

# Supporting Information for “Day-to-day Variability of Field-Aligned Irregularities Occurrence in Nighttime F-region Ionosphere over the Equatorial Atmosphere Radar: A Combinatorics Analysis”

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## Additional Supporting Information (File uploaded separately)

1. Caption for Dataset S1

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## Introduction

Here we provide a few additional data tables showing the statistical likelihood of day-to-day combinatorics patterns of nighttime F-region FAI occurrence over EAR Kototabang 2011-2013. These are the same type of information presented in the main text, but detailing the raw histogram counts and percentage values more explicitly. Tables S1 to S4 show a full list of statistical likelihood values of each combinatorics pattern (from 1-day to 6-day patterns) for the two equinoxes and the two solstices.

**Dataset S1.** This ASCII file contains the tabulated states of FAI occurrence for each calendar date in 2011-2013. For each date, it is either a confirmed FAI occurrence (+), or a confirmed FAI no-occurrence (-), or an unknown (?) when we have missing/incomplete EAR observation data.

**Table S1.** Full list of day-to-day combinatorics histogram data counts for March equinox time period (15 Feb – 21 May) based on EAR Kototabang FAI observations 2011-2013.

combi	percentage	count	combi	percentage	count	combi	percentage	count
+	54.55% $\pm$ 3.06%	( $N = 144 \pm 8$ )	++++	11.74% $\pm$ 2.21%	( $N = 25 \pm 5$ )	+++++	7.84% $\pm$ 1.88%	( $N = 16 \pm 4$ )
-	45.45% $\pm$ 3.06%	( $N = 120 \pm 8$ )	++++-	6.57% $\pm$ 1.70%	( $N = 14 \pm 4$ )	+++++-	3.43% $\pm$ 1.27%	( $N = 7 \pm 3$ )
			+++++	4.23% $\pm$ 1.38%	( $N = 9 \pm 3$ )	+++++-	2.94% $\pm$ 1.18%	( $N = 6 \pm 2$ )
++	35.48% $\pm$ 3.04%	( $N = 88 \pm 8$ )	++++-	3.76% $\pm$ 1.30%	( $N = 8 \pm 3$ )	+++++-	3.43% $\pm$ 1.27%	( $N = 7 \pm 3$ )
+-	19.35% $\pm$ 2.51%	( $N = 48 \pm 6$ )	++++-	1.41% $\pm$ 0.81%	( $N = 3 \pm 2$ )	+++++-	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
-+	19.76% $\pm$ 2.53%	( $N = 49 \pm 6$ )	++++-	3.29% $\pm$ 1.22%	( $N = 7 \pm 3$ )	+++++-	2.94% $\pm$ 1.18%	( $N = 6 \pm 2$ )
--	25.40% $\pm$ 2.77%	( $N = 63 \pm 7$ )	++++-	1.88% $\pm$ 0.93%	( $N = 4 \pm 2$ )	+++++-	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
			++++-	1.88% $\pm$ 0.93%	( $N = 4 \pm 2$ )	++++-	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
+++	26.38% $\pm$ 2.88%	( $N = 62 \pm 7$ )	+++++	2.82% $\pm$ 1.13%	( $N = 6 \pm 2$ )	+++++	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
++-	10.21% $\pm$ 1.97%	( $N = 24 \pm 5$ )	+++++	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
+-+	8.51% $\pm$ 1.82%	( $N = 20 \pm 4$ )	+++++	0.94% $\pm$ 0.66%	( $N = 2 \pm 1$ )	+++++	2.45% $\pm$ 1.08%	( $N = 5 \pm 2$ )
---	10.21% $\pm$ 1.97%	( $N = 24 \pm 5$ )	+++++	4.23% $\pm$ 1.38%	( $N = 9 \pm 3$ )	+++++	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
++-	9.79% $\pm$ 1.94%	( $N = 23 \pm 5$ )	+++++	3.29% $\pm$ 1.22%	( $N = 7 \pm 3$ )	+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
+-+	9.36% $\pm$ 1.90%	( $N = 22 \pm 4$ )	+++++	1.88% $\pm$ 0.93%	( $N = 4 \pm 2$ )	+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
---	9.79% $\pm$ 1.94%	( $N = 23 \pm 5$ )	+++++	1.88% $\pm$ 0.93%	( $N = 4 \pm 2$ )	+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
