

# Annual Fire Weather Operations Report – 2008

## National Weather Service Reno, Nevada

### 1. Meteorologists participating in the Fire Weather Program:

**Fire Weather Program Leader:** Chris Jordan (IMET)  
**Fire Weather Program Assistants:** Rhett Milne (WCM), Mark Deutschendorf,  
James Wallmann (IMET)  
**All operational Forecasters:** MIC, WCM, SOO, 5 Senior Forecasters and 6  
General Forecasters

The entire management team and forecast staff at WFO Reno participated in the fire weather program. All staff involved with fire weather forecast and warning operations have completed the required fire weather training.

### 2. Season Duration

#### **Pre-Season Overview**

Snowpack values in the Sierra varied widely during the winter season. A slow start to the winter season resulted in snowpack only between 45-55 percent of normal as of January 1. Several large snowstorms moved through the region in January and February, pushing the snowpack total as high as 115-135 percent of normal in early February and remaining between 100-115 percent of normal until March 1. However, March and April were much drier than normal and snowpack values dropped during the remainder of the winter and early spring season. Cooler weather in March resulted in a slow drop to between 85-95 percent of normal by April 1, but several warm days in April combined with increasing winds accelerated the rate of melting snow. By May 1, the snowpack had decreased to 55-65 percent of normal in the Truckee, Tahoe, and Carson basins, and 75-80 percent of normal in the Walker River basin. In lower elevations of western Nevada, the green-up period was inconsistent due to sparse rainfall, and wide temperature swings during the second half of April.

The first large wildfire of the season began on April 29 with the “East Lake/Skinner” wildfire when high winds downed power lines which sparked and spread this fire. This fire consumed nearly 1000 acres before being contained a day later.

#### **Forecast Operations**

The 2008 fire season began May 12 with Fire Weather Forecasts issued twice per day and dedicated shift coverage 7 days a week. Between May 19 and September 5, there were daily telephone briefings for all fire agencies within the Western Great Basin GACC. The WFO Reno fire forecaster leads the briefing even though it covers the entire state of Nevada and 3 WFO's. The briefing follows images from an online webpage that WFO Reno put together. The fire season ended on October 31 when the forecast switched to a condensed version which is only issued once a day. NWS Reno continues to provide Spot Forecasts 24 hours a day, 365 days a year.

### **3. Verification Statistics and Graphs**

#### **Red Flag Warnings**

See the following tables for red flag warning and fire weather watch statistics.

*POD (Probability of Detection), FAR (False Alarm Ratio), CSI (Critical Success Index)*

#### **2008 – Reno Total Red Flag Statistics**

Total Red Flag Event Days	Red Flag Warnings Issued	Verified Red Flag Warnings	Unverified Red Flag Warnings	Missed Events	Average Lead Time
19	60	37	23	12	11.3 hrs

P.O.D.	F.A.R.	C.S.I.
.76	.38	.51

#### **2008 – Reno Relative Humidity and Wind Red Flag Statistics**

RH and Wind Red Flag Event Days	Red Flag Warnings Issued	Verified Red Flag Warnings	Unverified Red Flag Warnings	Missed Events	Average Lead Time
14	36	27	9	12	12.9 hrs

