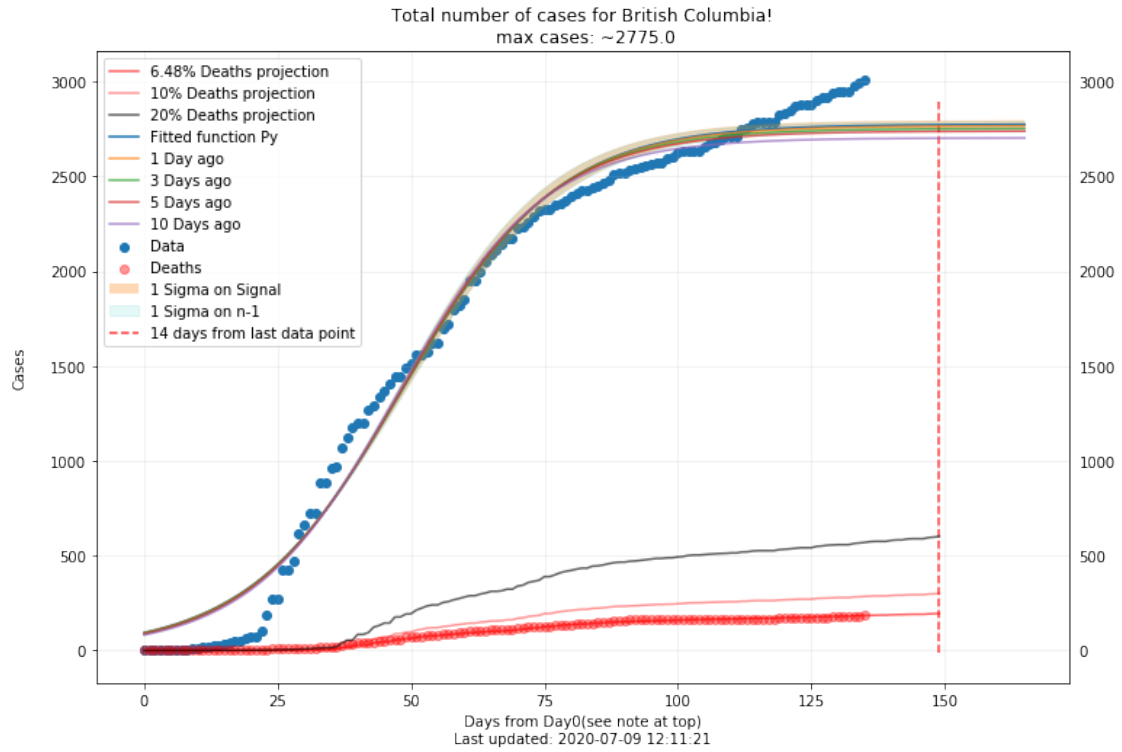
params PY: [2.77469654e+03 6.89024203e-02 4.86450535e+01]

PY sigma: [2.19791184e+01 2.24671372e-03 5.53677723e-01]

