

National Weather Service – WFO Eureka Annual Fire Weather Report 2012



Stafford Fire – Hayfork, CA

September 8, 2011

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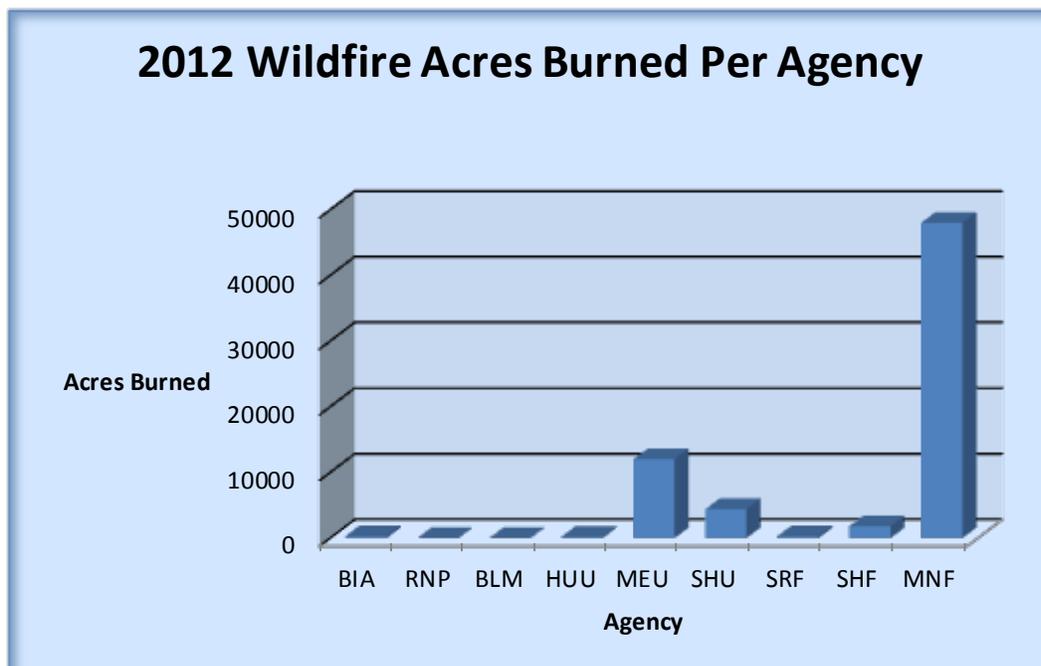
I) INCIDENT REVIEW

Local Fire Activity

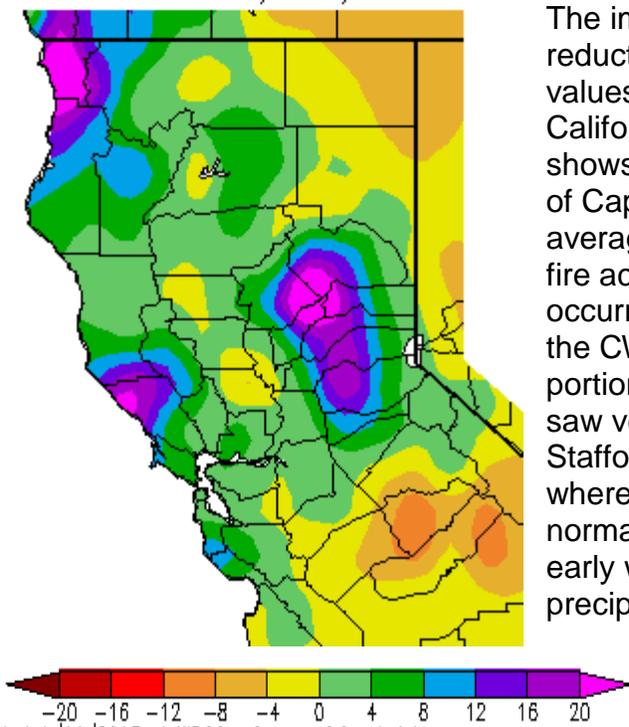
For the first time in 4 years Northern California experienced a rather busy fire season. Regionally speaking northwest CA, including the NWS Eureka CWA, saw a significant number of acres burned due to wildfire.