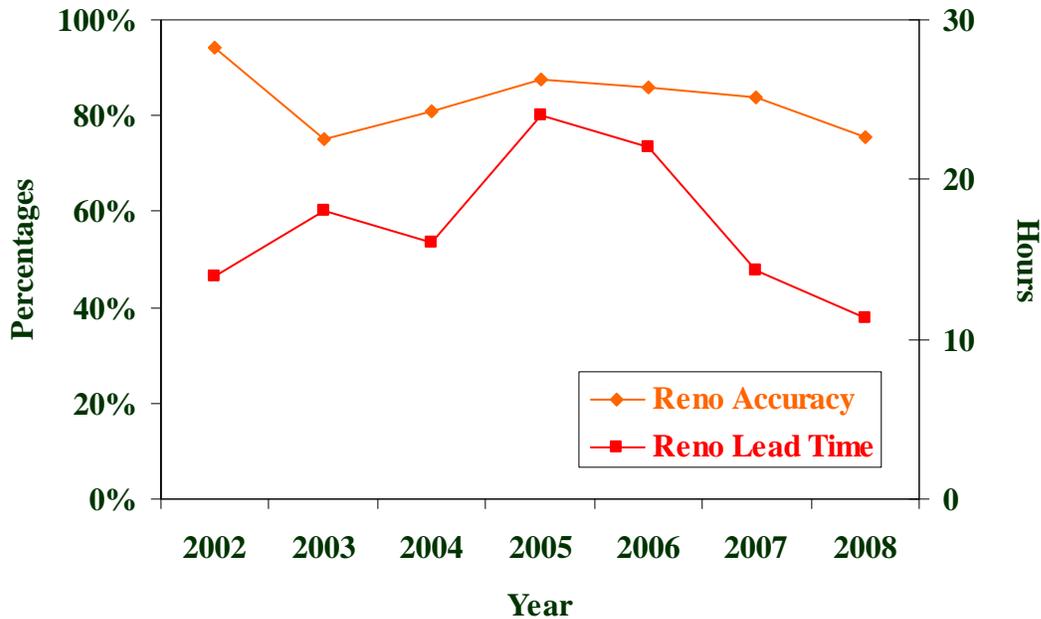
P.O.D.	F.A.R.	C.S.I.
.69	.25	.56

#### **2008 – Reno Dry Lightning Red Flag Statistics**

Dry Lightning Red Flag Event Days	Red Flag Warnings Issued	Verified Red Flag Warnings	Unverified Red Flag Warnings	Missed Events	Average Lead Time
5	24	10	14	0	5.0 hrs

P.O.D.	F.A.R.	C.S.I.
1.0	.58	.41

## WFO Reno Red Flag Verification 2002-2008



### 2008 – Reno Fire Weather Watch Statistics

Watches Issued	Warnings Preceded by Watches	Verified Watches
35	33	20

<i>Dry Lightning</i> Watches Issued	<i>Dry Lightning</i> Warnings Preceded by Watches	<i>Dry Lightning</i> Verified Watches
15	13	2
<i>Relative Humidity and Wind</i> Watches Issued	<i>Relative Humidity and Wind</i> Warnings Preceded by Watches	<i>Relative Humidity and Wind</i> Verified Watches
20	20	18

Additional details are in MS Excel file **\*2008REDF.xls.\***

The file contains:

- Sheet 1: Summary of Red Flag Warnings and Fire Weather Watches.
- Sheet 2: Summary of Spot Forecasts and IMET Dispatches.

## **Spot Forecasts**

WFO Reno issued 276 spot forecasts in 2008. 187 of the spots were in support of prescribed burn operations with 89 spot forecasts for wildfires. Counting updates issued, there were a total of 285 spot forecasts issued. The average return time was 30.5 minutes.

## **4. Monthly Summary of Weather and Fire Activity in the Reno Forecast Area.**

**May:** The first three weeks were warm and generally dry, with a period of unusually warm temperatures from the 17<sup>th</sup> through the 19<sup>th</sup>. During this period, new record highs were set in many cities with temperatures in the mid and upper 90s. However, this heat wave was followed by unseasonably cool and wet conditions for the remainder of the month, which temporarily moderated fire conditions. The same areas which reached the 90s were only reaching the 50s and 60s for the week leading up to the Memorial Day holiday. Rainfall was widespread with many areas receiving between a total of 0.50 to 1 inch, and a few locations over 2 inches. Higher elevations even reported some light snow in late May.

Only one large wildfire, which was not associated with lightning, occurred in the month of May. The “Como” fire southeast of Dayton NV began on the 8<sup>th</sup> and was contained two days later at 476 acres.

