

The 2017/18 Influenza Season Collaborative Challenge

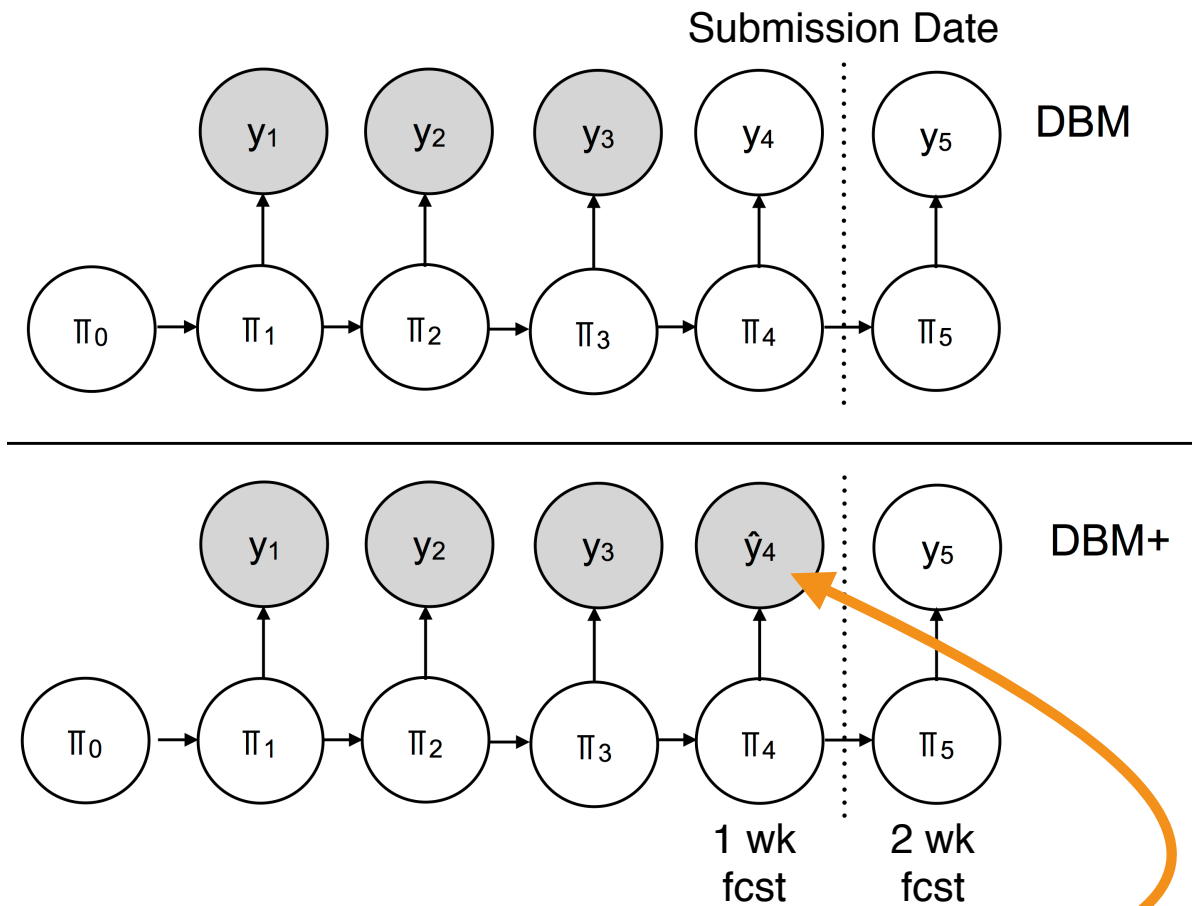
Dave Osthus

Los Alamos National Laboratory

DBM vs. DBM+

Well-tested vs. Experimental
ILI only vs. ILI + Internet Data

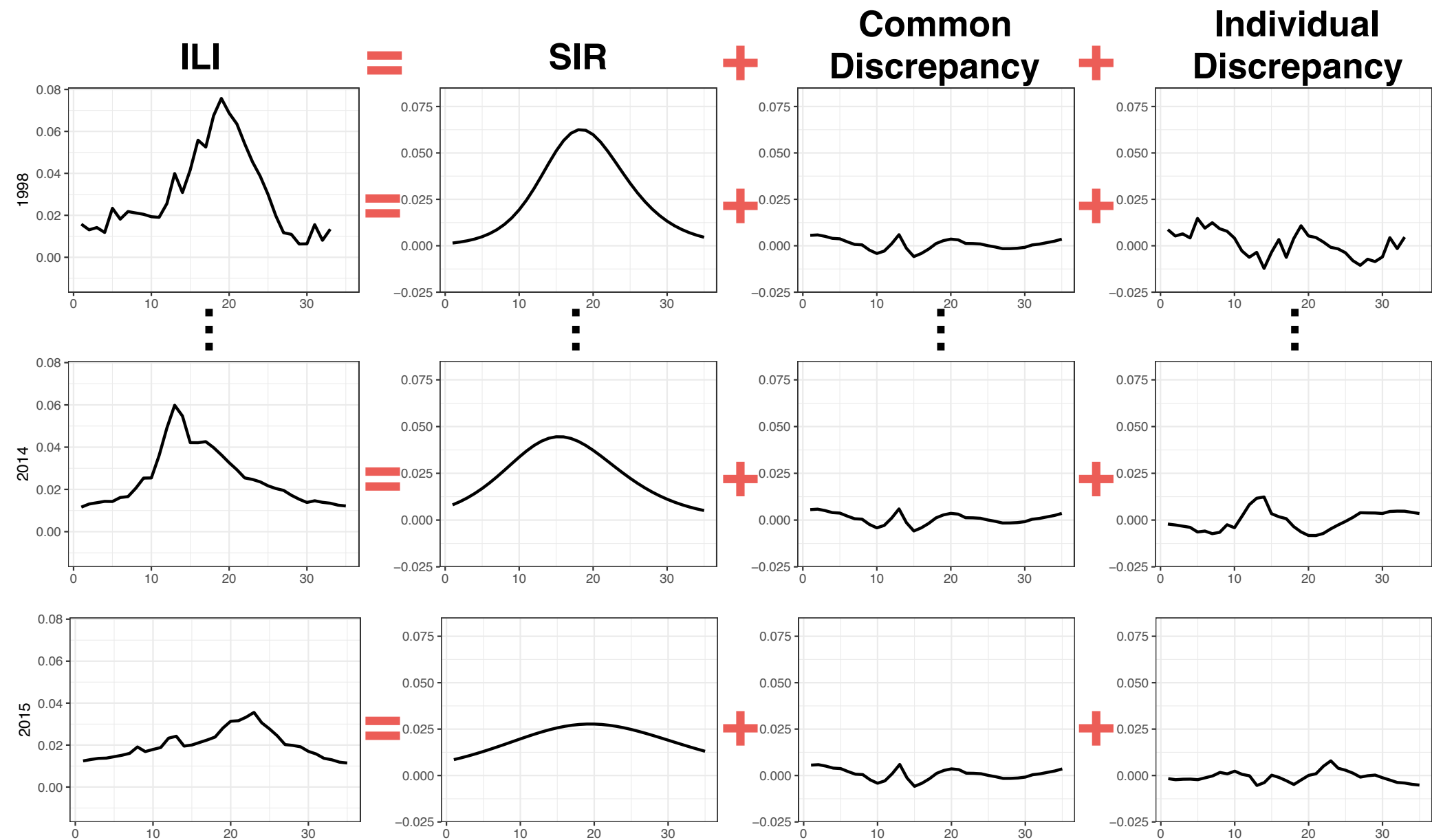
DBM = Dynamic Bayesian Model



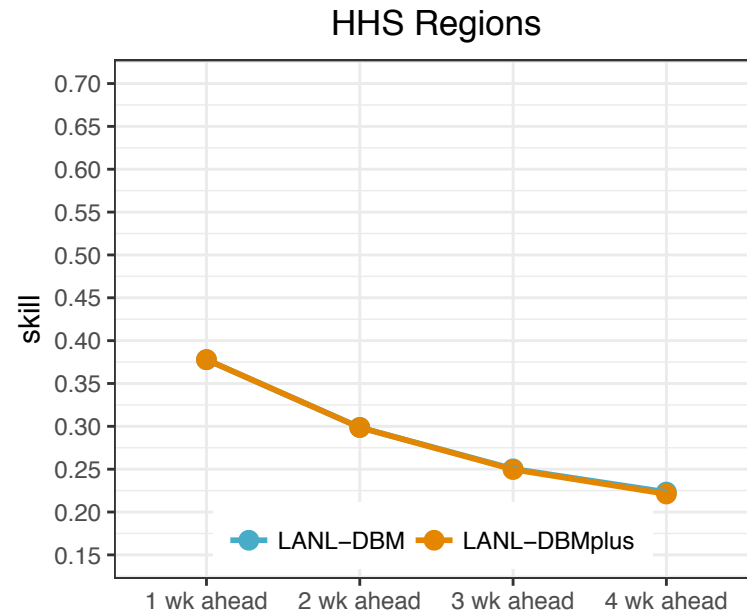
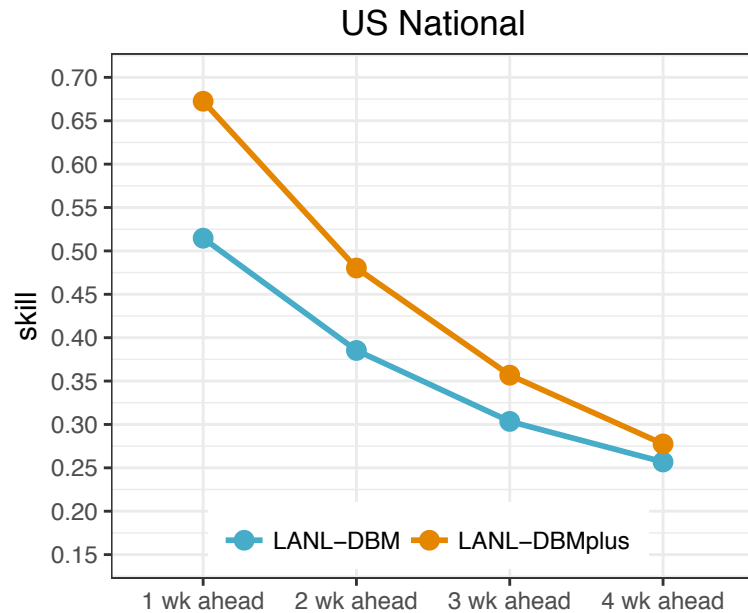
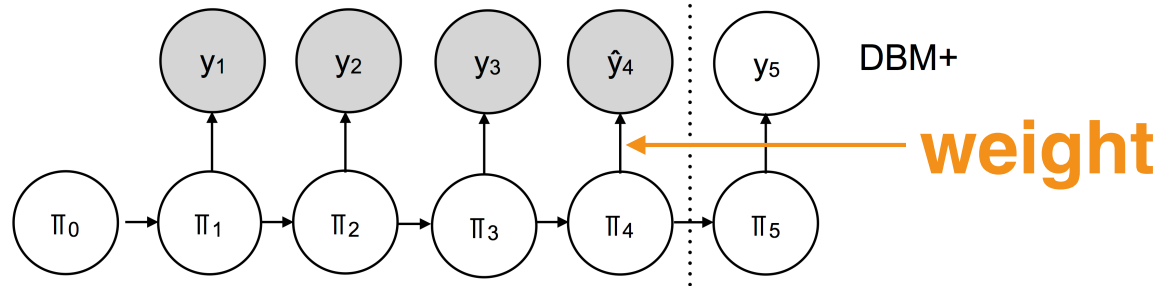
Rank	Team
1	Delphi-Epicast
2	FluSightNetwork
3	LANL-DBMplus
4	LANL-DBM
5	CU Vixen
*	UnwghtAvg
*	PPFST Crowd
6	CU-Network
7	CU-SEL
8	Delphi-Stat