There were many small fires within the CWA during the summer months and most were human caused. Two major fires that occurred included the North Pass Fire near Covelo (Mendocino County) and the Stafford Fire near Hayfork (Trinity County). The North Pass Fire was caused by lightning in early August and burned for nearly 6 weeks encompassing over 42,000 acres. This fire destroyed 26 structures in and around the community of Covelo. The fire required Type 1 Incident Management Team along with incident meteorologist support (see page 11).

The other large fire was named the Stafford Fire and occurred in early September. This fire was human caused and at the time of this report is still under investigation. The fire burned nearly 4,500 acres across the Wildwood Canyon area southeast of Hayfork. This fire required a Type 2 Incident Management team and also garnered the use of an incident meteorologist. (see page 11) Most wildfire activity occurred across eastern areas of Trinity, Mendocino and Humboldt Counties as those areas received less than average amounts of precipitation prior to the summer months.



II. WEATHER REVIEW



The image to the left depicts a 3 to 10% reduction of precipitation compared to normal values across interior areas of northwest California during 2012. Closer examination shows that coast and coastal interior areas north of Cape Mendocino observed higher than average precipitation. This graphic supports the fire activity seen during 2012 as two large fires occurred across the extreme interior portions of the CWA while coastal areas and western portions of Humboldt and Del Norte counties saw very little fire activity. The larger fires, Stafford and North Pass occurred across areas where precipitation was either near or below normal. As far as the seasonal weather...The early winter months were near normal in terms of precipitation however in March a series of very

moist storms brought copious amounts of rain and snow to northwest California. At WFO Eureka precipitation amounts ran 6.72 inches above the monthly average during March. The early spring precipitation also brought a significant snow pack to elevations above 5000 feet. The remainder of the spring saw closer to normal amounts of precipitation and in May precipitation amounts were actually slightly below normal. This led to a drying period that was not seen during the late springs of the previous 3 years. A few storms made it across the region during June and July however most of the precipitation was confined to the near coast areas. The remainder of the summer saw near normal storm activity with only a few weak thunderstorm patterns setting up. Although more lightning was observed this year compared to the last 3-4 years most of the lightning detected remained east of the CWA. One particular monsoonal push occurred in early August with moisture moving up the central valley and bringing thunderstorms across eastern Trinity and Mendocino counties. Some of these storms did make it as far east as interior Mendocino County and ignited what developed as the North Pass Fire. Additionally many large fires were started over north-central CA during this thunderstorm event. The remaining fall months saw very little precipitation with generally fair weather. The typical fall offshore flow patterns were very mild and did not warrant any Fire Weather Watches or Red Flag Warnings. The early winter months of late 2012 did bring a typical storm track by early November. Rain and snow began to fall in regularity during mid-November putting an end to the 2012 fire season.

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:	7
Number of Red Flag Warnings Verified:	1
Number of Missed Events:	0
Number of Warnings preceded by a Fire Weather Watch:	7
Number of Watches not followed by a Warning:	0
Average Lead Time for Warnings:	24 hours
Average Lead Time for Watches:	50 hours
Probability of Detection (POD):	1.0
False Alarm Ratio (FAR):	0.85
Critical Success Ratio (CSR):	0.14

The 7 Red Flag Warnings above are verified by two separate categories, however there were no warnings issued for Wind and RH during 2012:

Dry Lightning Events

Number of Red Flag Warnings issued for Dry Lightning:	7
Number of Red Flag Warnings verified:	1
Number of Missed Events:	0
Average Lead Time:	26 hours
POD:	1.0
FAR:	0.85
CSR:	0.14

Wind and Low Relative Humidity

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

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.

