

This File Includes:

Tables S1–S5.

Table S1. Summary statistics for the eight WFOs showing the number of days where an RFW was issued, large fire days (defined as exceeding the 90th percentile fire size for individual FWZs), the mean LF size for the WFO, the number of human- and lightning-caused LF days, and the ratio of LFs occurring on or within one day following an RFW day.

	RFW Days	LF Days	Mean LF Size (ha)	Human-Caused LF Days	Lightning-Caused LF Days	Ratio of LFs Occurring within 1 Day of RFW Day
BOI	1310	467	4165.4	186	276	13.3%
MFR	1521	965	281.1	561	378	22.5%
MSO	892	967	711.1	410	559	34.4%
OTX	941	874	857.9	523	295	44.2%
PIH	1244	228	3641.5	75	145	24.5%
PDT	2110	990	816.6	508	454	34.5%
PQR	555	543	46.8	391	137	25.7%
SEW	367	307	51.6	236	65	29.1%

Table S2a. Complete RFW performance statistics, skill scores, and relative improvement values for large fire days defined as ≥ 80 th percentile sizes. **AREA** values represent the entire study area.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.29	0.82	0.13	0.13	0.92	0.05	0.18	0.11	0.08	124.08	-11.3	142.0
BOI	0.37	0.85	0.12	0.17	0.94	0.05	0.25	0.09	0.07	124.78	-8.8	144.6
MFR	0.32	0.79	0.15	0.13	0.91	0.06	0.21	0.14	0.10	135.93	-13.7	156.8
MSO	0.22	0.76	0.13	0.14	0.84	0.08	0.09	0.10	0.05	53.91	-9.7	58.5
OTX	0.22	0.79	0.12	0.10	0.90	0.05	0.13	0.12	0.07	110.62	-12.4	122.8
PIH	0.35	0.93	0.06	0.20	0.96	0.03	0.19	0.03	0.03	73.84	-3.2	82.9
PDT	0.42	0.78	0.17	0.16	0.92	0.05	0.32	0.16	0.12	171.73	-15.9	214.9
PQR	0.19	0.81	0.10	0.08	0.92	0.04	0.12	0.12	0.07	139.30	-12.2	155.2
SEW	0.16	0.86	0.08	0.05	0.96	0.02	0.12	0.10	0.06	231.45	-10.4	254.6

Table S2b. As in Table S2a but for large fire days defined as ≥ 90 th percentile sizes.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.24	0.72	0.15	0.12	0.86	0.07	0.13	0.16	0.08	99.4	-16.5	113.5

BOI	0.32	0.78	0.15	0.15	0.89	0.07	0.19	0.13	0.09	108.5	-12.9	124.4
MFR	0.26	0.67	0.17	0.13	0.84	0.08	0.16	0.20	0.10	105.9	-20.1	122.4
MSO	0.18	0.61	0.14	0.12	0.73	0.09	0.06	0.16	0.05	46.3	-15.7	51.0
OTX	0.16	0.69	0.12	0.10	0.81	0.07	0.07	0.15	0.06	68.1	-15.0	75.3
PIH	0.36	0.86	0.11	0.19	0.93	0.05	0.21	0.07	0.06	87.2	-7.3	103.2
PDT	0.34	0.67	0.20	0.14	0.87	0.07	0.23	0.23	0.14	139.6	-22.6	171.4
PQR	0.15	0.70	0.11	0.07	0.86	0.05	0.08	0.18	0.06	104.9	-17.9	117.7
SEW	0.13	0.78	0.09	0.05	0.92	0.03	0.09	0.15	0.06	188.7	-15.4	206.8

Table S2c. As in Table S2a but for large fire days defined as ≥ 95 th percentile sizes.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.34	0.88	0.09	0.14	0.95	0.04	0.23	0.07	0.06	138.2	-7.2	157.4
BOI	0.40	0.92	0.07	0.17	0.97	0.03	0.28	0.05	0.05	136.6	-5.1	152.3
MFR	0.36	0.87	0.11	0.15	0.95	0.04	0.25	0.08	0.07	138.2	-8.2	158.5
MSO	0.25	0.85	0.10	0.15	0.91	0.06	0.11	0.06	0.04	61.3	-5.9	65.1
OTX	0.29	0.85	0.11	0.12	0.94	0.04	0.20	0.10	0.07	153.0	-10.0	174.0
PIH	0.36	0.96	0.04	0.21	0.98	0.02	0.19	0.02	0.02	74.7	-1.7	78.8
PDT	0.51	0.85	0.13	0.18	0.95	0.04	0.40	0.11	0.09	183.4	-10.5	237.2
PQR	0.23	0.88	0.09	0.08	0.96	0.03	0.16	0.08	0.06	191.8	-8.3	217.3
SEW	0.15	0.93	0.05	0.05	0.98	0.02	0.10	0.04	0.03	189.0	-4.4	203.0