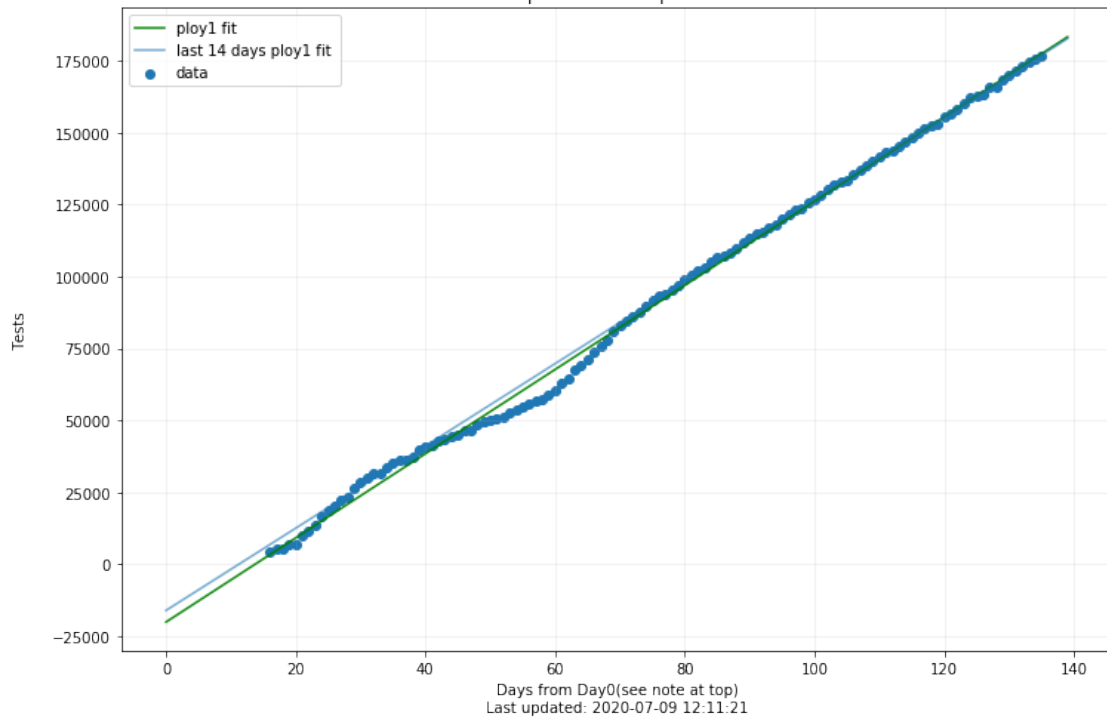
max cases: 2775.0

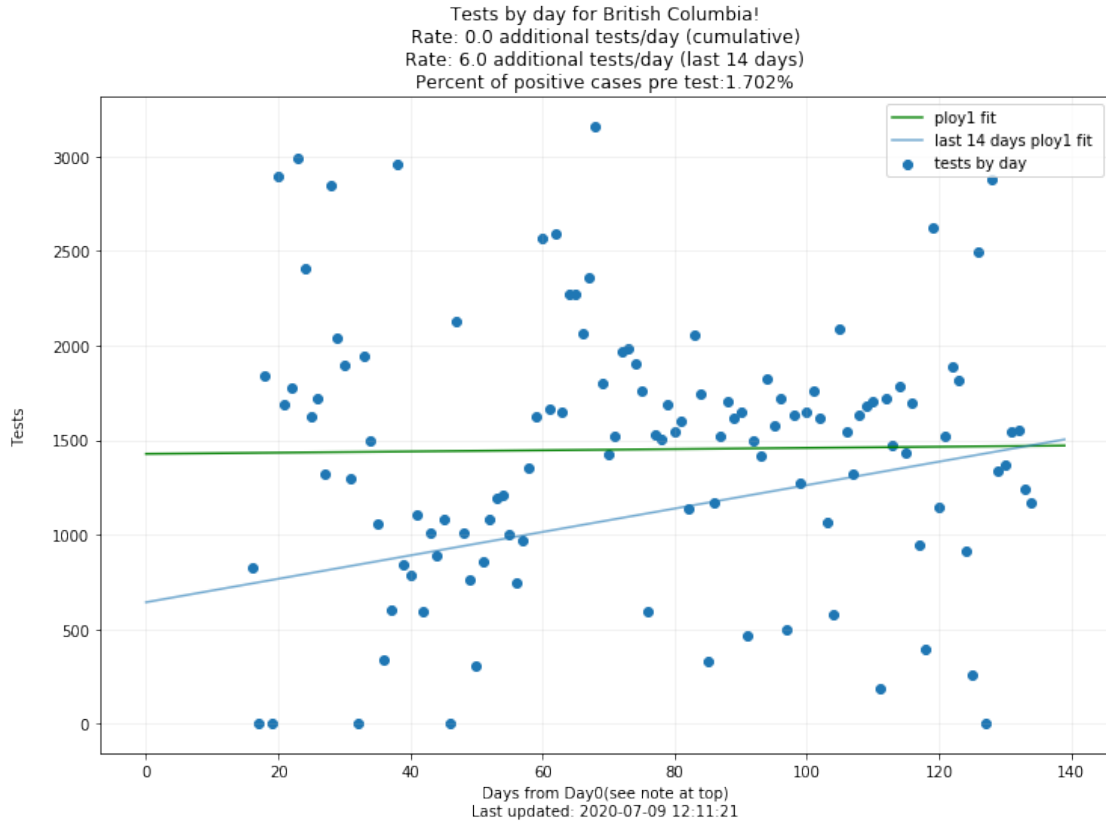
infection point: 49.0

infection point date: 2020-03-20



Total test to day in British Columbia!
Rate: 1463.0 tests/day (cumulative)
Rate: 1430.0 tests/day (last 14 days)
Percent of positive cases pre test: 1.702%





