

# Great Basin Live



## Fuel Moisture Project



## Great Basin Live Fuel Moisture Project Overview

2002

Nevada has experienced its fourth year of consecutive drought, which has ranged from moderate in Northern Nevada and severe to extreme in Southern Nevada. Precipitation over the past four years has been well below normal and snow pack has been less than 75 percent of normal for most areas. The prevailing weather pattern across the great basin since the end of spring 2001 has been controlled by the El-Niño/Southern oscillation (ENSO), which is considered to be neutral with no El Niño or La Niña effects. The winter of 2001 was influenced by a gradually weakening episode of La Niña (cool surface waters in the equatorial Pacific Ocean). During the winter of 2001 Nevada received below normal precipitation and experienced hotter and drier conditions than normal.

### 1. Contributing Factors

Record high temperatures and well below normal precipitation across Nevada led to extreme drought during the summer of 2002. An additional year of drought, low snowfall, and record setting spring temperatures led to extremely dry fuel conditions throughout Nevada and the Great Basin. The extremely low fuel moistures gave the 2002 fire season the potential to be as severe as the 1999 fire season. The dangerous conditions Nevada faced were high probabilities of ignition, high rate of spread, increased flame lengths, and high intensity fires. Conditions that gave the potential of large intense fires were: the accumulation of fine fuels from previous the years growth, low relative humidities, poor relative humidity recovery, low fuel moistures in both live and dead fuels, low precipitation accumulations, and high temperatures.

Normal to below normal precipitation during the winter was observed ranging from 70% to 129% in the Northern Great Basin. Below normal to well below normal precipitation accumulations ranging from 69% to less than 50% were observed in Southern Nevada. Early spring warming caused reduced snow packs to melt early and left below normal water

reserves for the summer. The early spring warm-up also led to an early green-up in central and southern Nevada. The deficit of precipitation in central and southern Nevada led to a shortened green-up period and early curing of fine fuels (**Figure 1**, Twelve month Standardized Precipitation Index for September 2001 through August 2002).

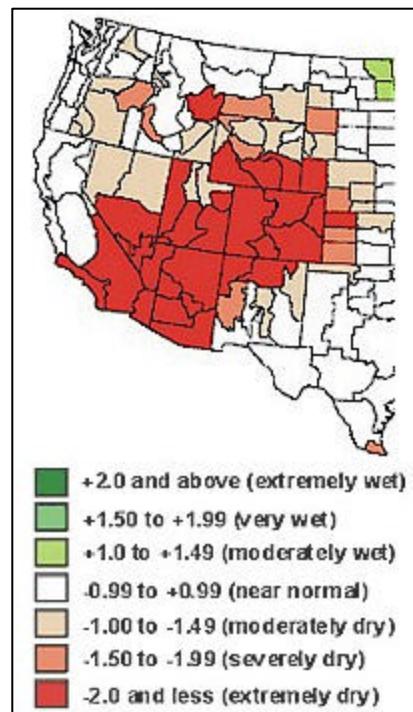


Figure 1

Live fuel moisture values began to decline as early as the end of May this year as a result from above normal temperatures and below normal precipitation. The live fuel moisture values in the central Nevada dropped sooner than in northern Nevada. Southern Nevada's live fuel moisture

values were critically low during the 2002 fire season, with average live fuel moisture values falling within the extreme and advanced categories for the duration of the summer. Burning conditions were 3 to 4 weeks ahead of schedule in both central and southern Nevada. The 1000-hour dead fuel moistures were also below average for most of the fire season throughout Nevada. Live fuel moistures and 1000-hour fuel moistures were at critical levels from May through October for most of Nevada. (**Figure 2**, Fire Potential Index July 30, 2002).

During the 2002 fire season daytime temperatures were up to ten degrees Fahrenheit above normal were observed in some portions of Nevada. In some cases, these high temperatures tended to occur over extended time periods, and not just as single events.

Moderate to extreme drought was observed for most of the state throughout the summer and into the fall. Relative humidity values were below normal for the duration of the summer as a result of high temperatures and below normal monsoonal moisture. The contributing factors that caused extreme and advanced fire behavior to occur were low relative humidity, high temperatures, below normal precipitation, and above normal temperatures.