	15.74% $\pm$ 2.37%	( $N = 37 \pm 6$ )	+++++	2.82% $\pm$ 1.13%	( $N = 6 \pm 2$ )	+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
			+++++	7.51% $\pm$ 1.81%	( $N = 16 \pm 4$ )	+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
++++	18.39% $\pm$ 2.59%	( $N = 41 \pm 6$ )	+++++	2.35% $\pm$ 1.04%	( $N = 5 \pm 2$ )	+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
+++-	8.52% $\pm$ 1.87%	( $N = 19 \pm 4$ )	+++++	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	+++++	2.45% $\pm$ 1.08%	( $N = 5 \pm 2$ )
++-+	4.93% $\pm$ 1.45%	( $N = 11 \pm 3$ )	+++++	1.88% $\pm$ 0.93%	( $N = 4 \pm 2$ )	+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
+-+-	4.04% $\pm$ 1.32%	( $N = 9 \pm 3$ )	+++++	1.88% $\pm$ 0.93%	( $N = 4 \pm 2$ )	+++++	2.94% $\pm$ 1.18%	( $N = 6 \pm 2$ )
+-+-	3.14% $\pm$ 1.17%	( $N = 7 \pm 3$ )	+++++	3.29% $\pm$ 1.22%	( $N = 7 \pm 3$ )	+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
++-+	4.93% $\pm$ 1.45%	( $N = 11 \pm 3$ )	+++++	2.82% $\pm$ 1.13%	( $N = 6 \pm 2$ )	+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
+-+-	4.93% $\pm$ 1.45%	( $N = 11 \pm 3$ )	+++++	5.16% $\pm$ 1.52%	( $N = 11 \pm 3$ )	+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
++-+	4.93% $\pm$ 1.45%	( $N = 11 \pm 3$ )	+++++	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
++-+	9.42% $\pm$ 1.96%	( $N = 21 \pm 4$ )	+++++	3.29% $\pm$ 1.22%	( $N = 7 \pm 3$ )	+++++	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
++-+	0.90% $\pm$ 0.63%	( $N = 2 \pm 1$ )	+++++	1.41% $\pm$ 0.81%	( $N = 3 \pm 2$ )	+++++	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
++-+	4.04% $\pm$ 1.32%	( $N = 9 \pm 3$ )	+++++	1.88% $\pm$ 0.93%	( $N = 4 \pm 2$ )	+++++	4.41% $\pm$ 1.44%	( $N = 9 \pm 3$ )
++-+	5.83% $\pm$ 1.57%	( $N = 13 \pm 4$ )	+++++	2.82% $\pm$ 1.13%	( $N = 6 \pm 2$ )	+++++	3.43% $\pm$ 1.27%	( $N = 7 \pm 3$ )
++-+	5.38% $\pm$ 1.51%	( $N = 12 \pm 3$ )	+++++	3.29% $\pm$ 1.22%	( $N = 7 \pm 3$ )	+++++	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
++-+	4.48% $\pm$ 1.39%	( $N = 10 \pm 3$ )	+++++	8.45% $\pm$ 1.91%	( $N = 18 \pm 4$ )	+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
++-+	4.93% $\pm$ 1.45%	( $N = 11 \pm 3$ )				+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
++-+	11.21% $\pm$ 2.11%	( $N = 25 \pm 5$ )				+++++	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
						+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
						+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
						+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
						+++++	1.47% $\pm$ 0.84%	( $N = 3 \pm 2$ )
						+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
						+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
						+++++	4.90% $\pm$ 1.51%	( $N = 10 \pm 3$ )
						+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
						+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
						+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
						+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
						+++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )
						+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
						+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
						+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
						+++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )
						+++++	2.45% $\pm$ 1.08%	( $N = 5 \pm 2$ )
						+++++	1.96% $\pm$ 0.97%	( $N = 4 \pm 2$ )
						+++++	6.86% $\pm$ 1.77%	( $N = 14 \pm 4$ )