Percent of positive cases pre test: 1.702 %
6.483095155106308

-----Ontario-----

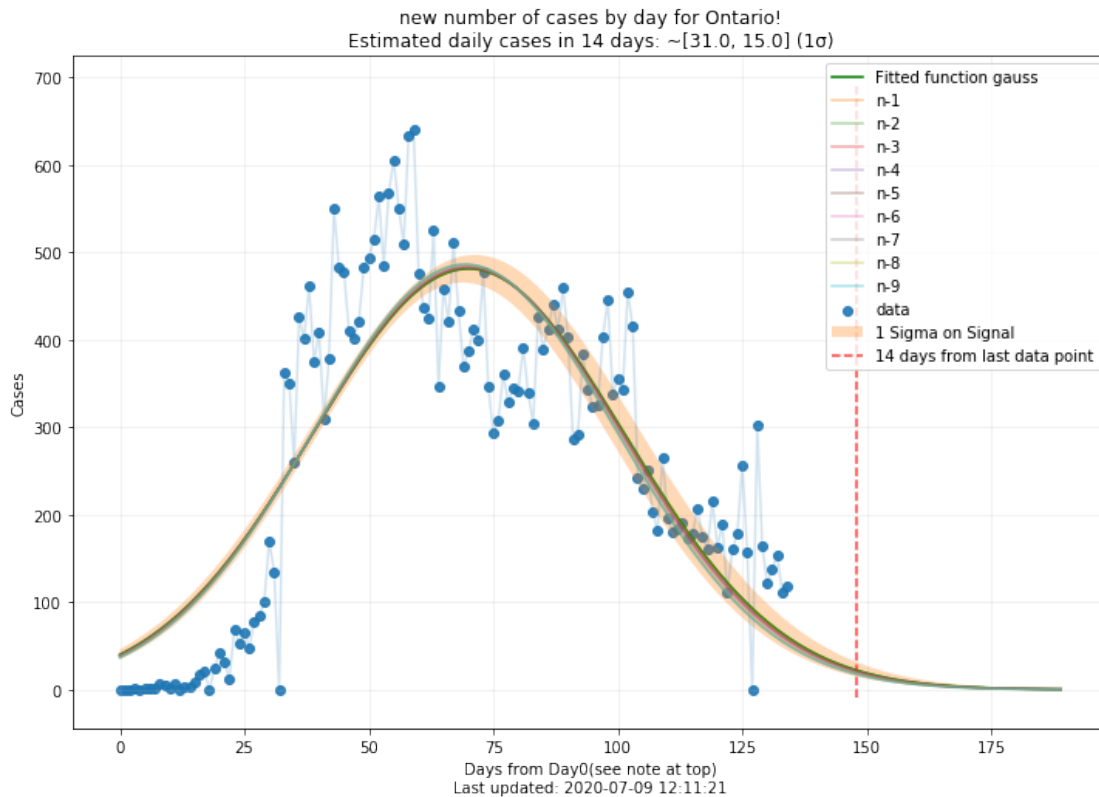
cases: [3.0000e+00 3.0000e+00 3.0000e+00 3.0000e+00 4.0000e+00 4.0000e+00
5.0000e+00 6.0000e+00 8.0000e+00 1.5000e+01 2.0000e+01 2.2000e+01
2.8000e+01 2.8000e+01 3.1000e+01 3.4000e+01 4.2000e+01 5.9000e+01
7.9000e+01 7.9000e+01 1.0300e+02 1.4500e+02 1.7700e+02 1.8900e+02
2.5800e+02 3.1100e+02 3.7700e+02 4.2500e+02 5.0300e+02 5.8800e+02
6.8800e+02 8.5800e+02 9.9300e+02 9.9300e+02 1.3550e+03 1.7060e+03
1.9660e+03 2.3920e+03 2.7930e+03 3.2550e+03 3.6300e+03 4.0380e+03
4.3470e+03 4.7260e+03 5.2760e+03 5.7590e+03 6.2370e+03 6.6480e+03
7.0490e+03 7.4700e+03 7.9530e+03 8.4470e+03 8.9610e+03 9.5250e+03
1.0010e+04 1.0578e+04 1.1184e+04 1.1735e+04 1.2245e+04 1.2879e+04
1.3519e+04 1.3995e+04 1.4432e+04 1.4856e+04 1.5381e+04 1.5728e+04
1.6187e+04 1.6608e+04 1.7119e+04 1.7553e+04 1.7923e+04 1.8310e+04
1.8722e+04 1.9121e+04 1.9598e+04 1.9944e+04 2.0238e+04 2.0546e+04
2.0907e+04 2.1236e+04 2.1581e+04 2.1922e+04 2.2313e+04 2.2653e+04
2.2957e+04 2.3384e+04 2.3774e+04 2.4187e+04 2.4628e+04 2.5040e+04
2.5500e+04 2.5904e+04 2.6191e+04 2.6483e+04 2.6866e+04 2.7210e+04

```

2.7533e+04 2.7859e+04 2.8263e+04 2.8709e+04 2.9047e+04 2.9403e+04
2.9747e+04 3.0202e+04 3.0617e+04 3.0860e+04 3.1090e+04 3.1341e+04
3.1544e+04 3.1726e+04 3.1992e+04 3.2189e+04 3.2370e+04 3.2554e+04
3.2744e+04 3.2917e+04 3.3095e+04 3.3301e+04 3.3476e+04 3.3637e+04
3.3853e+04 3.4016e+04 3.4205e+04 3.4316e+04 3.4476e+04 3.4654e+04
3.4911e+04 3.5068e+04 3.5068e+04 3.5370e+04 3.5535e+04 3.5656e+04
3.5794e+04 3.5948e+04 3.6060e+04 3.6178e+04]