The 2002 fire season terminated earlier in the fall than the 2001 fire season. This years fire season ended in early October, while last year's fire season ended in mid November.

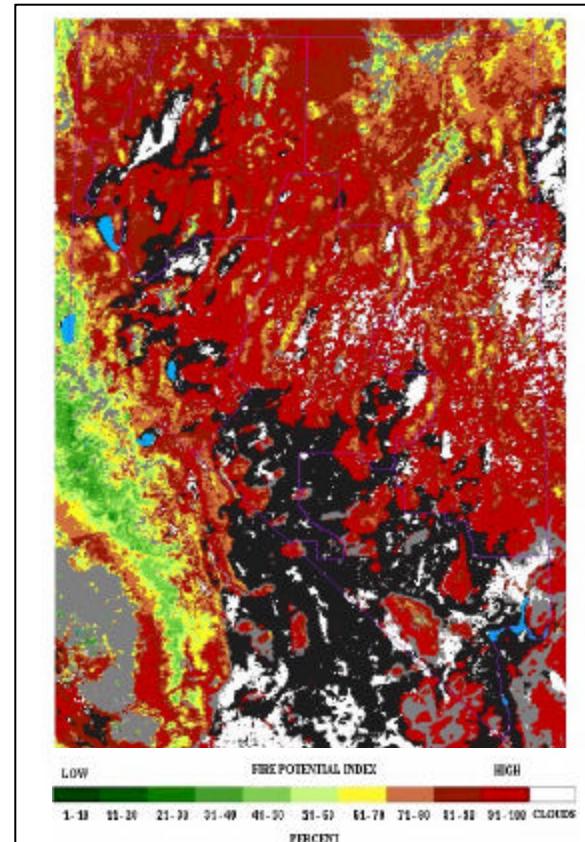


Figure 2

## 2. Great Basin Live Fuel Moisture Statistics

The sampling sites for this field season included: Nevada, California, Idaho, Oregon, and Wyoming (Utah's live fuel moisture values are posted to the web site, but are not analyzed in Nevada state office). There were four new sites added to the program this year. All of the new sites that were added are located in Idaho. The various agencies that participate in the project are the Bureau of Land Management, U.S. Forest Service, and California Division of Forestry. The Great Basin Live Fuel Moisture Project continues to be available on the Internet at [www.nv.blm.gov/fuels/GLBLFMP.html](http://www.nv.blm.gov/fuels/GLBLFMP.html).

The graphs on the subsequent pages show the live fuel moisture values for the 2002 sampling season, which began in late March and ended in late October. The 2001, and 2002 biweekly sampling data as well as the average line data are also displayed on the graphs. The average line is based on more than three years of data. Most of the sampling sites have been in existence for more than eleven years and some of the sites have existed for as long as 19 years.

### **3. Thousand Hour Time Lag Fuel Statistics**

The thousand hour time lag fuel graphs depict the moisture trapped within fuels that range between 3 to eight inches in diameter. Any peaks in the graphs represent significant precipitation events that lasted several days. The graphs in this report depict values that were well below average for the fire season, due to a lack of precipitation and record high temperatures.

### **4. Pinion Pine Fuel Statistics**

This was the sixth year for the Pinion Pine fuel moisture report. The graphs show live fuel moisture values in the below average to average range from May through July. The live fuel moisture values (pinyon) peaked in mid-August, and declined at the end of August after new growth had ceased.

