

Appendix to: Approximate Bayesian Computation applied to time series of
population genetic data disentangles rapid genetic changes and demographic
variations in a pathogen population

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A Total number of summary statistics

Table S1: Number of summary statistics used for ABC analyses, depending on summary statistics and the sampling rarefaction considered.

Time samples	Compartment samples	Summary statistics	Number of summary statistics
Every year	S, R and A	Complete	1116
		Wrap-up	124
	S and R	Complete	756
		Wrap-up	84
S and A	Complete	720	
	Wrap-up	80	
Every five year	S, R and A	Complete	248
		Wrap-up	124
	S and R	Complete	168
		Wrap-up	84
S and A	Complete	160	
	Wrap-up	80	
First and last year	S, R and A	Complete	80
		Wrap-up	40
	S and R	-	62
		-	42
S and A	-	40	
	-	20	

Table S2: Number of summary statistics used for ABC analyses applied on the case study, depending on the summary statistics considered and the sampling scheme of the two empirical data sets: Amance location and Grand Est region.

Sampling scheme	Summary statistics	Number of summary statistics
Amance	Complete	280
	Wrap-up	80
Grand Est	Complete	364
	Wrap-up	124

B Relative influence of summary statistics

Table S3: Contribution of Complete summary statistics to the inference of each parameter, according to the sampling scheme considered. The 20 most important summary statistics are presented in each case in decreasing order of importance. The relative importance of each summary statistic was estimated using the semi-automatic ABC method of Fearnhead and Prangle (2012), and the presented values correspond to the weights of the fitted regressions. For each summary statistic, a letter $-S$, $-R$ or $-A$ specifies the compartment from which the statistic was calculated, and a number (from 8 to 360) specifies the simulation generation at which the statistic was calculated.