```

New cases today: 118.0



sigma+: 35154.0

n+1: 34760.0

Sigma-: 34359.0

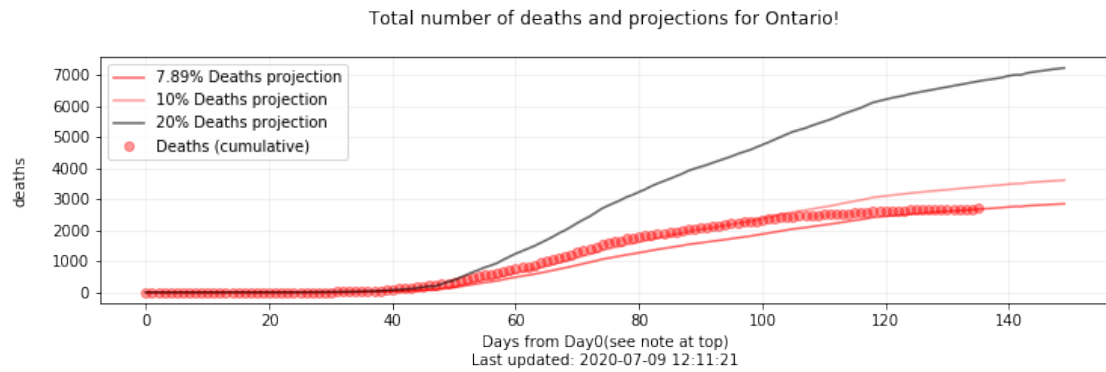
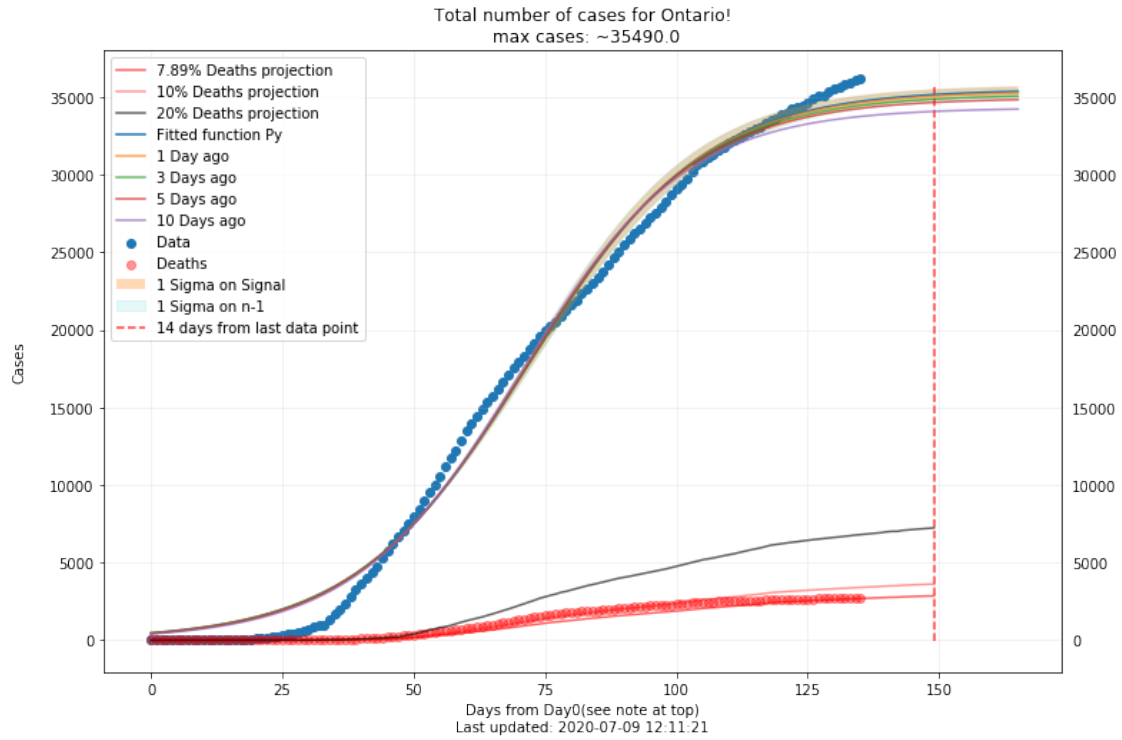
params PY: [3.54900493e+04 6.02209674e-02 7.18430818e+01]

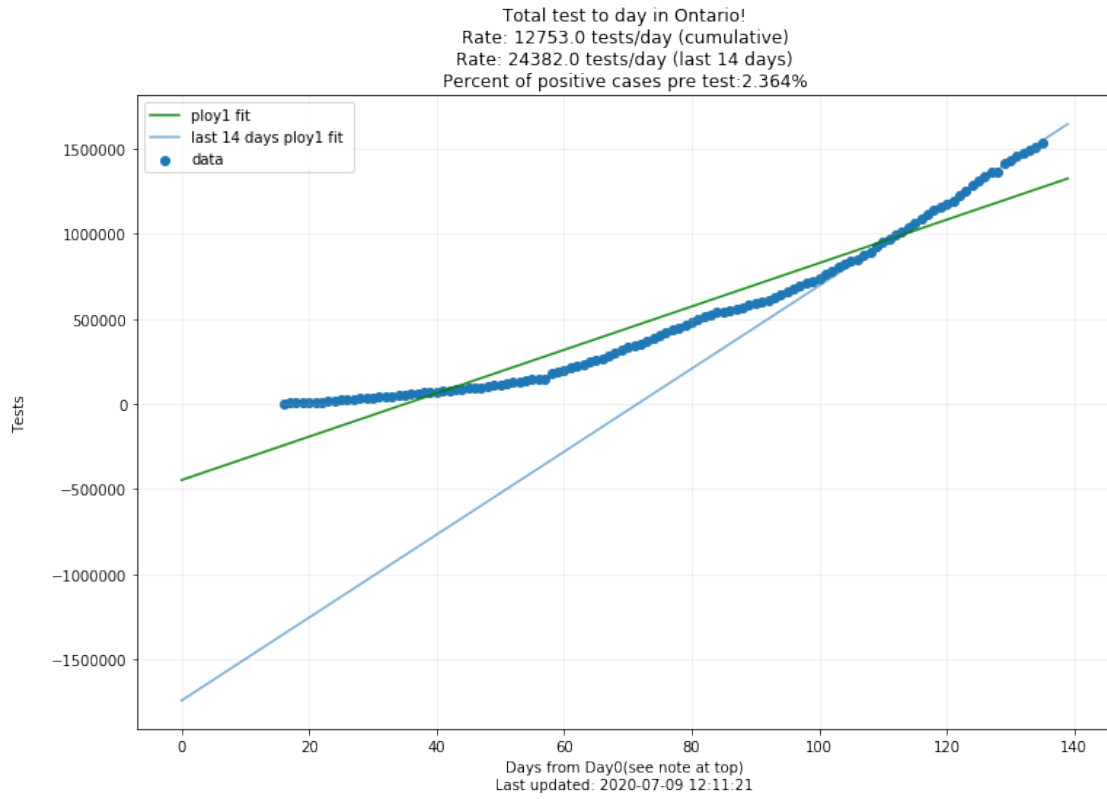
PY sigma: [3.15501512e+02 1.43327454e-03 5.26287868e-01]