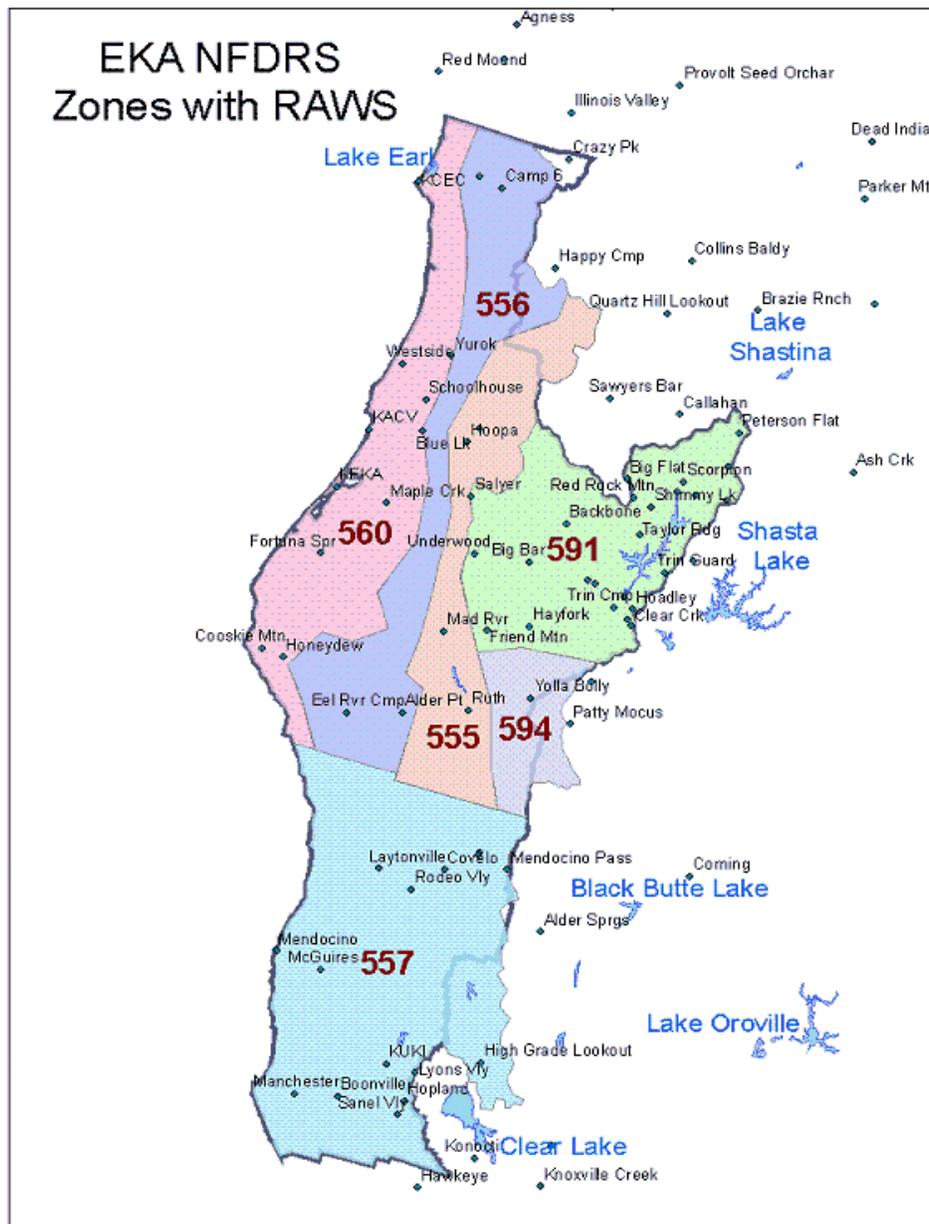