Table S3a. Complete RFW performance statistics, skill scores, and relative improvement values for lightning-caused large fire days. **AREA** values represent the entire study area.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.46	0.87	0.11	0.18	0.95	0.04	0.34	0.09	0.08	154.0	-8.7	182.9
BOI	0.51	0.88	0.11	0.20	0.95	0.04	0.38	0.08	0.07	150.4	-7.9	180.5
MFR	0.62	0.83	0.16	0.21	0.95	0.05	0.51	0.13	0.12	190.8	-12.7	245.4
MSO	0.27	0.82	0.12	0.19	0.88	0.08	0.10	0.06	0.04	45.4	-6.0	48.9
OTX	0.41	0.86	0.11	0.14	0.96	0.03	0.31	0.10	0.08	197.6	-9.8	230.5
PIH	0.32	0.96	0.04	0.20	0.98	0.02	0.15	0.02	0.02	59.2	-1.6	66.0
PDT	0.64	0.84	0.15	0.19	0.96	0.04	0.56	0.13	0.12	232.4	-12.7	311.8
PQR	0.33	0.92	0.07	0.13	0.97	0.03	0.23	0.05	0.05	154.3	-5.3	170.6
SEW	0.30	0.94	0.05	0.08	0.99	0.01	0.25	0.04	0.04	289.6	-4.4	325.0

Table S3b. As in Table S3a but for human-caused large fire days.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.17	0.94	0.04	0.09	0.97	0.02	0.08	0.03	0.02	78.4	-2.5	80.7
BOI	0.19	0.97	0.03	0.11	0.98	0.02	0.08	0.01	0.01	66.4	-1.1	66.7
MFR	0.13	0.95	0.04	0.10	0.96	0.03	0.04	0.01	0.01	36.1	-1.2	33.7
MSO	0.16	0.92	0.05	0.09	0.96	0.03	0.08	0.03	0.03	78.4	-3.4	78.3
OTX	0.15	0.91	0.06	0.08	0.95	0.03	0.07	0.04	0.03	75.1	-3.8	79.4
PIH	0.40	0.97	0.03	0.21	0.99	0.01	0.24	0.01	0.01	91.2	-1.4	101.9
PDT	0.22	0.94	0.05	0.13	0.97	0.03	0.10	0.02	0.02	67.7	-2.4	72.7
PQR	0.15	0.89	0.07	0.07	0.95	0.03	0.09	0.06	0.04	122.1	-6.5	133.7
SEW	0.13	0.92	0.05	0.04	0.97	0.02	0.09	0.06	0.04	233.1	-6.1	248.0

Table S4a. Complete RFW performance statistics, skill scores, and relative improvement values for forested large fire days. **AREA** values represent the entire study area.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.28	0.90	0.08	0.12	0.96	0.03	0.18	0.06	0.05	129.0	-6.0	140.7
BOI	0.44	0.96	0.04	0.23	0.98	0.02	0.26	0.02	0.02	87.4	-1.9	94.4
MFR	0.33	0.85	0.11	0.13	0.94	0.04	0.23	0.10	0.08	162.3	-9.8	183.7
MSO	0.22	0.83	0.11	0.15	0.88	0.07	0.09	0.06	0.04	50.6	-6.2	53.5
OTX	0.23	0.87	0.09	0.10	0.95	0.04	0.15	0.08	0.06	137.9	-7.7	149.8
PIH	0.29	0.99	0.01	0.18	0.99	0.01	0.13	0.00	0.00	57.9	-0.5	66.5
PDT	0.45	0.90	0.09	0.15	0.97	0.03	0.35	0.07	0.06	193.7	-6.9	229.7
PQR	0.19	0.85	0.09	0.08	0.93	0.04	0.11	0.09	0.06	125.8	-9.3	140.9
SEW	0.18	0.86	0.08	0.05	0.96	0.02	0.14	0.10	0.06	269.5	-10.4	298.5

