

A spatio-temporal hierarchical Markov switching model for the early detection of influenza outbreaks. Supplemental Material, Appendix 3.

This appendix shows the estimated posterior probability of being in the epidemic phase for all 49 states of the USA by our spatio-temporal proposal applied on Google Flu Trends (GFT) USA data, the simplification without ICAR, the simplification without μ_{ts0} , the Leroux variation and the model of Martinez-Beneito et al. (2008).

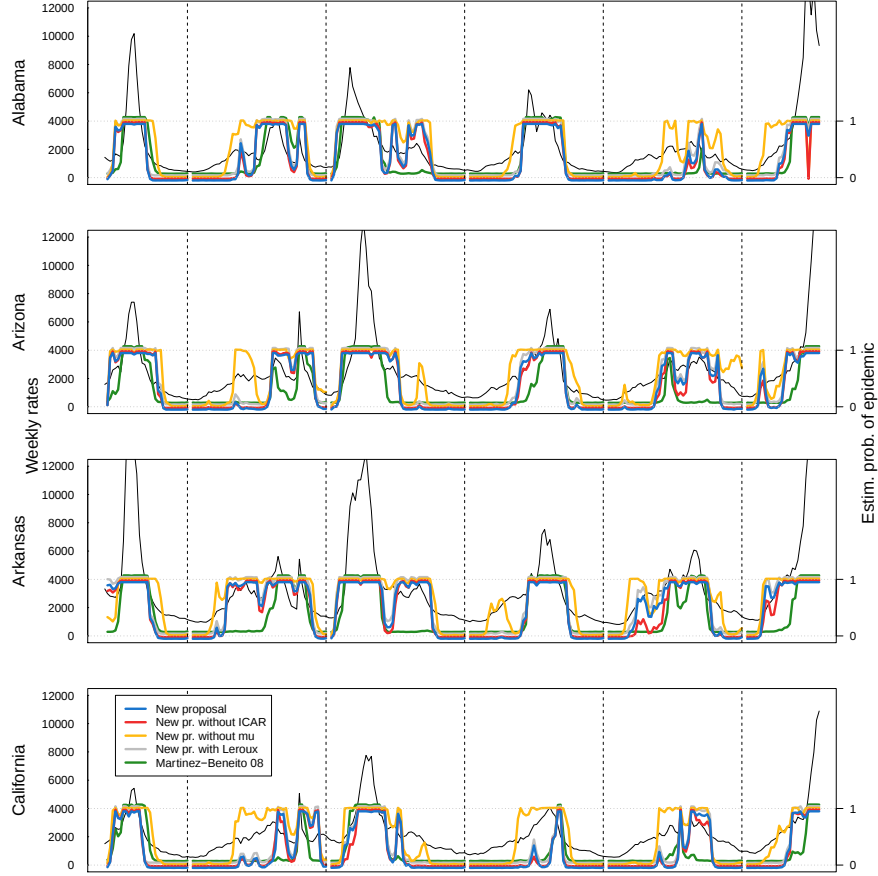


Figure 1: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Alabama, Arizona, Arkansas and California. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