**Table S2.** Full list of day-to-day combinatorics histogram data counts for June Solstice time period (21 May – 20 Aug) based on EAR Kototabang FAI observations 2011-2013.

combi	percentage	count	combi	percentage	count	combi	percentage	count
+	29.62% $\pm$ 2.83%	( $N = 77 \pm 7$ )	++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )	++++	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
-	70.38% $\pm$ 2.83%	( $N = 183 \pm 7$ )	++++	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )	++++	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
			++++	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )	++++	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
++	9.35% $\pm$ 1.86%	( $N = 23 \pm 5$ )	++--	1.95% $\pm$ 0.97%	( $N = 4 \pm 2$ )	++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
+-	19.11% $\pm$ 2.51%	( $N = 47 \pm 6$ )	++--	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
-+	20.73% $\pm$ 2.59%	( $N = 51 \pm 6$ )	++--	2.93% $\pm$ 1.18%	( $N = 6 \pm 2$ )	++--	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
--	50.81% $\pm$ 3.19%	( $N = 125 \pm 8$ )	++--	0.49% $\pm$ 0.49%	( $N = 1 \pm 1$ )	++--	2.60% $\pm$ 1.15%	( $N = 5 \pm 2$ )
			++--	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )	++--	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
+++	3.43% $\pm$ 1.19%	( $N = 8 \pm 3$ )	++--	3.41% $\pm$ 1.29%	( $N = 7 \pm 3$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
++-	5.15% $\pm$ 1.45%	( $N = 12 \pm 3$ )	++--	1.46% $\pm$ 0.84%	( $N = 3 \pm 2$ )	++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
+-+	6.01% $\pm$ 1.56%	( $N = 14 \pm 4$ )	++--	2.44% $\pm$ 1.08%	( $N = 5 \pm 2$ )	++--	2.08% $\pm$ 1.03%	( $N = 4 \pm 2$ )
---+	13.30% $\pm$ 2.22%	( $N = 31 \pm 5$ )	++--	3.41% $\pm$ 1.27%	( $N = 7 \pm 3$ )	++--	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
---+	6.01% $\pm$ 1.56%	( $N = 14 \pm 4$ )	++--	6.83% $\pm$ 1.76%	( $N = 14 \pm 4$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
---+	14.16% $\pm$ 2.28%	( $N = 33 \pm 5$ )	++--	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
---+	14.59% $\pm$ 2.31%	( $N = 34 \pm 5$ )	++--	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )	++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
---	37.34% $\pm$ 3.17%	( $N = 87 \pm 7$ )	++--	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )	++--	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
			++--	2.93% $\pm$ 1.18%	( $N = 6 \pm 2$ )	++--	3.13% $\pm$ 1.26%	( $N = 6 \pm 2$ )
++++	0.91% $\pm$ 0.64%	( $N = 2 \pm 1$ )	++--	0.98% $\pm$ 0.69%	( $N = 2 \pm 1$ )	++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
++++	1.37% $\pm$ 0.79%	( $N = 3 \pm 2$ )	++--	1.46% $\pm$ 0.84%	( $N = 3 \pm 2$ )	++--	4.69% $\pm$ 1.53%	( $N = 9 \pm 3$ )
++++	1.83% $\pm$ 0.90%	( $N = 4 \pm 2$ )	++--	2.44% $\pm$ 1.08%	( $N = 5 \pm 2$ )	++--	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
++++	3.65% $\pm$ 1.27%	( $N = 8 \pm 3$ )	++--	8.78% $\pm$ 1.98%	( $N = 18 \pm 4$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
++++	1.37% $\pm$ 0.79%	( $N = 3 \pm 2$ )	++--	2.44% $\pm$ 1.08%	( $N = 5 \pm 2$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
++++	3.65% $\pm$ 1.27%	( $N = 8 \pm 3$ )	++--	2.44% $\pm$ 1.08%	( $N = 5 \pm 2$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
++++	3.65% $\pm$ 1.27%	( $N = 8 \pm 3$ )	++--	2.93% $\pm$ 1.18%	( $N = 6 \pm 2$ )	++--	2.08% $\pm$ 1.03%	( $N = 4 \pm 2$ )
++++	10.50% $\pm$ 2.07%	( $N = 23 \pm 5$ )	++--	7.32% $\pm$ 1.82%	( $N = 15 \pm 4$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
++++	2.74% $\pm$ 1.10%	( $N = 6 \pm 2$ )	++--	2.93% $\pm$ 1.18%	( $N = 6 \pm 2$ )	++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
++++	3.65% $\pm$ 1.27%	( $N = 8 \pm 3$ )	++--	7.80% $\pm$ 1.87%	( $N = 16 \pm 4$ )	++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
++++	3.65% $\pm$ 1.27%	( $N = 8 \pm 3$ )	++--	6.34% $\pm$ 1.70%	( $N = 13 \pm 3$ )	++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
++++	10.50% $\pm$ 2.07%	( $N = 23 \pm 5$ )	++--	21.46% $\pm$ 2.87%	( $N = 44 \pm 6$ )	++--	3.13% $\pm$ 1.26%	( $N = 6 \pm 2$ )
++++	4.57% $\pm$ 1.41%	( $N = 10 \pm 3$ )				++--	5.21% $\pm$ 1.60%	( $N = 10 \pm 3$ )
++++	10.05% $\pm$ 2.03%	( $N = 22 \pm 4$ )				++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
++++	10.96% $\pm$ 2.11%	( $N = 24 \pm 5$ )				++--	0.52% $\pm$ 0.52%	( $N = 1 \pm 1$ )
++++	26.94% $\pm$ 3.00%	( $N = 59 \pm 74$ )				++--	1.04% $\pm$ 0.73%	( $N = 2 \pm 1$ )
						++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
						++--	1.56% $\pm$ 0.90%	( $N = 3 \pm 2$ )
						++--	2.08% $\pm$ 1.03%	( $N = 4 \pm 2$ )
						++--	5.73% $\pm$ 1.68%	( $N = 11 \pm 3$ )
						++--	2.60% $\pm$ 1.15%	( $N = 5 \pm 2$ )
						++--	3.65% $\pm$ 1.35%	( $N = 7 \pm 3$ )
						++--	5.21% $\pm$ 1.60%	( $N = 10 \pm 3$ )
						++--	17.71% $\pm$ 2.76%	( $N = 34 \pm 5$ )

