

National Weather Service – WFO Eureka
Annual Fire Weather Report
2011



Ruth Fire – Ruth, CA

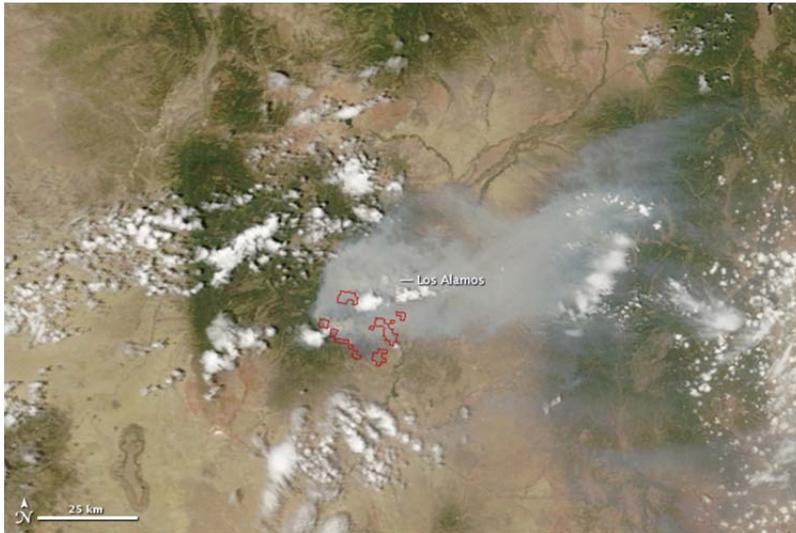
September 22, 2011

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I) INCIDENT REVIEW

National / Regional Fire Activity

For the third straight year Northern California experienced a very quiet fire season. It was a much different story nationally. 2011 was one of the busiest seasons in nearly 10 years in terms of acres burned. Nearly 9 million acres were burned due to wildfire

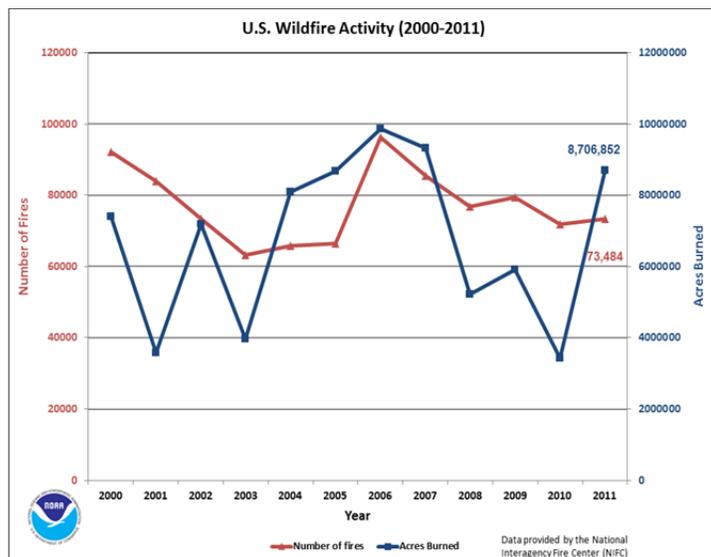


across the country with most of the activity in the southern plains and desert southwest. The Las Conchas and Wallow Fires combined to contribute almost 700,000 acres as the drought plagued desert southwest erupted early in the summer. The largest concern of the firefighters battling the Las Conchas Fire was the town of Los Alamos, home to the country's premier nuclear research facility. The fire