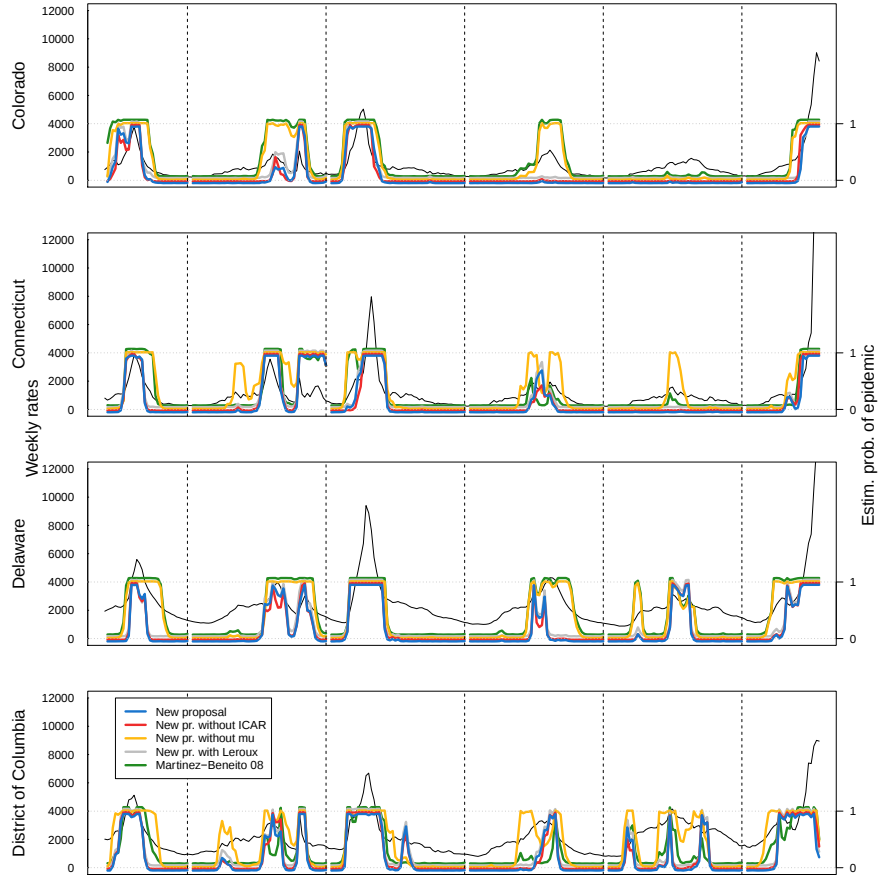


Figure 2: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Colorado, Connecticut, Delaware and District of Columbia. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

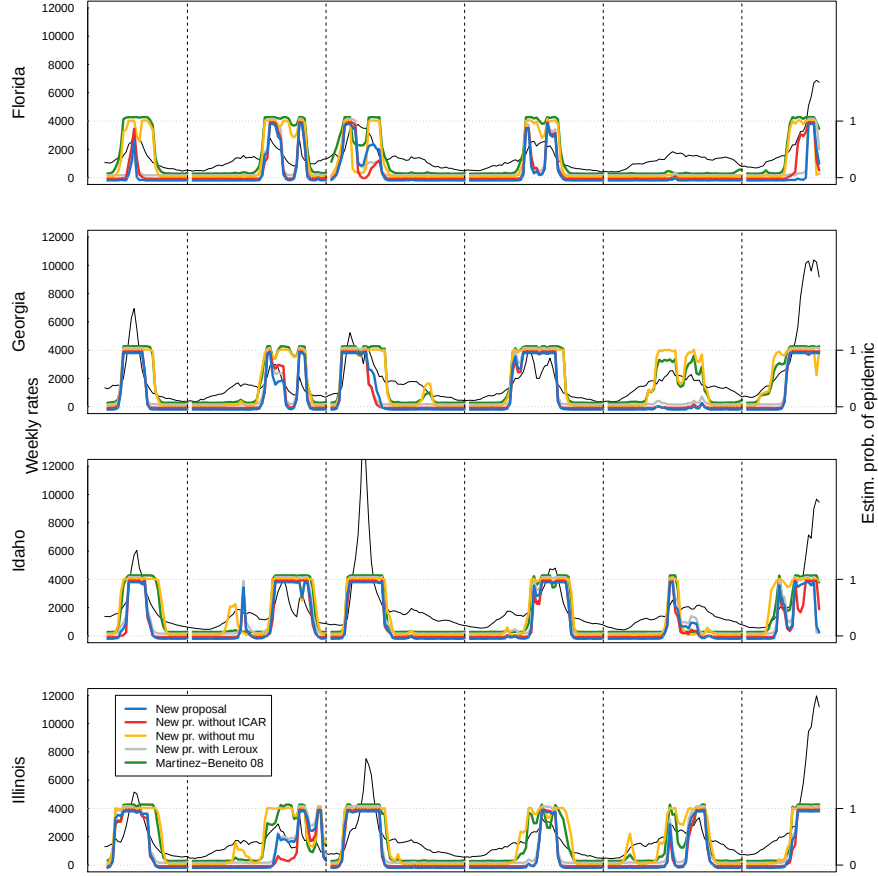


Figure 3: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Florida, Georgia, Idaho and Illinois. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