9	CU Puffins
10	Kernel of Truth
11	PredSci
12	KBSI
13	02115 emms
14	HumNat
15	02115-emmsa
16	YaleModel
*	Hist-Avg

DBM Methodology

Structure vs. Flexibility



I Made a Mistake



National	Skill
DBM	0.3629
DBM+	0.4168
Difference	0.0539

Regional	Skill
DBM	0.3200
DBM+	0.3194
Difference	-0.0006

Opportunities Abound

	DBM	DBM+
Historical ILI Data	✓	✓
Model Discrepancy	✓	✓
Digital Surveillance Data	✗	✓
Spatial Information	✗	✗
Multiscale Information	✗	✗
Flu Strain Data	✗	✗
Vaccination Data	✗	✗
Model Ensembles	✗	✗
Expert Input	✗	✗

Collaborators



Sara Del Valle
(LANL)



Jim Gattiker
(LANL)



Reid Priedhorsky
(LANL)



Ashlynn Daughton
(CU Boulder and LANL)

For DBM details

“Dynamic Bayesian Influenza Forecasting in the United States with Hierarchical Discrepancy” by Osthus, Gattiker, Priedhorsky, Del Valle
(to appear at *Bayesian Analysis*)
(<https://arxiv.org/abs/1708.09481>)

For DBM+ details

“Even a good flu forecasting model can benefit from internet-based nowcasts, but those benefits are limited” by Osthus, Daughton, Priedhorsky
(under review at *PLOS Computational Biology*)