Las Conchas Fire

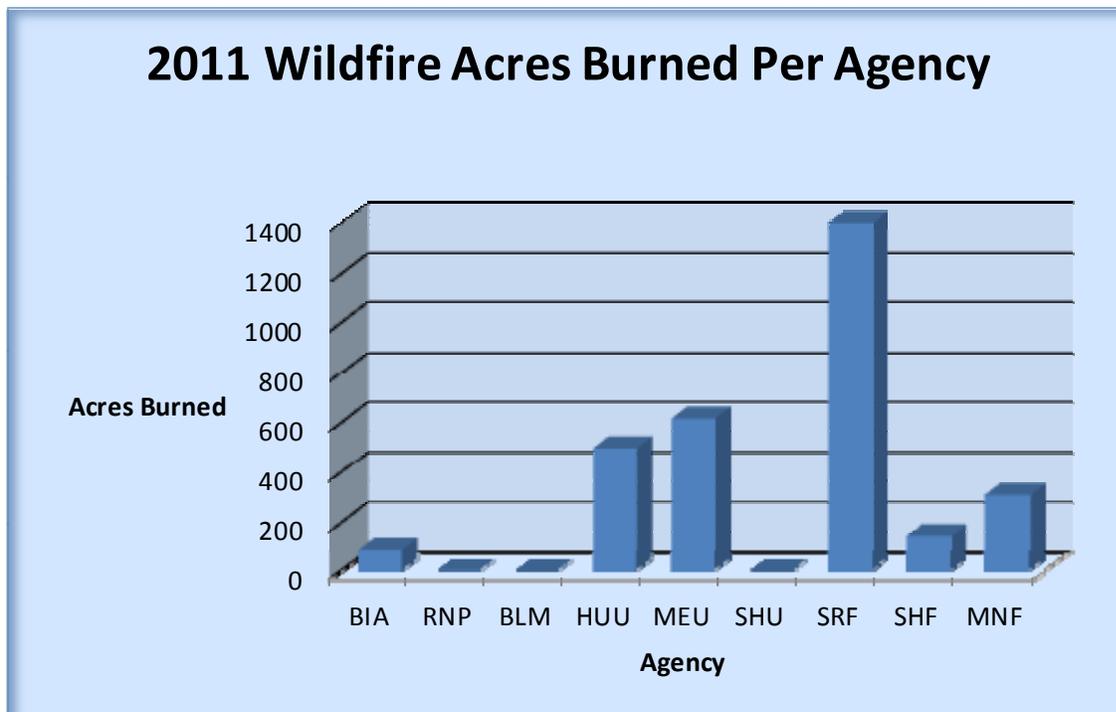
encroached upon the grounds of the research facility several times, but fire crews were able to keep the flames from spreading.

Another La Nina winter contributed very little rainfall to the Southern Plains making Texas, Oklahoma and New Mexico the driest region of the country. These states also experienced warmer-than-average conditions during 2011. During the January 1st through April 30th period, 2.2 million acres burned across Texas alone. Several fires affected populated areas in Texas, including the Wildcat Fire which forced an evacuation in San Angelo, Texas, and the Rock House Fire, which burned over 40 homes in Fort Davis.

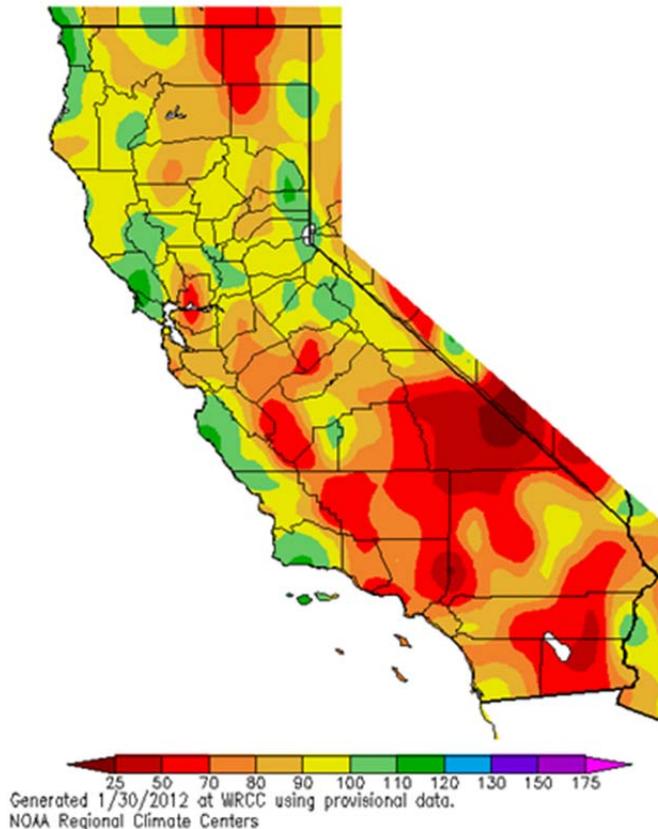


Despite the major wildfire activity nationally, wildfire activity was again very limited across Northern California. A few minor lighting events triggered a few fires across northeast California, more specifically in Modoc County. The Cougar, Scorpion and Annie fires contributed to about 7000 of acres burned in that region.