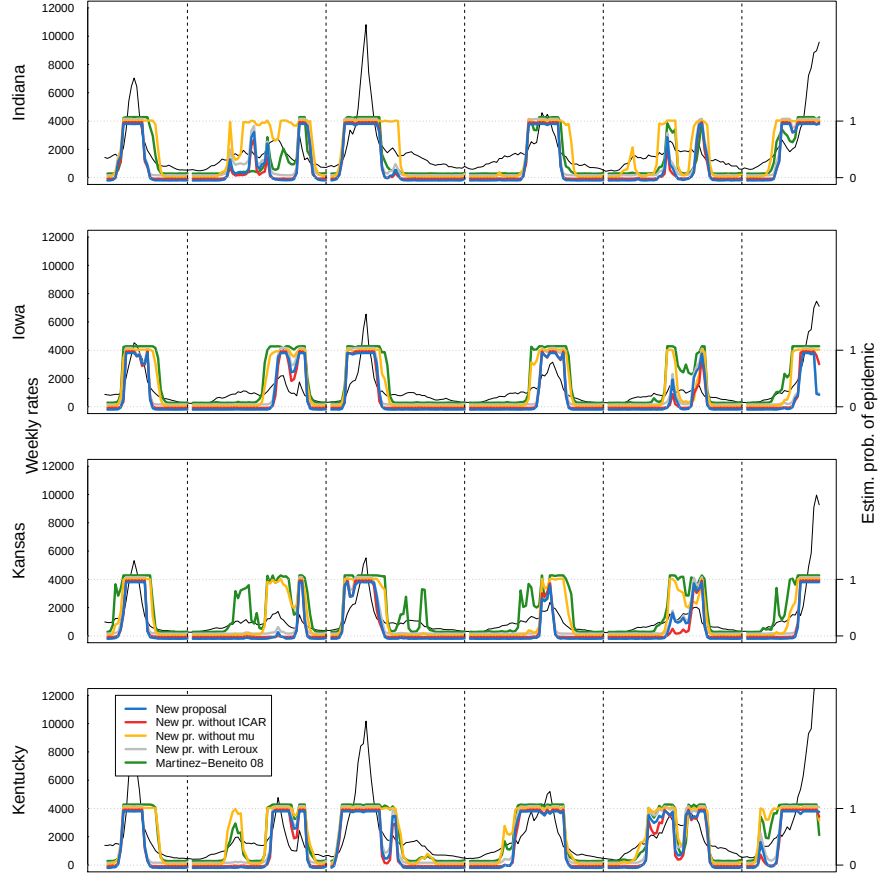


Figure 4: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Indiana, Iowa, Kansas and Kentucky. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

