

Appendix 2. Generalized linear mixed model: twilight periods vs peent and boom activity rate

Table A2.1. Model coefficients for twilight period and latitude from 100 bootstrapped generalized linear mixed models of peent-activity and boom-activity per 10-minute interval. Effects of different twilight periods and twilight period interactions with latitude are relative to the 10-minute observation periods that took place before sunset (twilight period = “Before”).

Model Coefficient	Peent Non-interaction Model			Peent Interaction Model			Boom Non-interaction Model			Boom Interaction Model		
	5th Percentile	Median	95th Percentile	5th Percentile	Median	95th Percentile	5th Percentile	Median	95th Percentile	5th Percentile	Median	95th Percentile
(Intercept)	-34.13	-24.50	-23.37	-	-45.32	-	-2.46	-2.00	-1.65	-1.80	4.52	11.04
CIVIL.1	-59.94	-5.25	7.02	-	33.15	-	0.59	1.04	1.51	-16.23	2.57	14.48
NAUTICAL.1	18.25	20.04	28.81	-	-74.32	-	-1.39	-0.36	0.36	-15.64	0.05	18.58
ASTRONOMICAL.1	19.89	20.81	30.44	-	0.65	-	-32.55	-16.64	-2.39	-177.49	-40.31	-4.60
NIGHT	19.94	21.37	32.01	-	25.28	-	-23.50	-17.55	-14.48	-86.64	-22.86	1.21
ASTRONOMICAL.2	17.13	20.22	30.64	-	33.83	-	-1.76	-0.77	-0.21	-22.28	-6.14	6.71
NAUTICAL.2	15.30	20.18	30.23	-	18.75	-	0.35	0.88	1.29	-4.52	6.86	16.46
CIVIL.2	20.03	21.34	30.83	-	17.31	-	-0.77	-0.05	0.65	-11.32	3.22	18.57
AFTER	-36.00	-9.41	9.35	-	-81.70	-	-18.71	-3.40	-2.93	-96.89	-22.40	4.00
LAT	-	-	-	-	-6.72	-	-	-	-	-13.63	-6.80	-0.50
LAT*CIVIL.1	-	-	-	-	-48.85	-	-	-	-	-13.81	-1.80	17.61
LAT*NAUTICAL.1	-	-	-	-	124.56	-	-	-	-	-20.95	-0.13	15.45
LAT*ASTRONOMICAL.1	-	-	-	-	47.74	-	-	-	-	-31.61	14.35	147.43
LAT*NIGHT	-	-	-	-	24.27	-	-	-	-	-22.42	-4.30	67.65
LAT*ASTRONOMICAL.2	-	-	-	-	13.91	-	-	-	-	-7.63	5.85	22.09
LAT*NAUTICAL.2	-	-	-	-	28.98	-	-	-	-	-16.11	-6.14	4.82
LAT*CIVIL.2	-	-	-	-	32.23	-	-	-	-	-20.03	-3.34	11.29
LAT*AFTER	-	-	-	-	54.38	-	-	-	-	-24.90	-2.24	77.70