In Northwest California and within the WFO Eureka CWA...three large fires occurred. In early July the human caused Spanish Fire burned 498 acres and came under the responsibility of CALFIRE's Humboldt Del-Norte Unit. Later in the summer, the Pass fire ignited by equipment usage burned 616 acres under the suppression efforts of CALFIRE'S Mendocino Unit. The largest fire was the human caused Ruth Fire which spread across Six Rivers NF and the Shasta Trinity NF...igniting approximately 1400 acres. This fire caused the evacuation of the community of Ruth and required the deployment of NorCal Team 2 along with IMET deployment from WFO Eureka. The following chart illustrates the acres burned per agency responsibility for 2011 across Northwest California.



II. WEATHER REVIEW



Departure from average precipitation in inches for the period Jan 1, 2011 through December 31, 2011.

The image depicts that the amount of precipitation that fell across Northwest California was roughly 10% below normal. One would think that would have led to a busy fire season however that was not the case. January and February were very dry due to a prolonged period of high pressure. However by March the storm gates opened and copious amounts of rainfall and snow fell throughout March, April and May. The storm track continued to supply late spring and early summer rain to much of Northern California wetting fuels well into fire season. ERC's were well below normal across the region until August when the values finally began to reach normal values. Virtually no rainfall fell during August and September allowing fuels to finally dry out.

By late September, about the time the Ruth Fire started, the first fall storm arrived to Northwest California with nearly an inch of rain in 24 hours and virtually ending fire season. Additional storms passed across the region with plentiful rainfall through mid-November. By early December an intensifying La Nina developed and for the 3rd straight year the precipitation ended as strong high pressure kept the storm track well north of California. This led to an exceptionally dry December and January of 2012. The end result was nearly 10% drop below normal across northwest CA for 2011.

III. RED FLAG WARNING VERIFICATION

Note: Warnings are issued for individual forecast zones. e.g., a Red Flag Warning issued for 3 zones will be treated as 3 separate warnings.

Total Events

Number of Red Flag Warnings Issued:	5
Number of Red Flag Warnings Verified:	5
Number of Missed Events:	0
Number of Warnings preceded by a Fire Weather Watch:	5
Number of Watches not followed by a Warning:	2
Average Lead Time for Warnings:	15 hours
Average Lead Time for Watches:	38 hours
Probability of Detection (POD):	1.0
False Alarm Ratio (FAR):	0
Critical Success Ratio (CSR):	1.0

The 10 Red Flag Warnings above are verified by two separate categories:

Dry Lightning Events

Number of Red Flag Warnings issued for Dry Lightning:	0
Number of Red Flag Warnings verified:	0
Number of Missed Events:	0
Average Lead Time:	N/A
POD:	N/A
FAR:	N/A
CSR:	N/A

Wind and Low Relative Humidity

Number of Red Flag Warnings issued for Dry Lightning:	5
Number of Red Flag Warnings verified:	5
Number of Missed Events:	0
Average Lead Time:	15 Hours
POD:	1.0
FAR:	0
CSR:	1.0

IV. NFDRS FORECAST VERIFICATION

Verification was performed by comparing forecasted values for each zone then compared against the zone averaged observation at 1300 PDT the following day. The absolute mean difference is then compared to persistence. Persistence is defined as the absolute mean difference between the observation at 1300 PDT the day the forecast was issued and the observation at 1300 PDT the following day. Each zone is comprised of several RAWS observations that are used to calculate the zone averaged values. The zones and RAWS locations are depicted in the map below.