**Table S3.** Full list of day-to-day combinatorics histogram data counts for September equinox time period (20 Aug – 15 Nov) based on EAR Kototabang FAI observations 2011-2013.

combi	percentage	count	combi	percentage	count	combi	percentage	count
+	57.76% $\pm$ 3.24%	( $N = 134 \pm 8$ )	++++	19.35% $\pm$ 3.17%	( $N = 30 \pm 5$ )	+++++	14.89% $\pm$ 3.00%	( $N = 21 \pm 4$ )
-	42.24% $\pm$ 3.24%	( $N = 98 \pm 8$ )	++++-	5.81% $\pm$ 1.88%	( $N = 9 \pm 3$ )	+++++	4.26% $\pm$ 1.70%	( $N = 6 \pm 2$ )
			+++++	3.87% $\pm$ 1.55%	( $N = 6 \pm 2$ )	+++++	3.55% $\pm$ 1.56%	( $N = 5 \pm 2$ )
++	43.41% $\pm$ 3.46%	( $N = 89 \pm 7$ )	++++-	3.87% $\pm$ 1.55%	( $N = 6 \pm 2$ )	+++++	3.55% $\pm$ 1.56%	( $N = 5 \pm 2$ )
+-	15.61% $\pm$ 2.54%	( $N = 32 \pm 5$ )	+++++	4.52% $\pm$ 1.67%	( $N = 7 \pm 3$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
-+	14.15% $\pm$ 2.43%	( $N = 29 \pm 5$ )	+++++	0.65% $\pm$ 0.65%	( $N = 1 \pm 1$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
--	26.83% $\pm$ 3.09%	( $N = 55 \pm 6$ )	+++++	2.58% $\pm$ 1.27%	( $N = 4 \pm 2$ )	+++++	2.84% $\pm$ 1.40%	( $N = 4 \pm 2$ )
			+++++	3.23% $\pm$ 1.42%	( $N = 5 \pm 2$ )	+++++	4.26% $\pm$ 1.70%	( $N = 6 \pm 2$ )
+++	32.97% $\pm$ 3.45%	( $N = 61 \pm 6$ )	+++++	5.16% $\pm$ 1.77%	( $N = 8 \pm 3$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
++-	11.89% $\pm$ 2.38%	( $N = 22 \pm 4$ )	+++++	0.65% $\pm$ 0.65%	( $N = 1 \pm 1$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
+++	5.41% $\pm$ 1.66%	( $N = 10 \pm 3$ )	+++++	0.65% $\pm$ 0.65%	( $N = 1 \pm 1$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
+-+	9.73% $\pm$ 2.18%	( $N = 18 \pm 4$ )	+++++	2.58% $\pm$ 1.27%	( $N = 4 \pm 2$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
+++	10.27% $\pm$ 2.23%	( $N = 19 \pm 4$ )	+++++	1.29% $\pm$ 0.91%	( $N = 2 \pm 1$ )	+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
-+-	3.78% $\pm$ 1.41%	( $N = 7 \pm 3$ )	+++++	2.58% $\pm$ 1.27%	( $N = 4 \pm 2$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
-++	9.19% $\pm$ 2.12%	( $N = 17 \pm 4$ )	+++++	3.23% $\pm$ 1.42%	( $N = 5 \pm 2$ )	+++++	3.55% $\pm$ 1.56%	( $N = 5 \pm 2$ )
---	16.76% $\pm$ 2.75%	( $N = 31 \pm 5$ )	+++++	5.16% $\pm$ 1.77%	( $N = 8 \pm 3$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
			+++++	2.58% $\pm$ 1.27%	( $N = 4 \pm 2$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
++++	25.00% $\pm$ 3.34%	( $N = 42 \pm 6$ )	+++++	1.29% $\pm$ 0.91%	( $N = 2 \pm 1$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