Sampling scheme	<i>propR</i>		<i>mig</i>		<i>f_{avr}</i>		τ		K		τ	
	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight
Amance	$TFST-s-8$	-4.35	$TFST-s-360$	0.51	$S-s-8$	-1.74	$TFST-s-8$	6.25	$TFST-s-8$	-153775.13	$TFST-s-8$	-9.20
	$TFST-A-120$	4.04	$TFST-s-228$	-0.39	$PV_{irr}-s-8$	0.92	$TFST-A-76$	-2.63	$S-s-8$	71959.93	$S-s-8$	2.92
	$S-s-8$	2.35	$TFST-s-107$	0.37	$TFST-s-8$	-0.81	$TFST-A-43$	-2.61	$TFST-s-8$	67792.93	$TFST-A-76$	-2.69
	$TFST-A-32$	-2.09	$TFST-s-338$	0.32	$TFST-s-261$	-0.77	$TFST-s-360$	2.44	$TFST-s-63$	-48148.32	$TFST-A-43$	-2.24
	$TFST-s-107$	-1.77	$TFST-s-206$	-0.27	$TFST-s-316$	-0.70	$TFST-s-283$	2.35	$TFST-A-120$	39669.20	$TFST-A-32$	-1.44
	$TFST-s-261$	1.49	$TFST-A-219$	0.25	$TFST-s-283$	-0.57	$S-s-8$	2.14	$TFST-s-206$	33747.68	$TFST-A-120$	-1.44
	$TFST-A-76$	1.46	$TFST-s-261$	0.24	$TFST-s-272$	0.56	$TFST-s-327$	1.98	$TFST-s-107$	-32069.14	$TFST-s-52$	1.42
	$TFST-s-305$	-1.33	$TFST-A-76$	-0.22	$TFST-s-30$	0.55	$TFST-A-32$	-1.47	$TFST-s-327$	29769.66	$TFST-s-36$	1.39
	$TFST-s-19$	1.20	$TFST-s-140$	-0.20	$TFST-A-43$	0.55	$TFST-s-140$	1.44	$TFST-s-316$	-29005.77	$TFST-s-30$	1.30
	$TFST-s-338$	-1.18	$TFST-s-217$	-0.19	$TFST-s-217$	0.51	$TFST-s-162$	-1.26	$TFST-A-208$	28652.08	$TFST-s-140$	1.13
	$TFST-A-219$	-1.11	$TFST-s-316$	-0.19	$TFST-A-76$	0.49	$TFST-s-162$	-1.21	$TFST-s-162$	-26795.51	$TFST-s-140$	1.13
	$TFST-A-219$	-0.81	$TFST-s-96$	-0.15	$TFST-s-360$	-0.40	$PV_{irr}-s-8$	-1.20	$TFST-s-360$	-25105.07	$TFST-s-305$	-1.05
	$PV_{irr}-s-8$	-0.74	$TFST-s-195$	0.15	$TFST-s-140$	-0.40	$TFST-A-120$	1.20	$TFST-s-316$	24930.75	$TFST-s-206$	1.03
	$TFST-s-228$	0.66	$TFST-s-305$	-0.14	$TFST-A-219$	0.35	$TFST-s-52$	1.13	$TFST-s-19$	21670.80	$TFST-A-219$	-1.03
	$R-s-19$	-0.66	$TFST-s-52$	-0.13	$TFST-s-63$	-0.32	$TFST-A-208$	-1.05	$TFST-A-43$	-18733.33	$TFST-s-261$	1.03
	$TFST-s-63$	-0.63	$TFST-s-19$	-0.12	$TFST-s-96$	0.28	$TFST-s-272$	-0.91	$TFST-s-217$	-157838.16	$TFST-s-316$	0.98
	$TFST-s-96$	0.59	$S-s-8$	0.12	$TFST-s-96$	0.27	$TFST-s-261$	-0.89	$TFST-A-219$	-15095.05	$TFST-s-19$	0.86
	$TFST-s-206$	0.59	$TFST-A-43$	0.12	$TFST-s-162$	-0.27	$TFST-s-206$	0.85	$TFST-s-283$	-14071.66	$TFST-s-250$	-0.84
	$TFST-s-327$	0.55	$TFST-s-250$	0.12	$SW-s-8$	-0.26	$TFST-s-107$	0.61	$TFST-s-30$	-12126.75	$TFST-s-283$	0.72