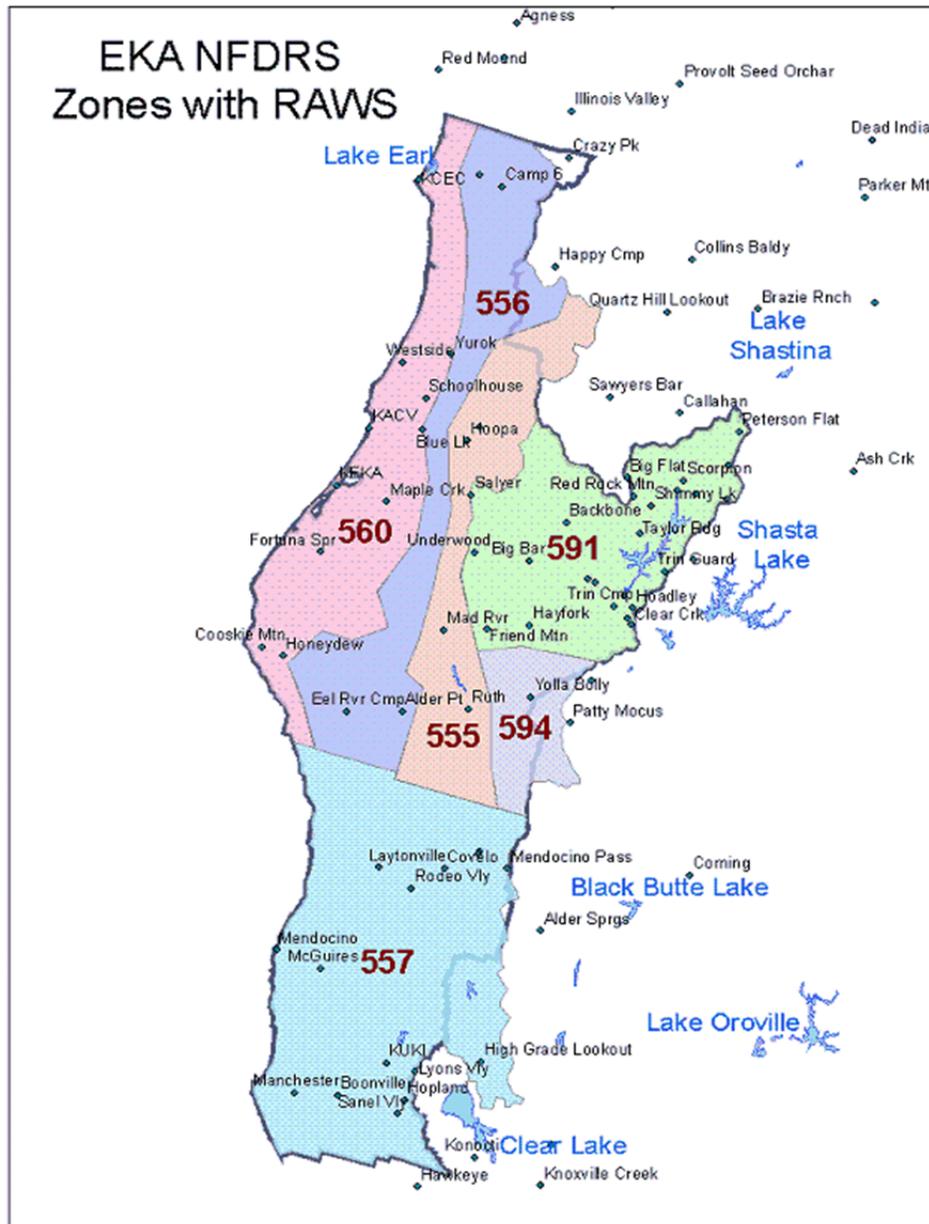