+++-	8.33% $\pm$ 2.13%	( $N = 14 \pm 4$ )	+++++	1.94% $\pm$ 1.11%	( $N = 3 \pm 2$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
++++	4.76% $\pm$ 1.64%	( $N = 8 \pm 3$ )	+++++	0.65% $\pm$ 0.65%	( $N = 1 \pm 1$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
+++-	6.55% $\pm$ 1.91%	( $N = 11 \pm 3$ )	+++++	0.65% $\pm$ 0.65%	( $N = 1 \pm 1$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
+++-	5.36% $\pm$ 1.74%	( $N = 9 \pm 3$ )	+++++	2.58% $\pm$ 1.27%	( $N = 4 \pm 2$ )	+++++	2.84% $\pm$ 1.40%	( $N = 4 \pm 2$ )
+++-	0.60% $\pm$ 0.60%	( $N = 1 \pm 1$ )	+++++	3.23% $\pm$ 1.42%	( $N = 5 \pm 2$ )	+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
+++-	3.57% $\pm$ 1.43%	( $N = 6 \pm 2$ )	+++++	2.58% $\pm$ 1.27%	( $N = 4 \pm 2$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
+++-	5.36% $\pm$ 1.74%	( $N = 9 \pm 3$ )	+++++	0.65% $\pm$ 0.65%	( $N = 1 \pm 1$ )	+++++	3.55% $\pm$ 1.56%	( $N = 5 \pm 2$ )
+++-	7.74% $\pm$ 2.06%	( $N = 13 \pm 3$ )	+++++	2.58% $\pm$ 1.27%	( $N = 4 \pm 2$ )	+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
+++-	2.98% $\pm$ 1.31%	( $N = 5 \pm 2$ )	+++++	3.23% $\pm$ 1.42%	( $N = 5 \pm 2$ )	+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
+++-	0.60% $\pm$ 0.60%	( $N = 1 \pm 1$ )	+++++	1.94% $\pm$ 1.11%	( $N = 3 \pm 2$ )	+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
+++-	3.57% $\pm$ 1.43%	( $N = 6 \pm 2$ )	+++++	3.23% $\pm$ 1.42%	( $N = 5 \pm 2$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
+++-	5.95% $\pm$ 1.83%	( $N = 10 \pm 3$ )	+++++	7.74% $\pm$ 2.15%	( $N = 12 \pm 3$ )	+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
+++-	2.98% $\pm$ 1.31%	( $N = 5 \pm 2$ )				+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
+++-	5.36% $\pm$ 1.74%	( $N = 9 \pm 3$ )				+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
+++-	11.31% $\pm$ 2.45%	( $N = 19 \pm 4$ )				+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
						+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
						+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
						+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
						+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
						+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
						+++++	0.71% $\pm$ 0.71%	( $N = 1 \pm 1$ )
						+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
						+++++	2.13% $\pm$ 1.21%	( $N = 3 \pm 2$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	1.42% $\pm$ 1.00%	( $N = 2 \pm 1$ )
						+++++	5.67% $\pm$ 1.95%	( $N = 8 \pm 3$ )