	$TFST-s-283$	-0.49	$TFST-s-63$	-0.12	$TFST-s-206$	0.25	$TFST-s-338$	0.57	$TFST-s-261$	-11998.31	$TFST-s-195$	-0.69
Grand Est	$TFST-s-8$	-2.68	$TFST-R-360$	0.52	$S-s-8$	-1.46	$TFST-R-63$	5.94	$TFST-s-8$	-135957.12	$TFST-s-8$	-9.16
	$TFST-A-120$	2.57	$TFST-A-76$	-0.43	$TFST-A-76$	1.06	$TFST-s-8$	5.98	$S-s-8$	57561.71	$S-s-8$	2.89
	$TFST-R-74$	1.97	$TFST-s-107$	0.39	$TFST-R-360$	-0.93	$TFST-A-76$	-5.16	$TFST-s-63$	-51393.36	$TFST-A-43$	-2.25
	$TFST-A-32$	-1.60	$TFST-s-228$	-0.34	$TFST-s-8$	-0.90	$TFST-A-120$	-3.34	$TFST-A-76$	48403.81	$TFST-A-32$	-1.98
	$TFST-s-107$	-1.54	$TFST-A-219$	0.30	$TFST-s-261$	-0.82	$TFST-s-162$	-2.98	$TFST-R-63$	43347.01	$TFST-A-76$	-1.82
	$TFST-s-217$	-1.41	$TFST-s-261$	0.25	$PV_{irr}-s-8$	0.80	$TFST-s-283$	2.35	$TFST-s-107$	-34943.84	$TFST-s-96$	1.64
	$S-s-8$	1.20	$TFST-s-316$	-0.25	$TFST-s-217$	0.60	$TFST-R-360$	2.13	$TFST-s-206$	31790.46	$TFST-s-96$	1.25
	$TFST-s-261$	1.14	$TFST-s-272$	0.24	$TFST-s-30$	0.60	$S-s-8$	1.98	$TFST-A-43$	31026.61	$TFST-s-41$	1.24
	$TFST-s-19$	1.07	$TFST-s-338$	0.22	$TFST-s-283$	-0.56	$TFST-s-327$	1.76	$TFST-A-219$	-26817.16	$TFST-s-41$	1.24
	$TFST-A-76$	1.01	$TFST-s-305$	-0.20	$TFST-s-96$	0.53	$TFST-A-32$	-1.74	$TFST-s-118$	-25272.23	$TFST-A-120$	-1.22
	$TFST-R-63$	0.96	$TFST-s-206$	-0.20	$TFST-A-43$	0.52	$TFST-s-140$	1.61	$TFST-s-162$	-25119.79	$TFST-s-19$	1.16
	$TFST-R-107$	-0.96	$TFST-s-195$	0.19	$TFST-s-118$	-0.51	$TFST-s-151$	1.32	$TFST-R-107$	25074.98	$TFST-s-30$	1.14
	$TFST-s-305$	-0.89	$TFST-s-360$	0.18	$TFST-s-206$	0.50	$PV_{irr}-s-8$	-1.27	$TFST-s-217$	-24539.40	$TFST-s-162$	-1.03
	$TFST-s-338$	-0.78	$TFST-R-63$	-0.16	$TFST-R-74$	-0.49	$TFST-s-63$	-1.05	$TFST-s-41$	-24288.27	$TFST-s-305$	-0.98
	$Fst.R.S.360$	0.74	$TFST-s-19$	-0.15	$TFST-s-228$	-0.39	$TFST-s-30$	-1.00	$TFST-s-140$	-23996.39	$TFST-s-140$	0.91
	$R-s-19$	-0.68	$TFST-A-208$	-0.15	$TFST-s-316$	-0.37	$TFST-A-43$	-0.92	$TFST-s-19$	23853.09	$TFST-s-52$	0.90
	$TFST-A-219$	-0.67	$Fst.R.S.360$	-0.14	$TFST-s-272$	0.36	$TFST-s-261$	0.86	$TFST-s-316$	-22177.33	$TFST-R-74$	-0.88
	$TFST-s-283$	-0.66	$TFST-R-107$	0.14	$TFST-s-107$	0.34	$TFST-s-272$	-0.82	$TFST-A-120$	22112.42	$TFST-s-316$	0.86
	$TFST-s-30$	-0.65	$Fst.R.S.107$	-0.13	$TFST-A-32$	-0.33	$R-R-360$	-0.80	$TFST-R-360$	-21733.23	$TFST-s-250$	-0.85
	$TFST-s-118$	-0.63	$TFST-A-43$	-0.13	$TFST-s-151$	-0.31	$TFST-s-316$	0.80	$TFST-s-327$	20747.93	$TFST-s-360$	0.85