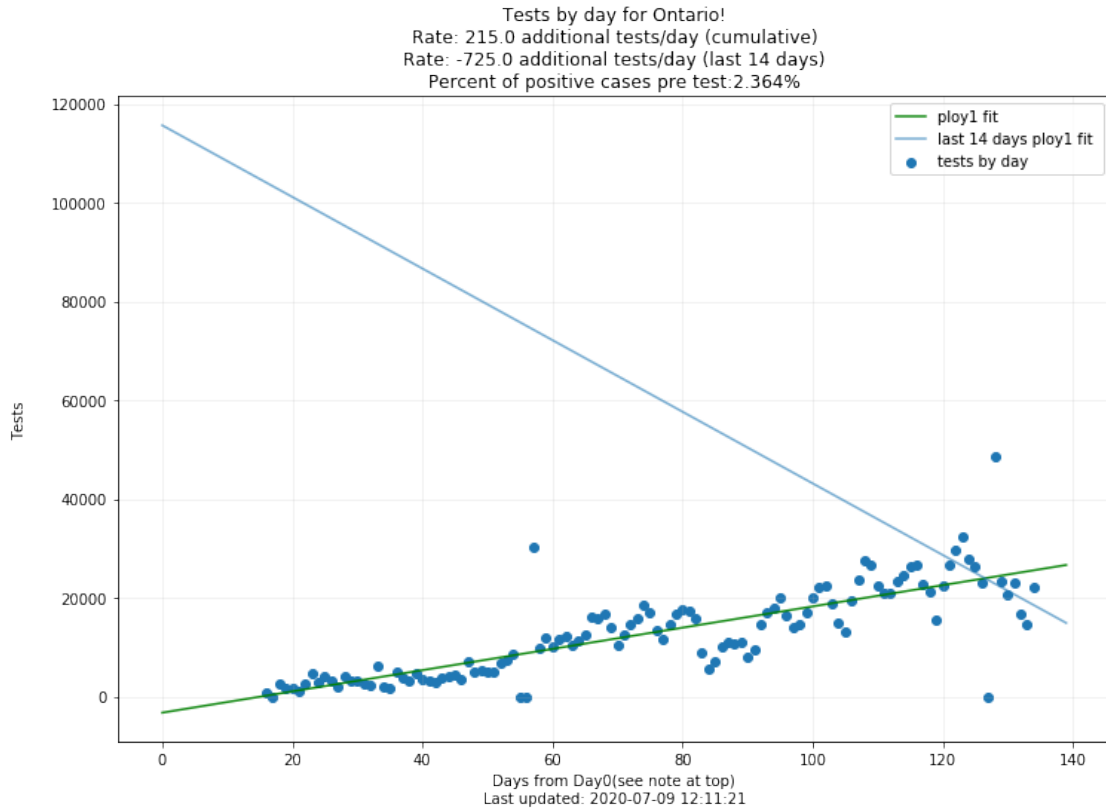
max cases: 35490.0

infection point: 72.0

infection point date: 2020-04-12







Percent of positive cases pre test: 2.364 %
 7.893582809530771

-----Quebec-----

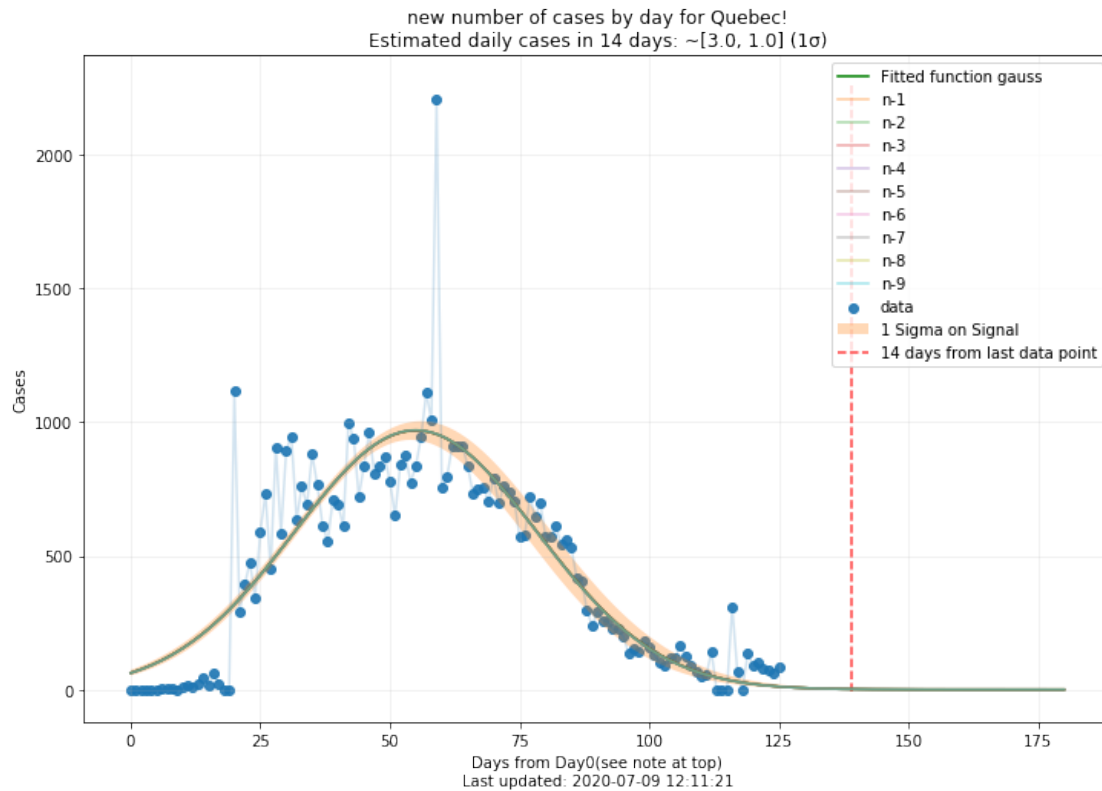
cases: [1.0000e+00 1.0000e+00 2.0000e+00 2.0000e+00 2.0000e+00 3.0000e+00
 4.0000e+00 7.0000e+00 1.3000e+01 1.7000e+01 1.7000e+01 2.4000e+01
 3.9000e+01 5.0000e+01 7.4000e+01 1.2100e+02 1.3900e+02 2.0200e+02
 2.2100e+02 2.2100e+02 2.2100e+02 1.3390e+03 1.6290e+03 2.0210e+03
 2.4980e+03 2.8400e+03 3.4300e+03 4.1620e+03 4.6110e+03 5.5180e+03
 6.1010e+03 6.9970e+03 7.9440e+03 8.5800e+03 9.3400e+03 1.0031e+04
 1.0912e+04 1.1677e+04 1.2292e+04 1.2846e+04 1.3557e+04 1.4248e+04
 1.4860e+04 1.5857e+04 1.6798e+04 1.7521e+04 1.8357e+04 1.9319e+04
 2.0126e+04 2.0965e+04 2.1838e+04 2.2616e+04 2.3267e+04 2.4107e+04