**June:** The month was very dry with temperatures near seasonal normal during the first half of the month, followed by warmer conditions for the second half of the month. The fire season was relatively quiet until the first Red Flag Warning was issued on the 21<sup>st</sup> due to an extreme dry lightning outbreak which produced thousands of lightning strikes in northern California. Numerous dry lightning strikes also occurred in western Nevada on the 21<sup>st</sup>. Red Flag Warnings were also in effect for the last three days of the month due to the threat of dry lightning. While lightning strikes were reported in portions of western Nevada mainly on the 29<sup>th</sup> and 30<sup>th</sup>, this event was much less active in comparison to the 21<sup>st</sup>.

The cool and wet end to May resulted in very little fire activity through the first 20 days of June. On the 21<sup>st</sup>, the lightning outbreak produced three large wildfires in the Reno fire zones—the “Little Valley” fire between Wadsworth and Pyramid Lake which was contained the next day at 680 acres; the “Peterson Complex” including the “Popcorn” fire which burned 7,842 acres in western Lassen county (much of this complex burned in Shasta county, outside of the Reno fire zones) before containment on July 1<sup>st</sup>; and the “Corral” fire which burned 12,434 acres in central Lassen county before containment on July 7<sup>th</sup>. Although most of the wildfire activity in northern California was outside of the Reno fire zones, the large volume of smoke from these fires was carried into eastern California and western Nevada, which produced days of poor visibility and reduced air quality through the end of the month. No large wildfires occurred with the lightning event from the 28<sup>th</sup> through the 30<sup>th</sup>.

**July:** Dry conditions continued into the first two weeks of July, with temperatures mainly above normal. The peak of the warm weather occurred on the 9<sup>th</sup> and 10<sup>th</sup> when many lower elevation sites reached or exceeded 100 degrees. Temperatures remained hot through the month although there were some short lived breaks in the dry weather. Scattered showers and wet thunderstorms occurred around Reno on the 14<sup>th</sup> including a flash flood in Stead, with more storms on the 20<sup>th</sup>-21<sup>st</sup>. Areas of wetting rains occurred in portions of west central Nevada east of highway 95 on the 20<sup>th</sup>. Several supercells in west central NV produced severe weather and local flooding on the 21<sup>st</sup>. Southwest to west winds began to increase during the final week of the month with gusts close to Red Flag criteria on most days.

Although no new large wildfires occurred in the first half of July, smoke and haze continued to spread over eastern California and western Nevada from active northern California wildfires which began on June 21<sup>st</sup>. On some of these days, the smoke produced poor visibility and reduced air quality. Only one lightning strike was detected across all of eastern California and western Nevada on the 29<sup>th</sup>, but it ignited the "Gooseberry" fire in far western Nevada about 10 miles southeast of Doyle, CA. This fire grew to just over 3000 acres before being contained on the 31<sup>st</sup>. Otherwise, smoke and haze continued over parts of the region through the rest of the month due to some of the active fires in Northern California.

**August:** Warm and dry conditions for the first three days of the month transitioned into a short term monsoon pattern from the 4<sup>th</sup> through 6<sup>th</sup>. Wet thunderstorms moved across Mono, Mineral and Lassen counties on the 4<sup>th</sup>, and then much of western NV on the 5<sup>th</sup>. Dry and hot weather returned to the region with several days of 100 degree temperatures in lower elevations between the 13<sup>th</sup> and 17<sup>th</sup>. Many locations received their warmest temperatures of the year on the 15<sup>th</sup>. Isolated thunderstorms developed near the Sierra Crest on the 16<sup>th</sup>, and over portions of eastern California and western Nevada on the 17<sup>th</sup>. A cold front then brought cooler conditions with increased winds on the 18<sup>th</sup> and 19<sup>th</sup>. Temperatures in the valleys warmed back up into the 90s from the 20<sup>th</sup> through 24<sup>th</sup>, before a stronger cold front brought gusty winds to the region on the 25<sup>th</sup>, with a Red Flag Warning in effect. This pattern repeated during the final week of August, with a quick return to 90s in the valleys from the 27<sup>th</sup> through the 30<sup>th</sup>, followed by a strong cold front passage late in the afternoon on the 30<sup>th</sup> and into the 31<sup>st</sup>. Red Flag Warnings were in effect for the final two days of the month due to the combination of windy conditions and very low humidity below 5 percent in some areas.