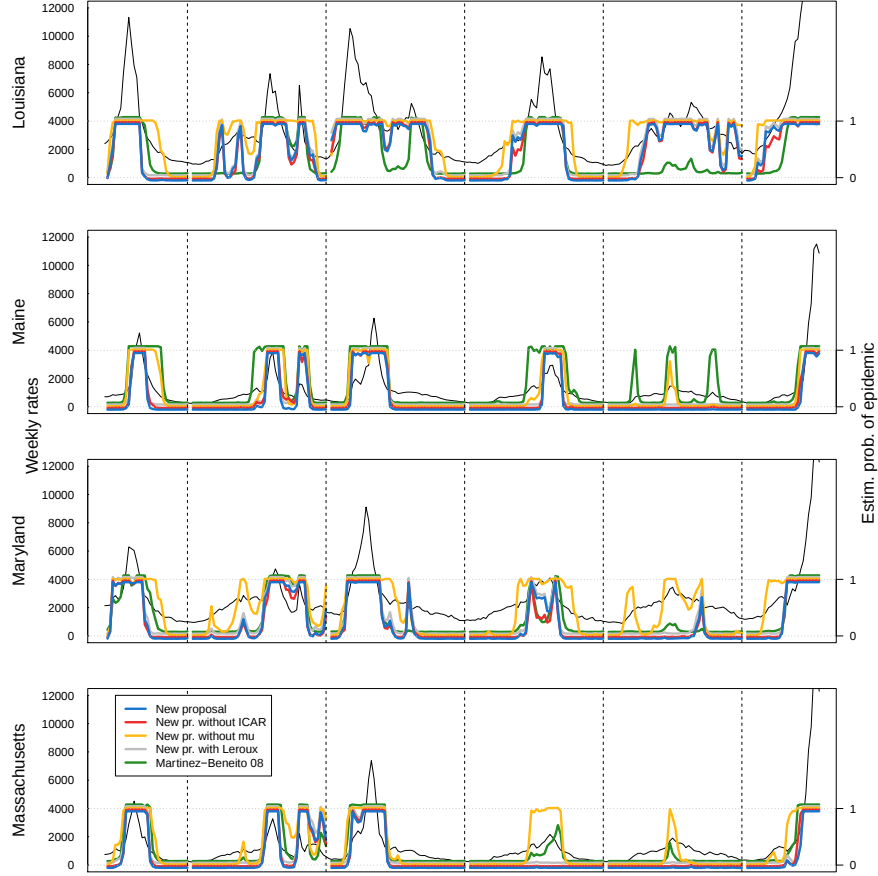


Figure 5: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Louisiana, Maine, Maryland and Massachusetts. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

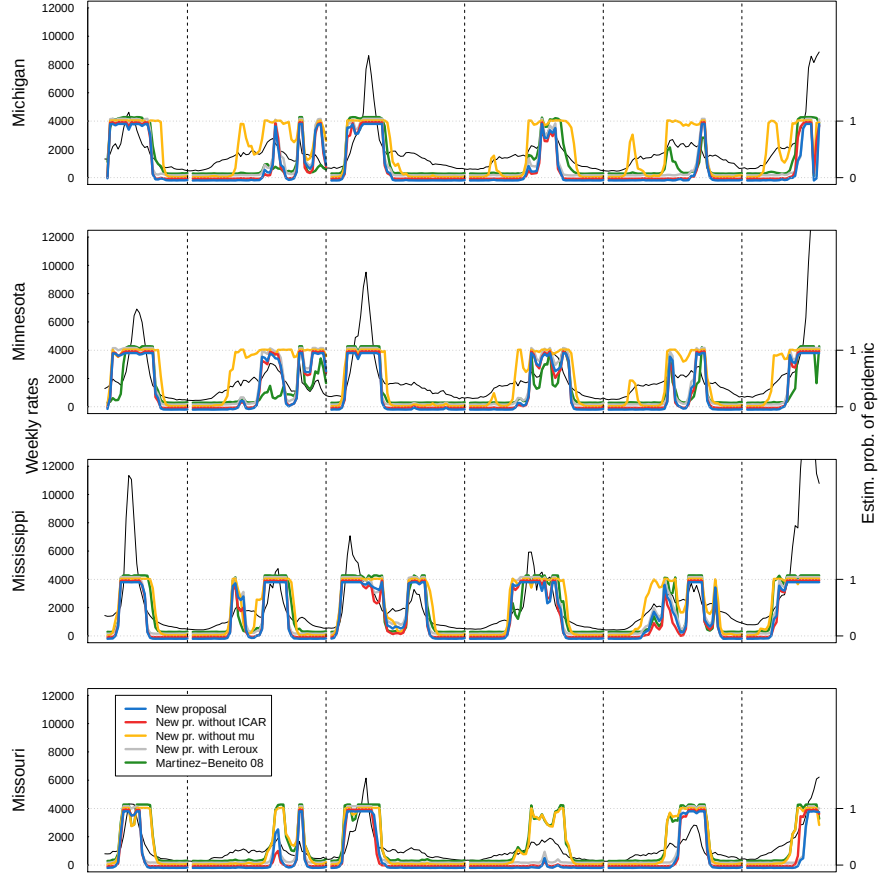


Figure 6: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Michigan, Minnesota, Mississippi and Missouri. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