### **5. Missed Sampling Periods**

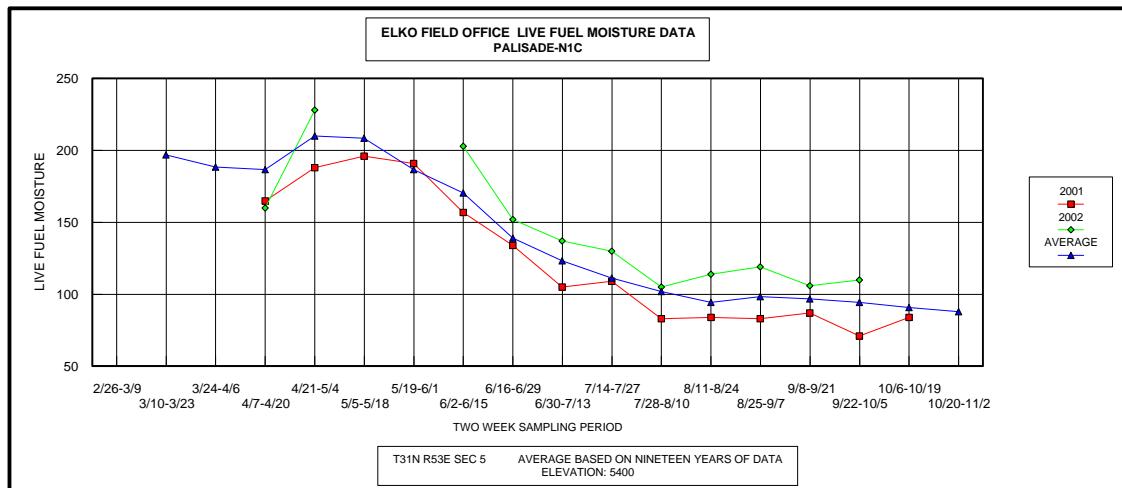
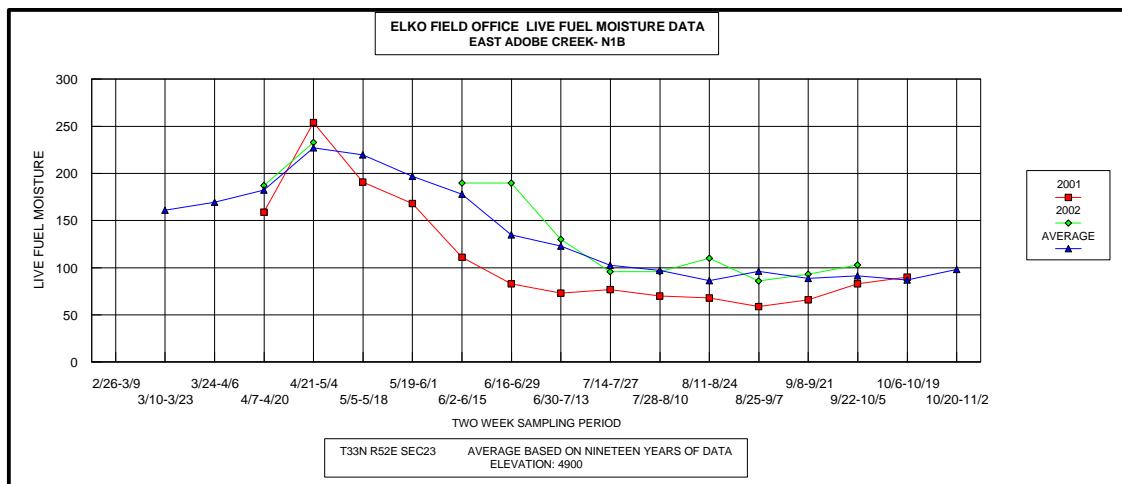
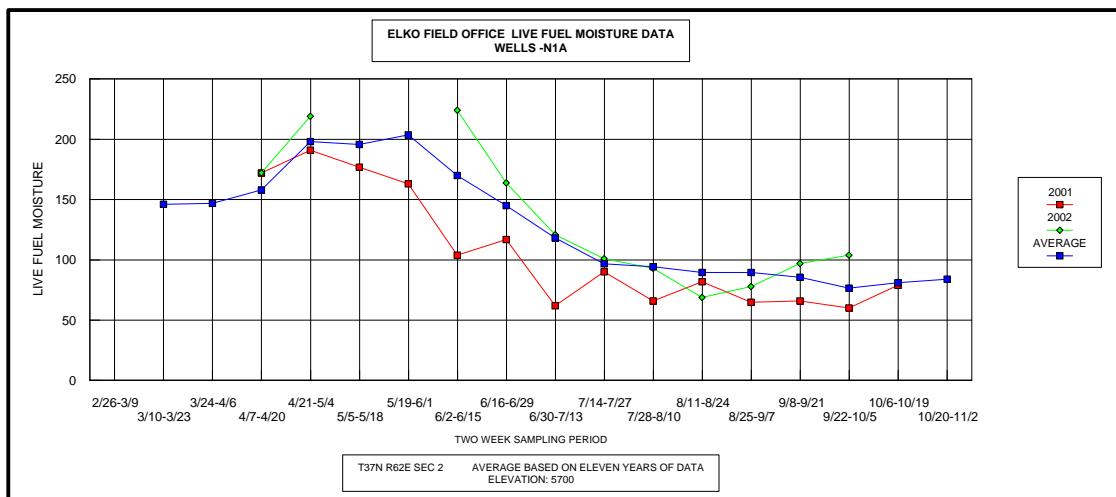
This report shows how many sample periods were missed during the field season. There are breaks in the graphs that show the actual sampling periods that were missed.