The first fire of the month was the "Sherwin" fire about 3 miles southeast of Mammoth Lakes CA. This fire, which was not associated with lightning, began on the 3<sup>rd</sup> and was contained on the 8<sup>th</sup> at nearly 350 acres. Lightning ignited the "Silver Creek" fire about 20 miles northwest of Bridgeport on the 17<sup>th</sup>, which was contained on the 23<sup>rd</sup> at 680 acres. The last fire of the month also not associated with lightning, the "Burnside" fire in Alpine county west of Woodfords, began on the 31<sup>st</sup> and was contained on September 4<sup>th</sup> at 216 acres.

**September:** The month started out dry with unseasonable temperatures only reaching the lower 70s in lower elevations on the 1<sup>st</sup>, followed by a quick warmup into the 90s from the 4<sup>th</sup> through 8<sup>th</sup>. A weak cold front passage on the 9<sup>th</sup> moderated temperatures

slightly before a ridge rebuilt over the region through the middle of the month bringing temperatures back into the lower 90s. Weak low pressure systems brought scattered showers and thunderstorms to northeast California and northwest Nevada north on the 16<sup>th</sup> and again on the 19<sup>th</sup>. Rainfall to near 0.10 inch fell in far northwest Nevada on the 19<sup>th</sup>, otherwise little or no measurable rainfall was reported with most of the thunderstorm activity.

Lightning ignited a few small fires in northwest Nevada during the middle of the month, but only the "Vinegar" fire about 25 miles north of Reno grew to reach large fire status on the 19<sup>th</sup>, which was contained at 382 acres two days later.

**October:** After a warm start to the month, a cold front brought much cooler weather to the region with some wetting rains to northeast California, the Lake Tahoe basin and far northwest Nevada on the night of the 3<sup>rd</sup>. After a Red Flag Warning was issued due to low humidity and gusty winds on the 9<sup>th</sup>, a stronger and much colder storm reached the region on the 10<sup>th</sup>. This storm brought up to a few inches of snow to portions of western Nevada including the Reno-Sparks area, and also into the Sierra and the Lake Tahoe basin. Cold conditions continued through the 12<sup>th</sup>, followed by a quick warmup for the middle of the month. Another weak dry cold front moved through the region on the 20<sup>th</sup>, then warm conditions returned through the final week of the month. During the first three days of November, just after the end of the fire season, a widespread wetting rain event occurred over most of the region, with snow in the higher elevations.

The only large wildfire in the month of October was the "Peterson" fire near Cold Springs NV. This fire, which was not associated with lightning, began on the 25<sup>th</sup> and was contained one day later at 1190 acres.

## **5. IMET Dispatches**

WFO Reno has two certified IMETs on station, Jim Wallmann and Chris Jordan. Alex Hoon has begun prerequisite IMET training and will begin training dispatches in 2009. IMETs from WFO Reno were dispatched 7 times for a total of 79 days (counting travel).

IMET Dispatches for Jim Wallmann:

1. Oliver (near Mariposa CA), June 27-July 4.
2. Iron Complex (near Junction City CA), July 9-24.
3. Sherwin (Mammoth Lakes CA), August 5-9.
4. Chalk (near Fort Hunter Liggett CA), September 29-October 11.

IMET Dispatches for Chris Jordan:

1. Humboldt (near Chico CA), June 11-15.
2. Mendocino Lightning Complex (Mendocino County CA), June 23-July 7.
3. Butte Lightning Complex (near Chico CA), July 15-31.