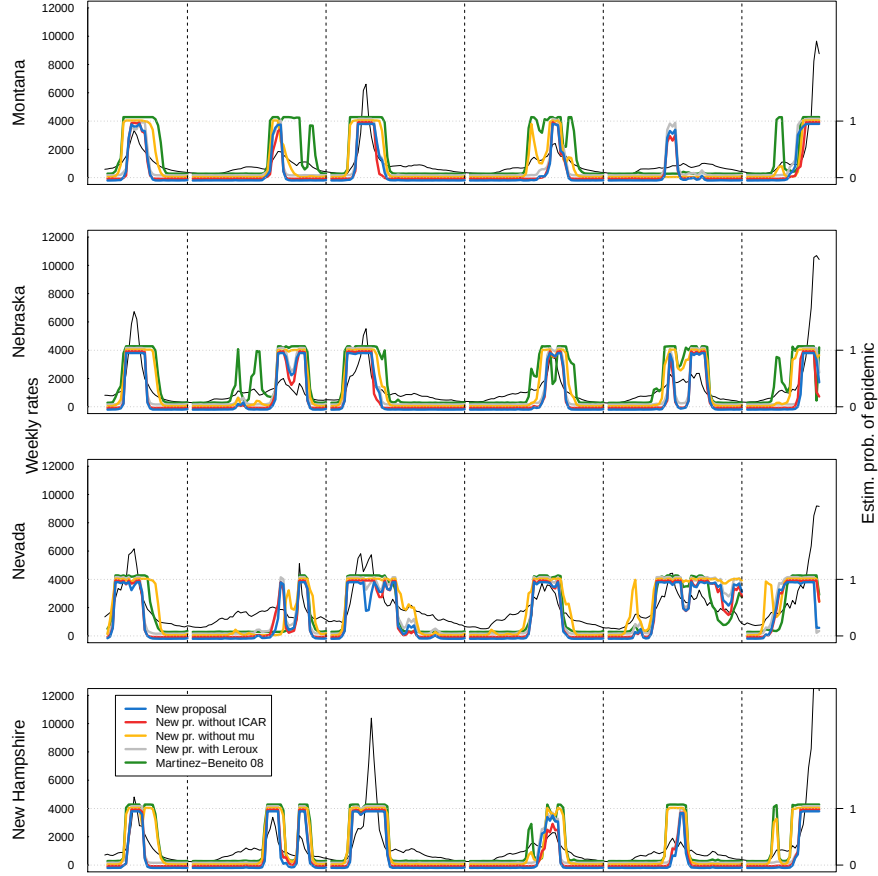


Figure 7: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Montana, Nebraska, Nevada and New Hampshire. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