C Case study: temporal variation of population genetic indices for empirical data sets

Table S4: Variation in population genetic indices calculated on the real data sets (Grand Est and Amance). We report the indices used as summary statistics in the ABC analysis: (i) P_{Vir} , the proportion of virulent individuals; (ii) β_P , the genotypic diversity estimated by Pareto's β ; (iii) R , the proportion of unique multilocus genotypes; (iv) SW , the genetic diversity estimated by Shannon-Wiener's index; (v) MHE , the mean expected heterozygosity over all loci; (vi) VHE , the variance of the expected heterozygosity over all loci; (vii) MLA , the mean number of alleles per locus; (viii) \bar{r}_D , the multilocus index of linkage disequilibrium; (ix) TF_{ST} , the population differentiation index between the initial population (on S after burn-in) and the sampled population (Table 2). 'Cpt' stands for the type of compartment sampled and n is the number of sampled individuals. Non-observed data are indicated by '-'.^a

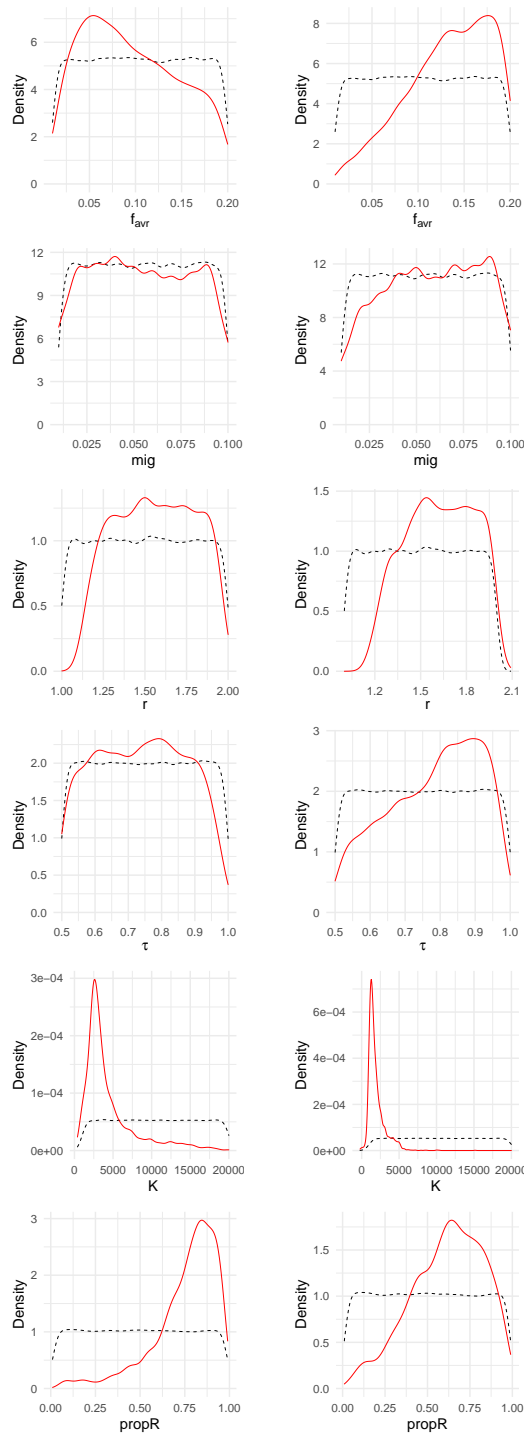
Year	Cpt	Grand Est										Amance										
		n	P_{Vir}	β_P	R	SW	MHE	VHE	MLA	\bar{r}_D	TF_{ST}	n	P_{Vir}	β_P	R	SW	MHE	VHE	MLA	\bar{r}_D	TF_{ST}	
1988	S	5	-	1.6	1	1.61	0.49	0.86	3.21	0.046	0.014	-	8	0	2.2	1	2.08	0.53	0.75	3.85	-	-
1989	S	8	0	2.2	1	2.08	0.53	0.75	3.85	0.019	0.011	-	5	0	1.6	1	1.61	0.47	0.89	3.00	-0.015	0.011
1990	S	5	0	1.6	1	1.61	0.47	0.89	3.00	-0.015	0.011	-	6	0	1.8	1	1.79	0.40	0.93	2.68	0.086	0.013
