West Nile virus forecast model submission form
Email completed form to vbd-predict@cdc.gov

Team name
Kernel of Truth

Team leader

Name	Institution	Email
Evan Lowell Ray	Mount Holyoke College	eray@mtholyoke.edu

Other team members

Name	Institution	Email

Model description
Provide a brief summary of the model methods with sufficient detail for another modeler to understand the approach being applied. If multiple models are used, describe each model and how they were combined.

We use a zero-inflated Poisson regression model where the probability of the Poisson component is obtained as inverse-logit{population * spline(latitude, longitude)} and the mean of the Poisson distribution is population * exp{spline(latitude, longitude)}. In both cases, a tensor product B-spline basis is used with 15 evenly spaced knots for each of latitude and longitude; the spline coefficients are separate for each component. In our first submission, no information specific to this year is used other than population.

Variables
List each variable used and its temporal relationship to the forecast. If multiple models are used, specify which enter into each model.

1. Latitude and longitude; not year-specific
2. County population; 2019
3.

4.
5.
6.
7.
8.
9.
10.

Computational resources

Describe the programming languages and software tools that were used to write and execute the forecasts.

Python and tensorflow probability.

Publications

Note whether the model was derived from previously published work and, if so, provide references.

Participation agreement

By submitting these forecasts, the team agrees to abide by the project rules and data use agreements.

Team lead name	Date
Evan Lowell Ray	2020-04-30