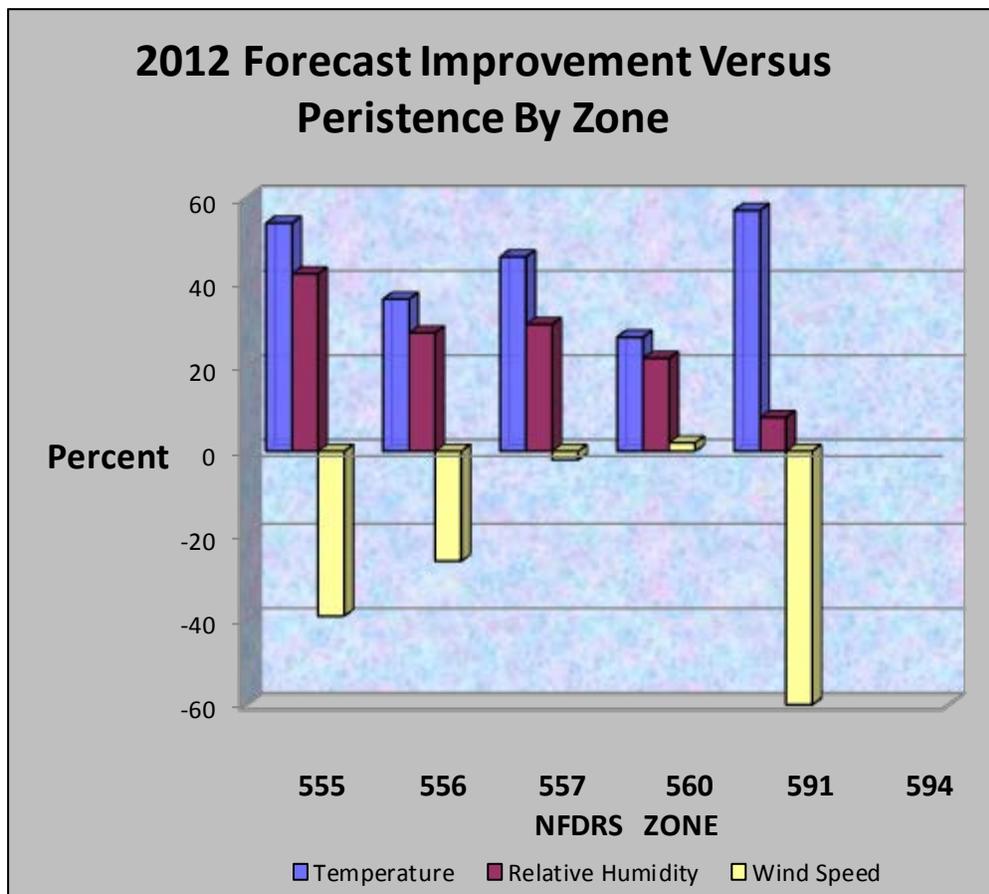