1991	A	6	0	1.8	1	1.79	0.40	0.93	2.68	0.086	0.012	-	7	0	2.0	1	1.95	0.43	0.95	3.17	0.050	0.008
1991	A	7	0	2.0	1	1.95	0.43	0.95	3.17	0.050	0.008	-	18	0	3.2	1	2.89	0.50	0.47	4.17	-0.004	0.007
1992	S	18	0	3.2	1	2.89	0.50	0.47	4.17	-0.004	0.007	-	-	-	-	-	-	-	-	-	-	-
1992	S	9	0	2.3	1	2.20	0.46	0.62	3.50	0.092	0.010	-	24	0	3.6	1	3.18	0.46	0.70	3.83	0.022	0.005
1993	S	24	0	3.6	1	3.18	0.46	0.70	3.83	0.022	0.005	-	-	-	-	-	-	-	-	-	-	-
1994	R	12	1	2.7	1	2.48	0.52	0.53	3.58	0.025	0.020	-	-	-	-	-	-	-	-	-	-	-
1994	A	18	0.30	3.2	1	2.89	0.49	0.57	4.68	0.013	0.006	-	16	0	3.1	1	2.77	0.48	0.60	4.32	0.012	0.005
1995	A	7	0	2.0	1	1.95	0.42	0.61	2.94	-0.020	0.010	-	7	0	2.0	1	1.95	0.42	0.61	2.94	-0.020	0.012
1995	R	22	1	3.5	1	3.09	0.51	0.67	3.79	0.019	0.031	-	13	0	2.8	1	2.56	0.50	0.59	3.94	0.070	0.017
1997	S	15	0.50	3.0	1	2.71	0.51	0.58	4.22	0.068	0.019	-	-	-	-	-	-	-	-	-	-	-
1998	R	19	1	3.3	1	2.94	0.47	0.76	3.90	0.021	0.042	-	-	-	-	-	-	-	-	-	-	-
1998	S	14	0.67	2.9	1	2.64	0.53	0.62	4.17	-0.008	0.027	-	14	0.34	2.9	1	2.64	0.53	0.62	4.17	-0.008	0.032
1999	A	8	0.71	2.2	1	2.08	0.46	0.88	3.25	0.038	0.028	-	8	0.36	2.2	1	2.08	0.46	0.88	3.25	0.038	0.033
1999	S	7	0.75	2.0	1	1.95	0.50	0.54	3.37	0.008	0.016	-	-	-	-	-	-	-	-	-	-	-
2001	S	15	0.91	3.0	1	2.71	0.48	0.72	4.33	0.013	0.021	-	11	0.52	2.6	1	2.40	0.50	0.87	4.21	0.003	0.025
2002	S	5	-	1.6	1	1.61	0.41	0.69	2.59	0.038	0.015	-	-	-	-	-	-	-	-	-	-	-
2003	S	5	-	1.6	1	1.61	0.42	1.04	2.75	-0.016	0.020	-	5	nan	1.6	1	1.61	0.42	1.04	2.75	-0.016	0.023
2006	S	6	-	1.8	1	1.79	0.43	1.16	2.80	-0.024	0.025	-	6	nan	1.8	1	1.79	0.43	1.16	2.80	-0.024	0.029