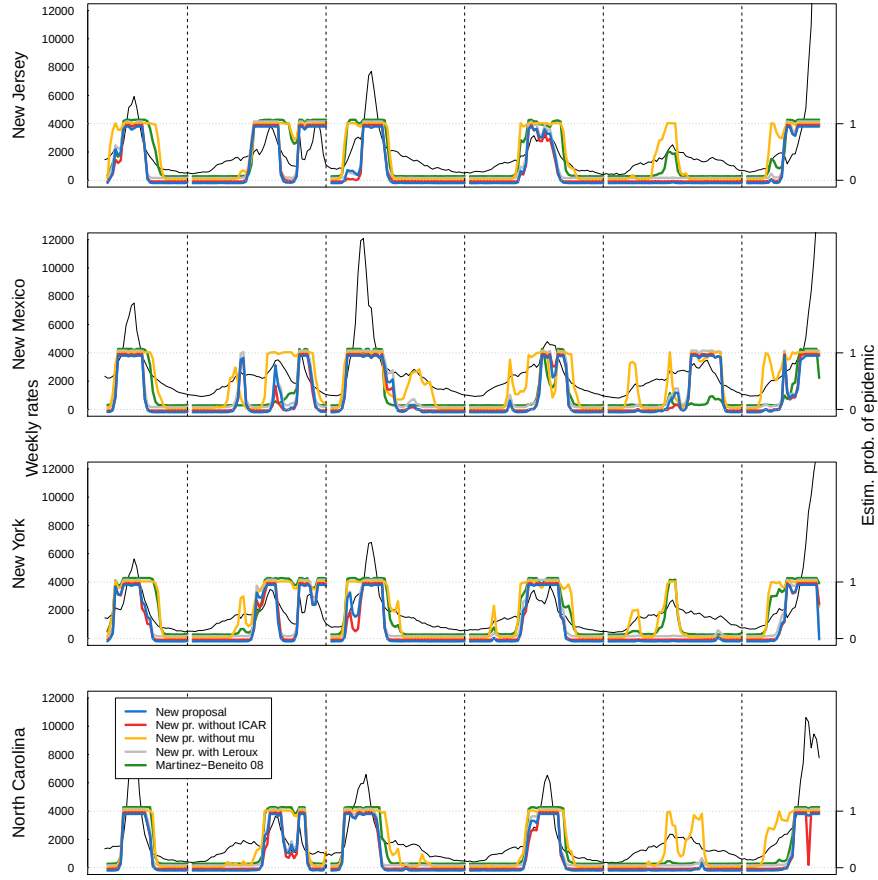


Figure 8: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for New Jersey, New Mexico, New York and North Carolina. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

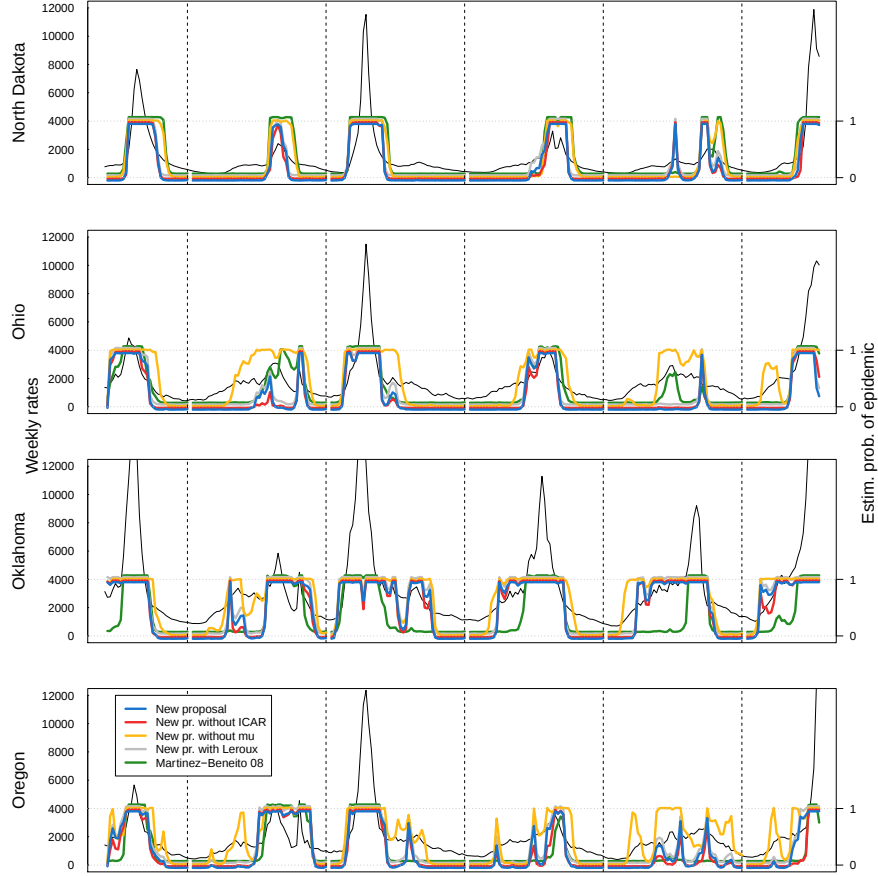


Figure 9: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for North Dakota, Ohio, Oklahoma and Oregon. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