**Table S4.** Full list of day-to-day combinatorics histogram data counts for December solstice time period (15 Nov – 15 Feb) based on EAR Kototabang FAI observations 2011-2013.

combi	percentage	count	combi	percentage	count	combi	percentage	count
+	12.60% $\pm$ 2.12%	( $N = 31 \pm 5$ )	+++--	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	++++--	0.48% $\pm$ 0.48%	( $N = 1 \pm 1$ )
-	87.40% $\pm$ 2.12%	( $N = 215 \pm 5$ )	+++--	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	++++--	0.48% $\pm$ 0.48%	( $N = 1 \pm 1$ )
			++++--	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	++++--	0.48% $\pm$ 0.48%	( $N = 1 \pm 1$ )
++	2.10% $\pm$ 0.93%	( $N = 5 \pm 2$ )	+++--	1.86% $\pm$ 0.92%	( $N = 4 \pm 2$ )	+++---	1.92% $\pm$ 0.95%	( $N = 4 \pm 2$ )
+-	10.50% $\pm$ 1.99%	( $N = 25 \pm 5$ )	+++--	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	+++---	0.48% $\pm$ 0.48%	( $N = 1 \pm 1$ )
-+	11.34% $\pm$ 2.05%	( $N = 27 \pm 5$ )	+++++	1.40% $\pm$ 0.80%	( $N = 3 \pm 2$ )	+++++	1.44% $\pm$ 0.83%	( $N = 3 \pm 2$ )
--	76.05% $\pm$ 2.77%	( $N = 181 \pm 7$ )	+++++	6.98% $\pm$ 1.74%	( $N = 15 \pm 4$ )	+++++	1.44% $\pm$ 0.83%	( $N = 3 \pm 2$ )
			+++++	0.93% $\pm$ 0.66%	( $N = 2 \pm 1$ )	+++++	5.77% $\pm$ 1.61%	( $N = 12 \pm 3$ )
+++	0.43% $\pm$ 0.43%	( $N = 1 \pm 1$ )	+++++	0.93% $\pm$ 0.66%	( $N = 2 \pm 1$ )	+++++	0.96% $\pm$ 0.68%	( $N = 2 \pm 1$ )
++-	1.30% $\pm$ 0.75%	( $N = 3 \pm 2$ )	+++--	1.40% $\pm$ 0.80%	( $N = 3 \pm 2$ )	+++--	0.48% $\pm$ 0.48%	( $N = 1 \pm 1$ )
+-+	2.17% $\pm$ 0.96%	( $N = 5 \pm 2$ )	+++++	0.47% $\pm$ 0.47%	( $N = 1 \pm 1$ )	+++++	1.44% $\pm$ 0.83%	( $N = 3 \pm 2$ )
---	8.26% $\pm$ 1.81%	( $N = 19 \pm 4$ )	+++++	7.44% $\pm$ 1.79%	( $N = 16 \pm 4$ )	+++++	0.48% $\pm$ 0.48%	( $N = 1 \pm 1$ )