 2.4982e+04 2.5757e+04 2.6594e+04 2.7538e+04 2.8648e+04 2.9656e+04
 3.1865e+04 3.2623e+04 3.3417e+04 3.4327e+04 3.5238e+04 3.6150e+04
 3.6986e+04 3.7721e+04 3.8469e+04 3.9225e+04 3.9931e+04 4.0724e+04
 4.1420e+04 4.2183e+04 4.2920e+04 4.3627e+04 4.4197e+04 4.4775e+04
 4.5495e+04 4.6141e+04 4.6838e+04 4.7411e+04 4.7984e+04 4.8598e+04
 4.9139e+04 4.9702e+04 5.0232e+04 5.0651e+04 5.1059e+04 5.1354e+04
 5.1593e+04 5.1884e+04 5.2143e+04 5.2398e+04 5.2624e+04 5.2849e+04

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5.3047e+04 5.3185e+04 5.3341e+04 5.3485e+04 5.3666e+04 5.3824e+04
5.3952e+04 5.4054e+04 5.4146e+04 5.4263e+04 5.4383e+04 5.4550e+04
5.4674e+04 5.4766e+04 5.4835e+04 5.4884e+04 5.4937e+04 5.5079e+04
5.5079e+04 5.5079e+04 5.5079e+04 5.5390e+04 5.5458e+04 5.5458e+04
5.5593e+04 5.5682e+04 5.5784e+04 5.5863e+04 5.5937e+04 5.5997e+04
5.6079e+04]

```

New cases today: 82.0