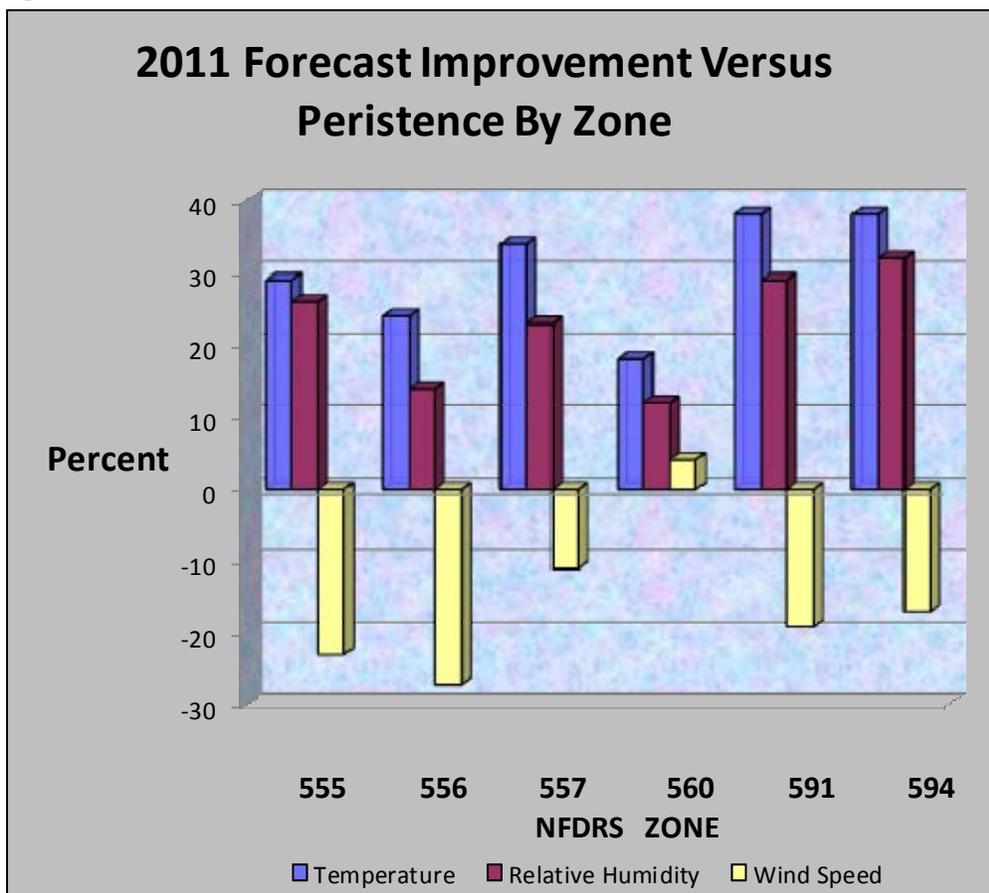