IMET Dispatches within our area:

1. Chuck Redmann (BOI), Corral (near Susanville CA), June 26-July 8.
2. James Wallmann (REV), Sherwin (Mammoth Lakes CA), August 5-9.
3. Mark Struthwolf (SLC), Silver Creek (near Bridgeport CA), August 20-23.

## **6. Liaison Work and Training**

Chris Jordan provides weather briefings at monthly Sierra Front Interagency Cooperators meetings. Agencies present include Humboldt-Toiyabe NF, Tahoe NF, Lake Tahoe Basin Management Unit, BLM, CDF, NDF, BIA, Reno Fire Dept, Sparks Fire Dept, Carson City Fire Dept, and numerous other local fire districts. Several FMOs from the area attend the meetings.

Chris Jordan and Ray Collins continue to work with WGB GACC to refine the online briefing webpage.

Chris Jordan worked with the Lake Tahoe Basin Fire Commission to improve prescribed fire forecasts. The commission consisted of various fire agencies with an interest in prescribed fire, various county and planning agency members, the Northern CA GACC, and various Air Resources Board agencies.

Chris Jordan and Wendell Hohmann went to the Inyo Dispatch Center for end of season input meeting.

Chris Jordan and Wendell Hohmann met with Steve Goldstein (WFO Sacramento) at the Grass Valley Dispatch Center for end of season input meeting.

Chris Jordan met with Steve Goldstein at the Quincy and Susanville Dispatch Centers for end of season input meetings.

Chris Jordan gave a talk on Red Flag Warnings and NWS products to a S290 class at Lassen County Community College.

Chris Jordan and Gina McGuire attended the Wildland Urban Interface conference in Reno.

Chris Jordan and Gina McGuire hosted 50 WUI conference attendees for a tour of the office and gave a presentation of general operations.

James Wallmann taught the weather portion of a S290 course all day at Lake Tahoe.

James Wallmann and Chris Jordan attended the 2008 IMET Workshop in Boise, ID in March.

James Wallmann and Alex Hoon gave fire weather talks to the Cedarville BLM firefighters and Surprise Valley volunteers.

Chris Jordan and Chris Smallcomb (SOO) attended the CA AOP meeting.

Chris Jordan taught a fire weather refresher course at NAS Fallon.

James Wallmann taught the weather portion of a S290 course all day in Truckee.

Chris Jordan taught the weather portion of a S290 course all day at Lake Tahoe.

Forecasters Alex Hoon, Brian Brong, Chris Smallcomb, and Shane Snyder went to a prescribed burn to observe firing operations.

Chris Jordan, Rhett Milne, James Wallmann, Jane Hollingsworth (MIC), and Carl Gorski (MSD) met with Norb Szczurek at North Lake Tahoe Fire Protection District as part of a MSD Program Review.

Chris Jordan, Rhett Milne, James Wallmann, and Carl Gorski met with WGB GACC representatives for lunch followed by a tour of the GACC as part of MSD Program Review.

Chris Jordan organized a Fire Weather Workshop at WFO Reno before the start of fire season. WFO Reno and WFO Elko staff members attended the workshop as well as guests from the WGB GACC and a guest speaker from the Susanville Interagency Dispatch Center.

James Wallmann taught the weather portion of a S290 course all day in Gardnerville. Forecaster Alex Hoon was also in attendance for future S290 courses.

All forecasters went through a fire weather drill prior to the start of fire season.

Chris Jordan and Chuck Redman (WFO Boise) gave a talk on NWS products/services and a tour of WFO Boise for FBAN conference.

Chris Jordan gave a weather briefing and seasonal outlook to a group of NDF staff in Carson City and via teleconference to Elko.

James Wallmann taught the weather portion of a S290 course all day at Lake Tahoe.

Chris Jordan and Rhett Milne hosted a post-season meeting with staff from the WGB GACC and the Nevada WFOs.

Jane Hollingsworth attended the California fire weather post-season meeting in Sacramento.