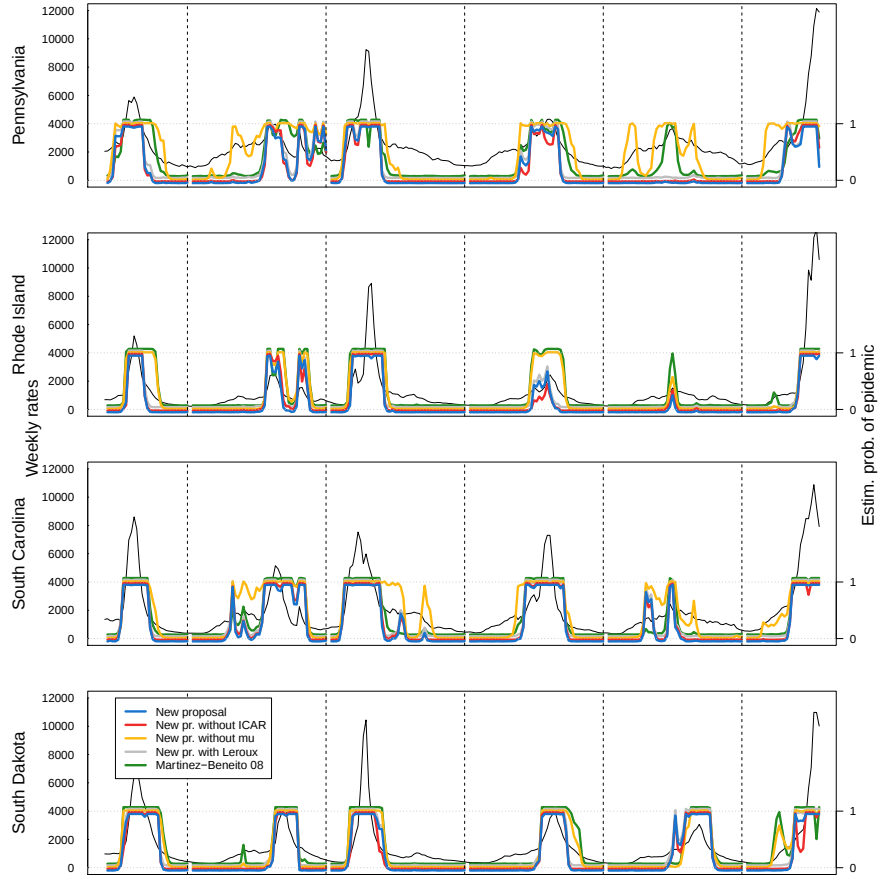


Figure 10: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Pennsylvania, Rhode Island, South Carolina and South Dakota. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

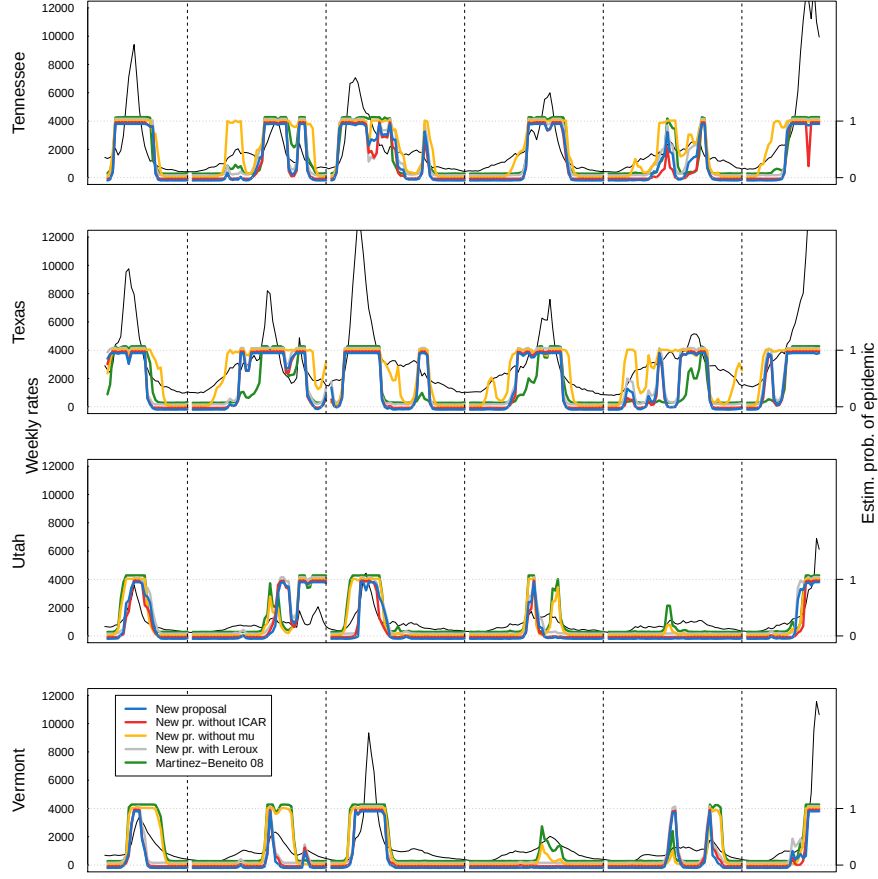


Figure 11: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Tennessee, Texas, Utah and Vermont. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