Fig. 4.2 shows that an improvement in temperature forecasts over persistence ranged from 20-38% for all zones last summer, while relative humidity forecasts showed a general improvement of 11 to 31% over persistence. Although wind speed forecasts remain generally poor compare to persistence, with little change compared to 2010. Zone 594 showed the most improvement compared to previous years with regard to wind...with nearly a 10% rise. In addition, forecasters beat persistence in wind forecasts for Zone 560, the coastal zone once again this year. Persistence beat the forecasted wind speeds...for the remaining zones while a strong negative bias still resides across zone 591.

Fig. 4.2



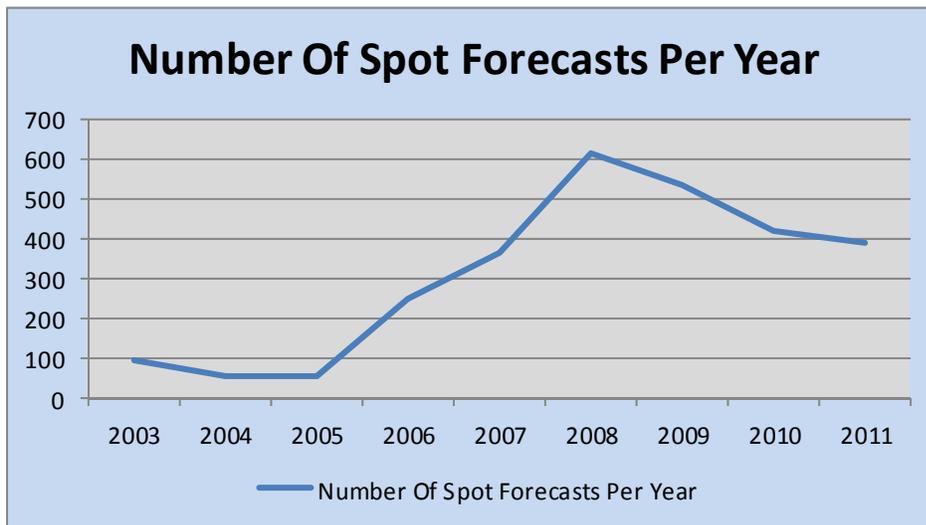
V. SPOT FORECASTS

The National Weather Service Office in Eureka issued a total of 391 site specific or spot forecasts during the calendar year 2011. This presents a decrease of 30 spot forecasts from last year. Given that 2011 was another somewhat benign wildfire season across the CWA it is understandable that only 26 spots were issued for wildfires which represents less than 5%. However the nearly 360 spots for prescription burns continues a strong trend of requests from the agencies that has been seen the during last five years.

Table 5.1

Spots for Wildfires	26
Spots for Project Burns	360
Spots for Hazmat	0
Spots for SAR	5
Average Turnaround Time For All Spots	29 minutes
Total Spots	391

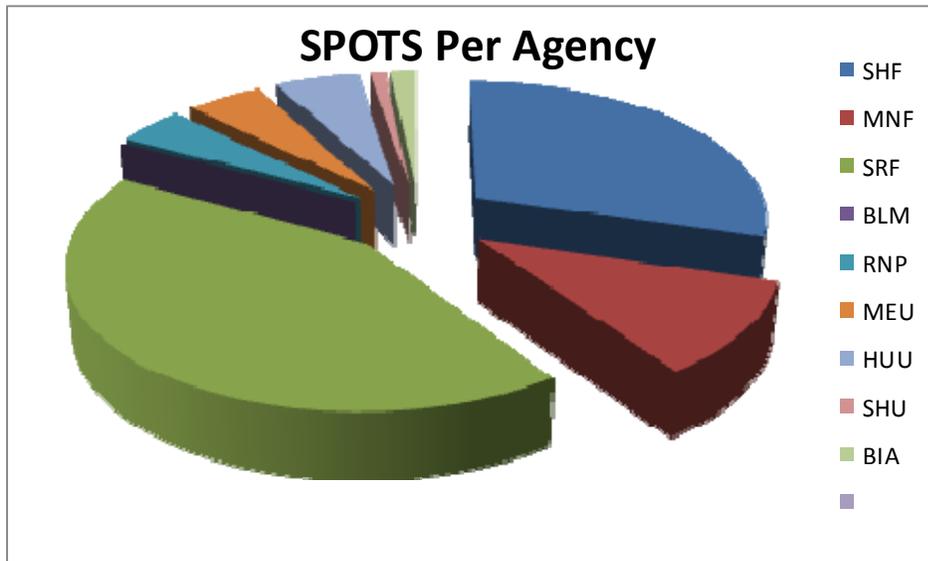
Fig 5.2



During 2011 WFO Eureka ranked 18th out of 122 NWS offices in terms of overall spot forecast production but ranks 3rd in the nation regarding the issuance of prescription burn related spot forecasts. The average “turn-around-time” for all spot forecasts was 29 minutes. The turn-around time showed an increase of 2 minutes from 2009.

Turn-around time is defined as the elapsed time between a spot forecast request receipt (or notification) and forecast transmission.

The majority of Rx spot forecast requests were for small burns or pile burns associated with the Forest Service. Similar to previous years, the majority of spot forecast requests originated from the USFS and CAL Fire with less than 5% distributed between the national and state parks and BIA.



VI. ON-SITE METEOROLOGICAL SUPPORT

Incident Meteorologist (IMET) support from WFO Eureka totaled 21 days. Eureka currently has one certified IMET, Jeff Tonkin and an IMET Trainee, Alex Dodd. Jeff Tonkin was dispatched to 2 separate incidents while Alex Dodd was assigned to one training assignment (Fig.6.1). There were no IMETs from other National Weather Service WFO's dispatched to fires or incidents within the Eureka CWA during 2011.

