**Methodology Overview for the 2017/2018 Flu Forecasting Challenge**

**Dave Osthus, PhD**

**Los Alamos National Laboratory**

**LANL\_DBM Details**

team\_name: LANL

team\_members: Dave Osthus, Reid Priedhorsky, Jim Gattiker, Sara Del Valle

model\_name: Dynamic Bayesian Model with a hierarchical discrepancy

model\_abbr: DBM

data\_source1: ILI Net

data\_source2:

this\_model\_is\_an\_ensemble: FALSE

methods: The DBM combines an SIR model with a flexible discrepancy function in a Bayesian framework. Methodological details can be found here: https://arxiv.org/pdf/1708.09481.pdf. The DBM only uses ILI Net data, though it uses all available historical ILI Net data (i.e., from 1997 through the present, sans the H1N1 seasons). The discrepancy function is learned by fitting all seasons within a region hierarchically. All regions are fit independently.

**LANL\_DBMplus Details**

team\_name: LANL

team\_members: Dave Osthus, Reid Priedhorsky, Ashlynn Daughton, Sara Del Valle

model\_name: Dynamic Bayesian Model with a hierarchical discrepancy and Google Health Trends data

model\_abbr: DBMplus

data\_source1: ILI Net

data\_source2: Google Health Trends

this\_model\_is\_an\_ensemble: FALSE

methods: The DBMplus model is exactly the DBM model with an additional data source, Google Health Trends (GHT). GHT is incorporated into the DBMplus model with the hopes of improving short-term forecasts relative to the DBM through nowcasting.