2007	A	14	-	2.9	1	2.64	0.48	0.74	3.89	0.000	0.024	-	14	0.91	2.9	1	2.64	0.48	0.74	3.89	0.000	0.027
2007 ^a	A	21	-	1.8	0.85	2.85	0.50	0.98	4.00	0.043	0.036	-	21	0.99	1.8	0.85	2.85	0.50	0.98	4.00	0.043	0.039
2008	A	35	1	4.2	1	3.56	0.48	0.83	4.47	0.071	0.046	-	35	0.98	4.2	1	3.56	0.48	0.83	4.47	0.062	0.050
2008 ^a	S	28	-	1.4	0.81	3.02	0.52	0.69	4.58	0.061	0.034	-	28	0.91	1.4	0.81	3.02	0.52	0.69	4.58	0.061	0.039
2009 ^a	S	79	-	5.3	1	4.37	0.53	0.45	5.93	0.048	0.040	-	58	0.94	4.9	1	4.06	0.54	0.43	5.25	0.040	0.043
2011	S	56	-	4.8	1	4.03	0.54	0.58	5.89	0.046	0.031	-	31	0.89	4.0	1	3.43	0.53	0.62	5.00	0.064	0.039
2012 ^a	S	23	-	3.6	1	3.14	0.52	0.75	4.50	-0.007	0.039	-	23	0.84	3.6	1	3.14	0.52	0.75	4.50	-0.007	0.045
2013 ^a	S	32	-	1.5	0.77	3.10	0.55	0.66	4.94	0.050	0.039	-	32	1	1.5	0.77	3.10	0.55	0.66	4.94	0.050	0.044
2014 ^a	S	32	-	1.2	0.74	3.02	0.51	0.76	4.21	0.074	0.065	-	32	0.94	1.2	0.74	3.02	0.51	0.76	4.21	0.074	0.070
2016	S	44	-	4.5	1	3.78	0.53	0.66	5.25	0.043	0.039	-	44	0.87	4.5	1	3.78	0.53	0.66	5.25	0.052	0.042
2017 ^a	S	16	-	3.1	1	2.77	0.53	0.74	4.53	0.010	0.033	-	16	0.88	3.1	1	2.77	0.53	0.74	4.53	0.010	0.038
2018 ^a	S	29	-	3.9	0.96	3.32	0.54	0.77	4.79	0.001	0.043	-	29	0.92	3.9	0.96	3.32	0.54	0.77	4.79	0.001	0.048
2019 ^a	S	32	-	1.5	0.87	3.26	0.55	0.71	5.56	0.036	0.047	-	32	0.52	1.5	0.87	3.26	0.55	0.71	5.56	0.036	0.052
2021 ^a	R	38	1	4.3	1	3.64	0.51	0.59	4.82	0.066	0.048	-	-	-	-	-	-	-	-	-	-	-
2021 ^a	S	49	-	3.0	0.94	3.81	0.55	0.58	5.35	0.064	0.057	-	49	0.41	3.0	0.94	3.81	0.55	0.58	5.35	0.063	0.060