Table S4b. As in Table S4a but for non-forested large fire days.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.34	0.90	0.09	0.15	0.96	0.03	0.23	0.06	0.05	131.3	-6.4	150.6
BOI	0.37	0.88	0.10	0.15	0.95	0.04	0.26	0.07	0.06	148.4	-7.3	167.8
MFR	0.36	0.90	0.08	0.16	0.96	0.03	0.24	0.06	0.05	120.6	-5.6	136.5
MSO	0.25	0.90	0.08	0.14	0.95	0.04	0.13	0.05	0.04	84.9	-4.9	91.5
OTX	0.23	0.89	0.08	0.11	0.95	0.04	0.13	0.06	0.05	103.3	-6.2	114.1
PIH	0.37	0.94	0.05	0.21	0.97	0.03	0.20	0.03	0.02	73.0	-2.6	80.4
PDT	0.46	0.84	0.14	0.17	0.95	0.04	0.35	0.11	0.10	178.3	-11.5	227.2

PQR	0.22	0.95	0.04	0.08	0.99	0.01	0.15	0.03	0.03	185.6	-3.1	209.1
SEW	0.05	0.99	0.00	0.05	0.99	0.00	0.00	0.00	0.00	-1.2	0.0	-0.7

Table S5a. Complete RFW performance statistics, skill scores, and relative improvement values for large fire days where ERC \geq 90th percentile values. **AREA** values represent the entire study area.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.42	0.89	0.10	0.17	0.96	0.04	0.30	0.07	0.06	142.1	-7.2	169.3
BOI	0.47	0.91	0.08	0.21	0.96	0.03	0.33	0.05	0.05	120.6	-5.1	142.3
MFR	0.48	0.91	0.09	0.20	0.96	0.03	0.35	0.06	0.05	135.1	-5.9	160.4
MSO	0.31	0.84	0.12	0.20	0.90	0.07	0.15	0.07	0.05	60.0	-6.6	65.8
OTX	0.36	0.86	0.11	0.15	0.94	0.04	0.25	0.09	0.07	136.5	-9.0	161.9
PIH	0.50	0.94	0.05	0.22	0.98	0.02	0.36	0.04	0.03	129.0	-3.6	156.8
PDT	0.61	0.87	0.12	0.21	0.96	0.03	0.51	0.10	0.09	194.7	-9.9	264.1
PQR	0.32	0.85	0.11	0.10	0.96	0.03	0.24	0.11	0.09	230.9	-11.4	275.1
SEW	0.23	0.89	0.08	0.06	0.97	0.02	0.18	0.09	0.06	282.8	-8.6	319.7

Table S5b. As in Table S5a but for large fire days where ERC $<$ 90th percentile values.

	Forecast Performance			Reference Performance			Skill Score			Rel. Improvement (%)		
	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI	POD	FAR	CSI
AREA	0.23	0.91	0.07	0.11	0.96	0.03	0.14	0.05	0.04	116.2	-5.1	124.7
BOI	0.32	0.93	0.06	0.12	0.97	0.02	0.22	0.05	0.04	161.2	-4.7	176.5
MFR	0.29	0.85	0.11	0.12	0.94	0.04	0.20	0.10	0.07	149.4	-9.8	169.7
MSO	0.17	0.89	0.07	0.11	0.93	0.04	0.07	0.04	0.03	57.9	-4.1	59.5
OTX	0.16	0.90	0.07	0.08	0.95	0.03	0.09	0.05	0.03	102.0	-5.2	106.1
PIH	0.15	0.99	0.01	0.19	0.98	0.02	-0.05	0.00	0.00	-20.1	0.4	-23.5
PDT	0.34	0.89	0.09	0.13	0.96	0.03	0.24	0.07	0.06	160.7	-7.5	185.3
PQR	0.10	0.95	0.04	0.07	0.96	0.03	0.03	0.02	0.01	40.6	-1.6	40.6
SEW	0.10	0.96	0.03	0.04	0.99	0.01	0.06	0.02	0.02	174.1	-2.5	180.0