```

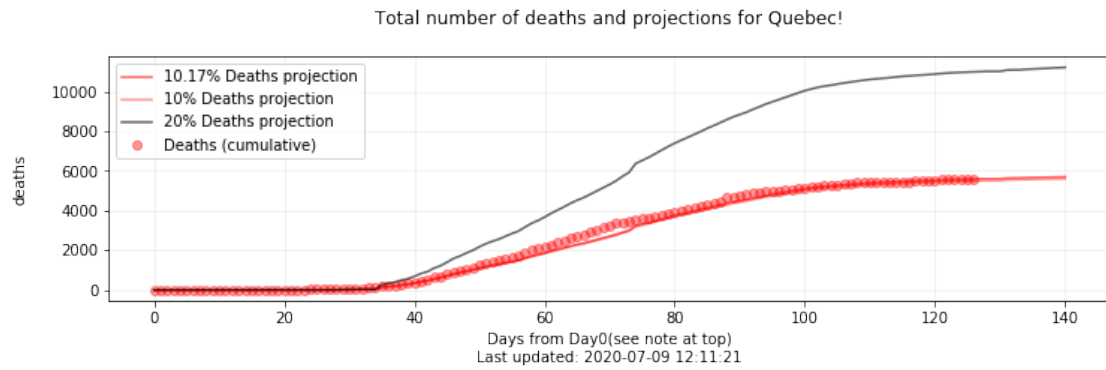
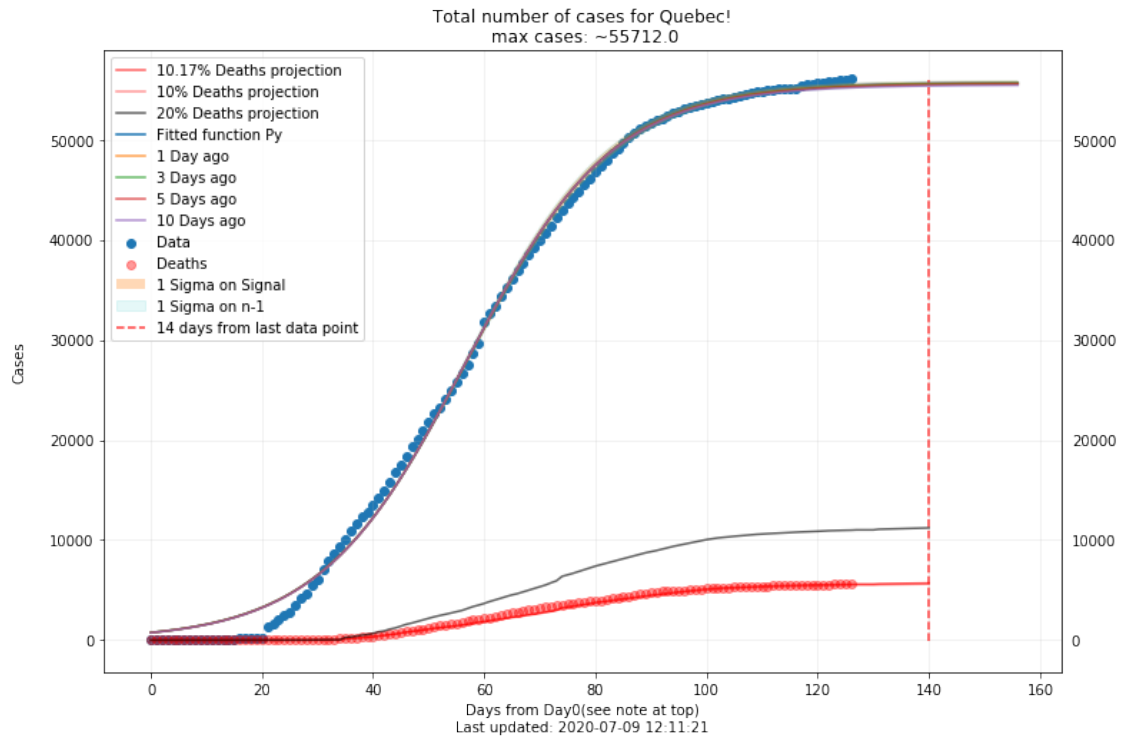
sigma+: 55672.0
n+1: 55434.0
Sigma-: 55194.0
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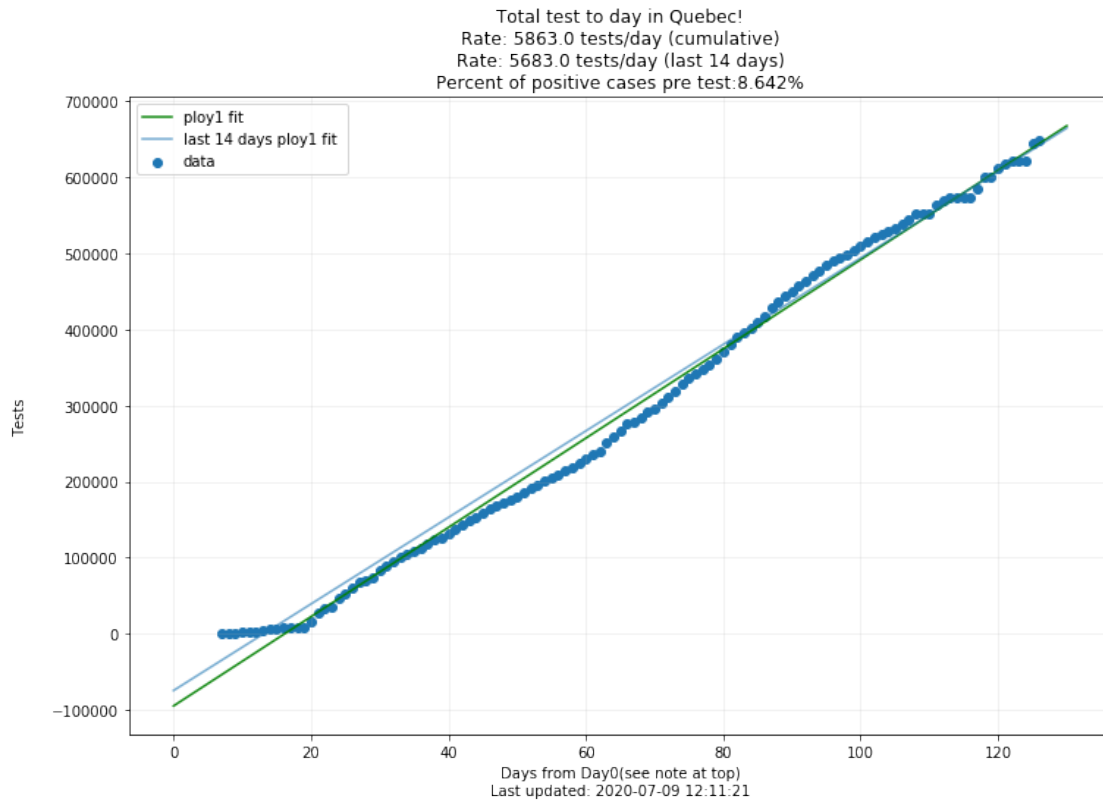
```

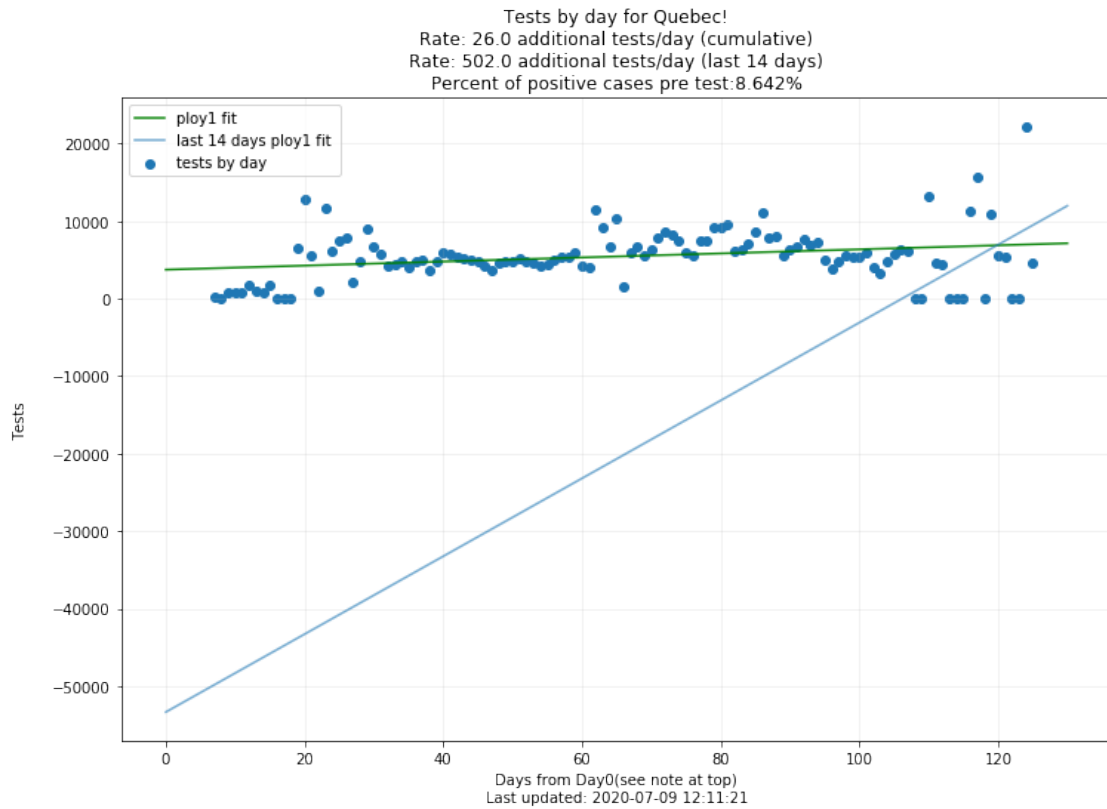
```

params PY: [5.57124642e+04 7.54242507e-02 5.68081672e+01]
PY sigma: [2.15014451e+02 1.05605506e-03 2.25536137e-01]
max cases: 55712.0
infection point: 57.0
infection point date: 2020-03-28

```







Percent of positive cases pre test: 8.642 %
 10.172661086802592