^a Original data produced for the present study.

D Case study: parameters' inference with Wrap-up summary statistics

Table S5: Contribution of Wrap-up summary statistics to the inference of each parameter, according to the sampling scheme considered. The 20 most important summary statistics are presented in each case in decreasing order of importance. The relative importance of each summary statistic was estimated using the semi-automatic ABC method of Fearnhead and Prangle (2012), and the presented values correspond to the weights of the fitted regressions. For each summary statistic, a letter $-S$, $-R$ or $-A$ specifies the compartment from which the statistic was calculated.

Sampling scheme	<i>propR</i>		<i>mig</i>		<i>f_{avr}</i>		<i>r</i>		<i>K</i>		τ	
	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight	Sum. stat.	Weight
Amance	Var TF_{ST-A}	-61.53	Var TF_{ST-A}	-15.58	Var TF_{ST-S}	32.72	Var TF_{ST-S}	-335.65	Var TF_{ST-S}	5113905.03	Var TF_{ST-R}	-44.61
	Var TF_{ST-S}	58.83	Var TF_{ST-S}	-5.07	Var TF_{ST-A}	4.64	Var TF_{ST-A}	-14.55	Var TF_{ST-A}	-875928.66	Var TF_{ST-A}	23.15
	Mean TF_{ST-A}	9.11	Var MH_{E-S}	0.81	Min TF_{ST-S}	-3.73	Max TF_{ST-S}	10.06	Var MH_{E-S}	-173003.45	Mean TF_{ST-S}	10.43
	Min TF_{ST-S}	4.88	Var MH_{E-A}	-0.61	Max TF_{ST-S}	-1.90	Mean TF_{ST-S}	5.19	Mean TF_{ST-A}	134200.35	Var $R-S$	-6.78
	Min TF_{ST-A}	-4.54	Var MH_{E-A}	-0.49	Mean TF_{ST-S}	1.19	Mean TF_{ST-A}	-4.69	Max TF_{ST-A}	-111920.39	Mean TF_{ST-A}	-6.21
	Max TF_{ST-A}	-3.47	Max TF_{ST-A}	0.47	Var MH_{E-S}	1.07	Mean TF_{ST-S}	-4.61	Min $S-S$	-68864.13	Min TF_{ST-S}	-3.44
	Var MH_{E-A}	-3.40	Min $S-S$	0.45	Min P_{Vir-S}	0.75	Var $R-S$	-3.39	Max TF_{ST-S}	-56871.57	Var MH_{E-S}	3.23
	Var $R-S$	-3.15	Var $S-S$	0.38	Var P_{Vir-S}	-0.66	Var P_{Vir-S}	-2.80	Max TF_{ST-S}	-35826.35	Max TF_{ST-S}	-3.22
	Var P_{Vir-S}	2.55	Min TF_{ST-S}	-0.30	Mean $R-S$	-0.61	Max TF_{ST-A}	2.75	Mean $R-S$	34719.93	Min TF_{ST-A}	1.97
	Var $S-S$	-2.15	Max TF_{ST-S}	0.27	Min $S-S$	-0.45	Min $S-S$	2.44	Min TF_{ST-S}	34627.63	Max TF_{ST-A}	-1.95
	Min $S-S$	-2.08	Var $R-S$	0.27	Mean $S-S$	0.37	Mean $R-S$	1.92	Var $S-S$	-33409.74	Var $S-S$	-1.63
	Var P_{Vir-A}	1.73	Mean P_{Vir-S}	0.23	Mean $SW-S$	0.28	Var $S-A$	-1.68	Var P_{Vir-S}	32696.86	Min $S-S$	-1.58
	Mean $R-S$	1.49	Var P_{Vir-S}	-0.23	Max MH_{E-S}	-0.28	Min P_{Vir-S}	-1.65	Min TF_{ST-A}	-26841.55	Mean $S-S$	1.51
	Max P_{Vir-A}	-1.24	Min TF_{ST-A}	-0.17	Mean TF_{ST-A}	0.27	Var $S-S$	1.55	Var MH_{E-A}	-24093.72	Var MH_{E-A}	1.41
	Mean P_{Vir-A}	1.23	Mean $R-S$	0.15	Var $R-S$	0.27	Var MH_{E-A}	1.43	Mean MH_{E-S}	-21923.44	Mean MH_{E-S}	1.23
	Min $R-S$	-1.10	Mean P_{Vir-A}	-0.13	Max TF_{ST-A}	0.26	Mean $R-A$	-1.40	Min $R-S$	-20663.08	Var $R-A$	-1.20
	Mean $S-S$	-1.04	Mean TF_{ST-S}	0.12	Var P_{Vir-A}	0.21	Var MH_{E-S}	1.36	Var P_{Vir-A}	20659.93	Mean $R-A$	-1.11
	Var MH_{E-S}	-1.03	Max $SW-S$	0.09	Min TF_{ST-A}	-0.11	Mean MH_{E-A}	-1.18	Var $R-A$	19430.92	Max $R-S$	1.02