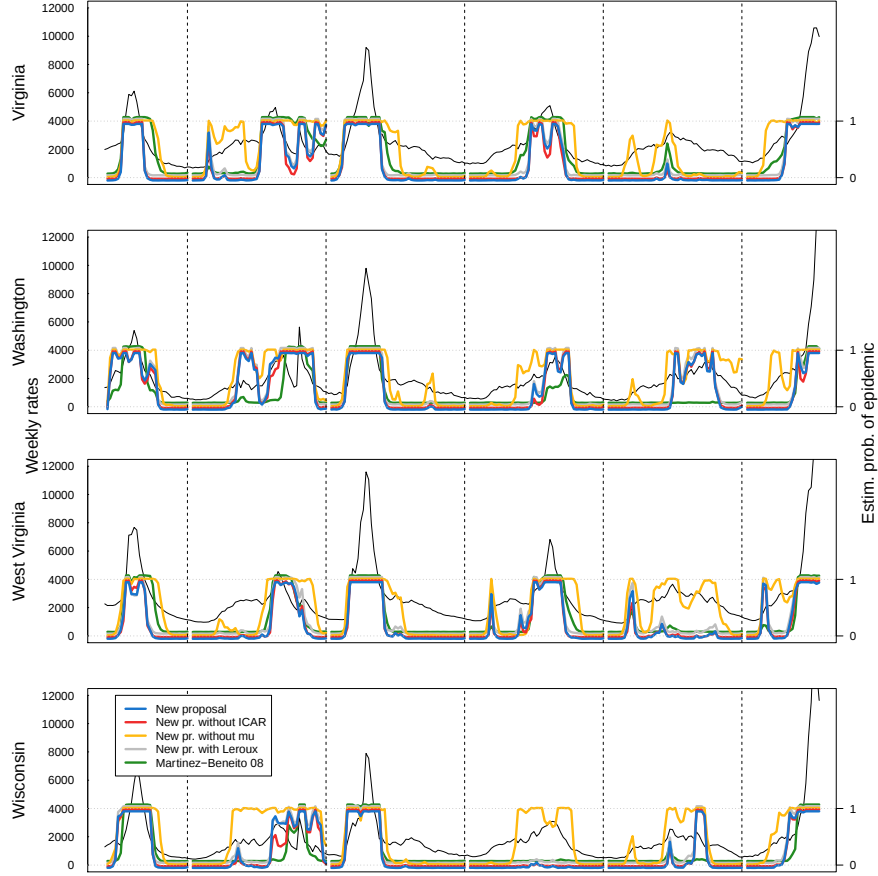


Figure 12: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Virginia, Washington, West Virginia and Wisconsin. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.

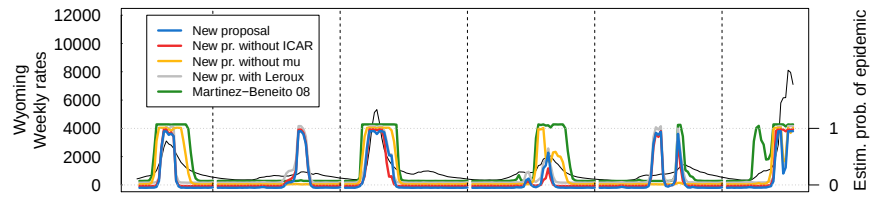


Figure 13: Estimated probability of being in epidemic phase by the spatio-temporal model its variations and M-B 2008 on GFT USA data for Wyoming. In black: weekly estimated influenza incidence per 100 000 inhabitants during seasons from 2007–2008 to 2012–2013.