Fig. 4.2 shows that an improvement in temperature forecasts over persistence ranged from 6 to 58% for all zones last summer. There was generally a 10 to 15% improvement in temperature and relative humidity forecasts from last year. This continues a trend of increasing accuracy for these particular parameters. Wind speed forecasts continue to be challenging for forecasters, especially across the extreme interior zones where results remain generally poor compare to persistence. However zones 557 and 560 did see improvement. Unfortunately results for zone 594 were not available this year.

Fig. 4.2



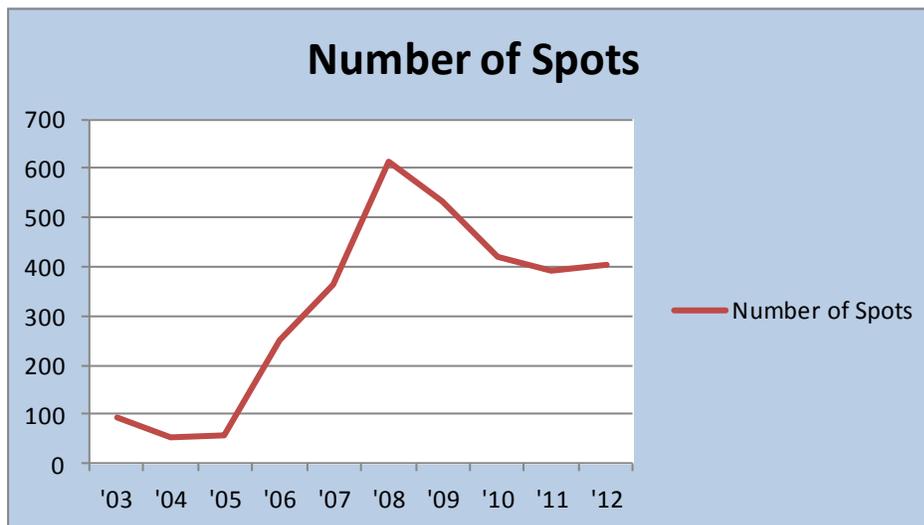
V. SPOT FORECASTS

The National Weather Service Office in Eureka issued a total of 402 site specific or spot forecasts during the calendar year 2012. This is nearly the same amount as last year and maintains the last 3 year average of about 400. Given that 2012 was a more active year in terms of wildfires nearly 20% of the total spots were issued for wildfires. However the 334 spots for prescription burns continues a strong trend of requests from the agencies that has been seen during the last five years.

Table 5.1

Spots for Wildfires	66
Spots for Project Burns	334
Spots for Hazmat	0
Spots for SAR	2
Average Turnaround Time For All Spots	28 minutes
Total Spots	402

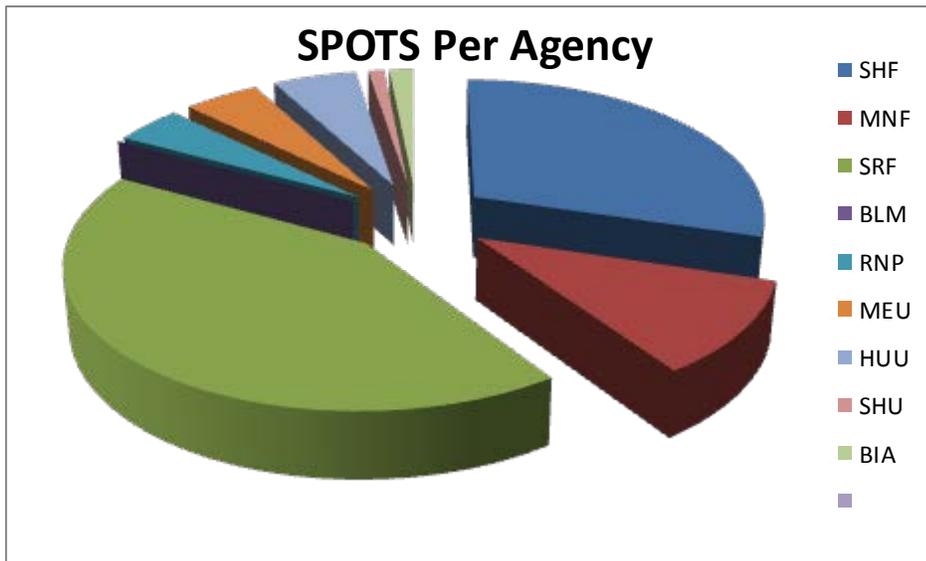
Fig 5.2



During 2012 WFO Eureka ranked 15th out of 122 NWS offices in terms of overall spot forecast production but ranks 5th in the nation regarding the issuance of prescription burn related spot forecasts. The average “turn-around-time” for all spot forecasts was 28 minutes. The turn-around time showed a decrease of 1 minute compared to 2011.

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 5 separate incidents while Alex Dodd was not dispatched to any assignments. (Fig.6.1).

Fig. 6.1

<u>IMET</u>	<u>Incident</u>	<u>Location</u>	<u>Dates</u>	<u>Local WFO</u>
Jeff Tonkin	Sites Complex	Willows, CA	July 10 - July 14	STO
Jeff Tonkin	Flat Fire	Junction City, CA	July 14 - July 19	EKA
Jeff Tonkin	Lost Fire	Cedarville, CA	August 7 - August 14	REV
jeff Tonkin	Fort Complex	Applegate, OR	August 14 - August 21	MFR
Jeff Tonkin	Likely Fire	Likely, CA	September 8 - September 15	REV

There were 3 IMETs from other National Weather Service WFO's dispatched to fires or incidents within the Eureka CWA during 2011.