	Mean $SW-S$	-0.87	Mean MH_{E-A}	0.07	Mean MH_{E-A}	0.17	Mean MH_{E-S}	-1.10	Mean $SW-S$	-18596.24	Mean $SW-S$	0.81
	Var TF_{ST-R}	167.36	Var TF_{ST-R}	-31.14	Var TF_{ST-R}	37.02	Var TF_{ST-S}	-286.19	Var TF_{ST-S}	5578778.79	Var TF_{ST-R}	78.38
Var TF_{ST-A}	-57.82	Var TF_{ST-A}	-16.60	Var TF_{ST-R}	25.46	Var TF_{ST-R}	-130.85	Var TF_{ST-A}	-980983.98	Var TF_{ST-R}	-23.72	
Var TF_{ST-S}	22.52	Var TF_{ST-S}	0.96	Var TF_{ST-A}	5.67	Var TF_{ST-A}	-33.57	Var TF_{ST-R}	-351234.20	Mean TF_{ST-S}	10.89	
Mean TF_{ST-A}	5.52	Max TF_{ST-R}	0.80	Min TF_{ST-S}	-3.63	Max TF_{ST-S}	7.65	Var MH_{E-S}	-188182.66	Mean TF_{ST-A}	-9.19	
Min TF_{ST-S}	4.43	Var MH_{E-S}	0.76	Mean TF_{ST-S}	1.43	Mean TF_{ST-A}	-6.84	Min TF_{ST-R}	112975.83	Var TF_{ST-A}	-7.11	
Var MH_{E-R}	3.51	Var MH_{E-A}	-0.59	Max TF_{ST-S}	-1.31	Mean TF_{ST-S}	-5.79	Mean TF_{ST-R}	-109549.55	Var $R-S$	-5.85	
Var MH_{E-A}	-3.13	Var F_{ST-R-S}	0.57	Max TF_{ST-R}	-1.03	Var F_{ST-R-S}	-5.55	Mean TF_{ST-S}	-99550.65	Max TF_{ST-S}	-5.36	
Min TF_{ST-A}	-3.04	Min $S-S$	0.51	Var MH_{E-S}	0.92	Min TF_{ST-S}	5.26	Max TF_{ST-R}	82346.80	Min TF_{ST-S}	-3.66	
Mean TF_{ST-R}	2.97	Mean TF_{ST-R}	-0.50	Min TF_{ST-R}	0.80	Max TF_{ST-R}	3.82	Max TF_{ST-S}	-75329.60	Min TF_{ST-R}	3.51	
Max TF_{ST-A}	-2.33	Mean TF_{ST-S}	0.41	Min P_{Vir-S}	0.77	Max TF_{ST-A}	2.91	Max TF_{ST-A}	-62308.91	Mean TF_{ST-R}	-2.46	
Mean TF_{ST-S}	-2.27	Var P_{Vir-S}	-0.40	Min $S-S$	-0.63	Max TF_{ST-A}	-2.64	Min $S-S$	-58016.24	Min $S-S$	-2.24	
Min TF_{ST-R}	2.21	Var $S-S$	0.36	Mean $R-S$	-0.52	Var MH_{E-R}	-2.44	Var MH_{E-R}	37844.62	Var F_{ST-R-S}	-2.16	
Var $R-S$	-2.00	Min TF_{ST-R}	-0.35	Var P_{Vir-S}	-0.47	Var $S-S$	1.98	Mean TF_{ST-A}	36759.68	Max TF_{ST-R}	1.98	
Min $S-S$	-1.91	Min TF_{ST-A}	-0.34	Mean TF_{ST-A}	0.42	Var $R-R$	-1.73	Min $R-S$	35196.38	Min TF_{ST-A}	1.98	
Var P_{Vir-S}	1.76	Min F_{ST-R-S}	-0.30	Mean TF_{ST-R}	0.40	Mean $R-A$	-1.66	Min TF_{ST-S}	30183.69	Mean $S-S$	1.82	
Max TF_{ST-S}	-1.63	Var $R-S$	0.28	Var $S-S$	-0.35	Min $S-S$	1.64	Mean $S-S$	-27643.35	Var $S-S$	-1.64	
Var P_{Vir-A}	1.47	Mean TF_{ST-A}	-0.27	Mean $S-S$	0.35	Var MH_{E-A}	-1.46	Var P_{Vir-S}	27287.02	Var MH_{E-S}	1.60	
Max TF_{ST-R}	-1.44	Max MH_{E-S}	0.23	Max MH_{E-S}	-0.27	Mean $S-S$	1.45	Var MH_{E-A}	25945.68	Var $R-A$	-1.36	
Var $S-S$	-1.37	Max TF_{ST-A}	0.23	Var MH_{E-R}	-0.27	Min F_{ST-R-S}	-1.43	Var F_{ST-R-S}	-22100.89	Min F_{ST-R-S}	-1.29	
Var F_{ST-R-S}	-1.22	Min TF_{ST-S}	-0.22	Mean $SW-S$	0.26	Var $R-S$	-1.41	Mean F_{ST-R-S}	20292.87	Mean F_{ST-R-S}	1.28	



(a) Amance

(b) Grand Est region

Figure S1: Posterior distributions of parameters, with Wrap-up summary statistics, for the data sets in Amance location (on S and A) and the Grand Est region (on S, R and A). Dashed lines correspond to the prior distribution and red lines correspond to the posterior distributions given by the neuralnet method.