Fig. 6.1

<u>IMET</u>	<u>Incident</u>	<u>Location</u>	<u>Dates</u>	<u>Local WFO</u>
Jeff Tonkin	Honey Prairie Complex	Fargo, GA	May 16 - May 30	JAX
Alex Dodd	Pacheco Fire	Santa Fe, NM	June 23 - July 2	ABQ
Jeff Tonkin	Ruth Fire	Ruth, CA	Sept 24 - Sept 28	EKA

VII. TRAINING, EDUCATIONAL, OUTREACH AND FIELD ACTIVITIES

The following table (Fig. 7.1) summarizes various fire weather activities the Eureka fire weather staff participated in during the 2011 calendar year.

Fig. 7.1

<u>Dates</u>	<u>Activity</u>	<u>Agency/User/Audience</u>	<u>Representative</u>	<u>Location</u>
Feb 22	Fire Weather Class	College of Redwoods	Jeff	Eureka, CA
Mar 9-10	CA AOP	NWS	Nancy	Sacramento, CA
Mar 11	User Meeting	SHF	Jeff	Weaverville, CA
Mar 12	User Meeting	MNF	Jeff	Willows, CA
Mar 22-26	IMET Workshop	NWS	Jeff, Alex	Boise, ID
Mar 24	Rx Class	RNP	Jeff	Eureka, CA
Apr 28	Taught S290	CALFIRE	Jeff	Eureka, CA
May 29	IMET Dispatch	Honey Prairie Fire	Jeff	Fargo, GA
May 25	Begin Fire Season	EKA	Staff	Eureka, CA
June 14	User Meeting	SRF	Jeff	Eureka, CA
Sep 25	IMET Dispatch	Ruth Fire	Jeff	Ruth, CA
Dec 12	User Meeting	SHF	Jeff, Alex, Shawn	Redding, CA

VIII. EUREKA FIRE WEATHER PROGRAM SUMMARY

The following table illustrates a comparison of activity and performance for the period 2003 through 2011.

ANNUAL COMPARISON TABLE											
	2003	2004	2005	2006	2007	2008	2009	2010	Total	Ave.	Ave.
									03-10	03-10	08-10
Red Flag Warnings Issued:	14	5	3	16	2	32	13	6	91	11.4	17
Dry Lightning:	1	0	0	3	2	19	8	6	39	4.9	11
Wind/RH:	13	5	3	13	0	13	5	0	52	6.5	6
Average Lead Time (hr):	13	16.1	9	13.6	0	17	N/A	N/A	68.7	8.5	17
Fire Wx Watch	5	4	4	10	2	36	4	15	80	10	18.3
Dry Lightning:	4	0	0	0	2	19	4	15	44	5.5	12.7
Wind/RH:	1	4	4	10	0	17	0	0	36	4.5	5.6
Average Lead Time (hr):	16	33.5	14.5	29.5	0	59.5	N/A	N/A	153	25.5	59.5
POD	1.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	5.0	0.63	0.33
CSI	0.71	1.0	1.0	0.86	0.0	0.63	0.0	0.0	4.20	0.53	0.21
FAR	0.29	0.0	0.0	0.14	1.0	0.38	1.0	1.0	3.81	0.47	0.93
Spots Issued	95	53	56	250	363	612	532	421	2382	297	521
Wildfire Spots	85	17	14	91	57	316	82	22	684	86	140
Rx Spots	10	34	39	158	306	296	450	399	1692	211	382
Turn-Around Time (min.)	70	56	37	52	35	31	29	27	337	42	29
Total EKA IMET Days	33	28	23	106	63	48	31	21	353	44	33
Mark				53	28	14	0	3	98	19	5.6
Jeff	33	28	23	53	35	34	31	18	255	32	27
Total IMET Days in CWA	11	6	0	127	7	317	17	4	489	61	112

Report Prepared by Jeff Tonkin
NWS – WFO Eureka, CA

Comments, Questions or Suggestions can be emailed to jeff.tonkin@noaa.gov