<u>IMET</u>	<u>Home WFO</u>	<u>Incident</u>	<u>Location</u>	<u>Dates</u>
Jason Clapp	STO	North Pass	Covelo, CA	August 22 - September 4
Scott Kennedy	ONP	North Pass	Covelo, CA	September 4 - September 11
Mike Smith	STO	Stafford Fire	Hayfork, CA	September 8 - September 20

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

Dates	Activity	Agency/User/Audience	Representative	Location
Jan 16-17	Taught S-390	CAFire	Jeff	Santa Rosa, CA
Feb 7-8	Taught S-390	CAFire	Jeff	Willits, CA
Feb 16	User Meeting	Shasta Trinity NF	Jeff, Alex, Shawn	Redding, CA
Mar 8	CA AOP Meeting	Multi Agency	Jeff	EKA - Conf Call
Mar 14	Taught General Fwx	College of the Redwoods	Jeff	Eureka, CA
Mar 27	IMET Training	IMET Cadre	Jeff, Alex	EKA - Conf Call
Mar 28-29	RT 130 Training	IMETs	Jeff, Alex	SRF Eureka, CA
Apr 4	User Meeting	SRF - Lower Trinity	Jeff, Shawn	Willow Creek, CA
June 7	Final AOP Call	Multi Agency	Jeff	EKA - Conf Call
June 11	User Meeting	SHF	Jeff, Shawn	Weaverville, CA
July 10	IMET Dispatch	Sites Complex	Jeff	Willows, CA
July 17	IMET Dispatch	Flat Fire	Jeff	Junction City, CA
July 19	Incident Fam Visit	NWS EKA Forecasters	Ryan, Buddy	Junction City, CA
Aug 7	IMET Dispatch	Lost Fire	Jeff	Cedarville, CA
Aug 15	IMET Dispatch	Fort Complex	Jeff	Applegate, OR
Aug 20	Incident Fam Visit	NWS EKA Forecaster	Shawn	Applegate, OR
Sept 8	IMET Dispatch	Likely Fire	Jeff	Likely, CA

VIII. EUREKA FIRE WEATHER PROGRAM SUMMARY

ANNUAL COMPARISON TABLE												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Red Flag Warnings Issued:	14	5	3	16	2	32	13	6	5	7		
Dry Lightning:	1	0	0	3	2	19	8	6	0	7		
Wind/RH:	13	5	3	13	0	13	5	0	5	0		
Average Lead Time (hr):	13	16.1	9	13.6	0	17	N/A	N/A	12	24		
Fire Wx Watch	5	4	4	10	2	36	4	15	5	7		
Dry Lightning:	4	0	0	0	2	19	4	15	0	7		
Wind/RH:	1	4	4	10	0	17	0	0	5	0		
Average Lead Time (hr):	16	33.5	14.5	29.5	0	59.5	N/A	N/A	38	60		
POD	1.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0	1.0	1.0		
CSI	0.71	1.0	1.0	0.86	0.0	0.63	0.0	0.0	0	0.14		
FAR	0.29	0.0	0.0	0.14	1.0	0.38	1.0	1.0	1.0	0.85		
Spots Issued	95	53	56	250	363	612	532	421	391	402		
Wildfire Spots	85	17	14	91	57	316	82	22	26	66		
Rx Spots	10	34	39	158	306	296	450	399	360	334		
Turn-Around Time (min.)	70	56	37	52	35	31	29	27	29	28		
Total EKA IMET Days	33	28	23	106	63	48	31	21	29	31		
Mark (2006-2010)				53	28	14	0	3				
Jeff	33	28	23	53	35	34	31	18	18	31		
Alex (2011 -)									11	0		
Total IMET Days in CWA	11	6	0	127	7	317	17	4	4	34		

The following table illustrates a comparison of activity and performance for the period 2003 through 2012.

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