--+	2.17% $\pm$ 0.96%	( $N = 5 \pm 2$ )	+++++	0.93% $\pm$ 0.66%	( $N = 2 \pm 1$ )	+++++	1.44% $\pm$ 0.83%	( $N = 3 \pm 2$ )
-+-	9.13% $\pm$ 1.90%	( $N = 21 \pm 4$ )	+++++	0.93% $\pm$ 0.66%	( $N = 2 \pm 1$ )	+++++	6.25% $\pm$ 1.68%	( $N = 13 \pm 3$ )
---+	9.13% $\pm$ 1.90%	( $N = 21 \pm 4$ )	+++++	1.40% $\pm$ 0.80%	( $N = 3 \pm 2$ )	+++++	0.96% $\pm$ 0.68%	( $N = 2 \pm 1$ )
----	67.39% $\pm$ 3.09%	( $N = 155 \pm 7$ )	+++++	6.05% $\pm$ 1.62%	( $N = 13 \pm 3$ )	+++++	0.96% $\pm$ 0.68%	( $N = 2 \pm 1$ )
			+++++	1.86% $\pm$ 0.92%	( $N = 4 \pm 2$ )	+++++	1.44% $\pm$ 0.83%	( $N = 3 \pm 2$ )
++++	0.45% $\pm$ 0.45%	( $N = 1 \pm 1$ )	+++++	6.51% $\pm$ 1.68%	( $N = 14 \pm 4$ )	+++++	0.48% $\pm$ 0.48%	( $N = 1 \pm 1$ )
++++	0.90% $\pm$ 0.64%	( $N = 2 \pm 1$ )	+++++	6.05% $\pm$ 1.62%	( $N = 13 \pm 3$ )	+++++	5.77% $\pm$ 1.62%	( $N = 12 \pm 3$ )
+++--	0.45% $\pm$ 0.45%	( $N = 1 \pm 1$ )	+++++	53.02% $\pm$ 3.40%	( $N = 114 \pm 7$ )	+++++	0.96% $\pm$ 0.68%	( $N = 2 \pm 1$ )
++--	1.80% $\pm$ 0.89%	( $N = 4 \pm 2$ )				+++++	0.96% $\pm$ 0.68%	( $N = 2 \pm 1$ )
++---	0.45% $\pm$ 0.45%	( $N = 1 \pm 1$ )				+++++	1.44% $\pm$ 0.83%	( $N = 3 \pm 2$ )
+---	8.11% $\pm$ 1.83%	( $N = 18 \pm 4$ )				+++++	4.81% $\pm$ 1.49%	( $N = 10 \pm 3$ )
---+	0.90% $\pm$ 0.64%	( $N = 2 \pm 1$ )				+++++	1.44% $\pm$ 0.83%	( $N = 3 \pm 2$ )
---+	0.90% $\pm$ 0.64%	( $N = 2 \pm 1$ )				+++++	4.81% $\pm$ 1.49%	( $N = 10 \pm 3$ )
---+	1.35% $\pm$ 0.77%	( $N = 3 \pm 2$ )				+++++	4.33% $\pm$ 1.41%	( $N = 9 \pm 3$ )
---+	7.66% $\pm$ 1.78%	( $N = 17 \pm 4$ )				+++++	48.08% $\pm$ 3.47%	( $N = 100 \pm 7$ )
---+	1.80% $\pm$ 0.89%	( $N = 4 \pm 2$ )						
---+	7.66% $\pm$ 1.78%	( $N = 17 \pm 4$ )						
----+	8.11% $\pm$ 1.83%	( $N = 18 \pm 4$ )						
----	59.46% $\pm$ 3.30%	( $N = 132 \pm 7$ )						