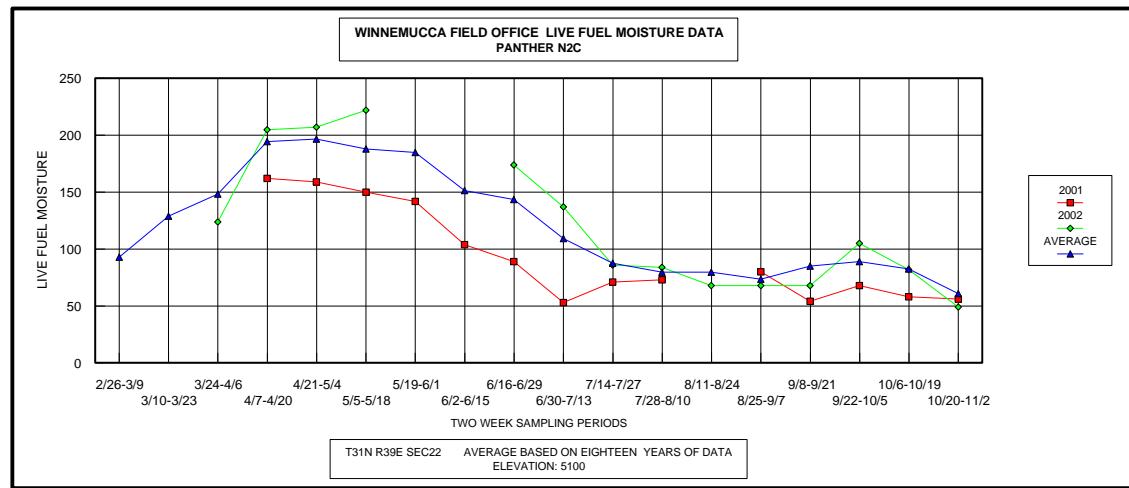
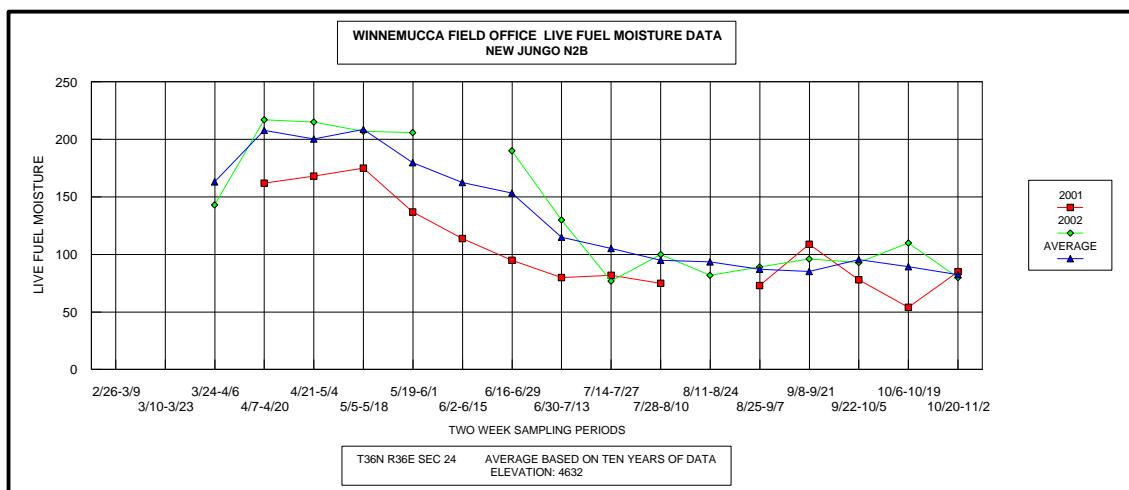
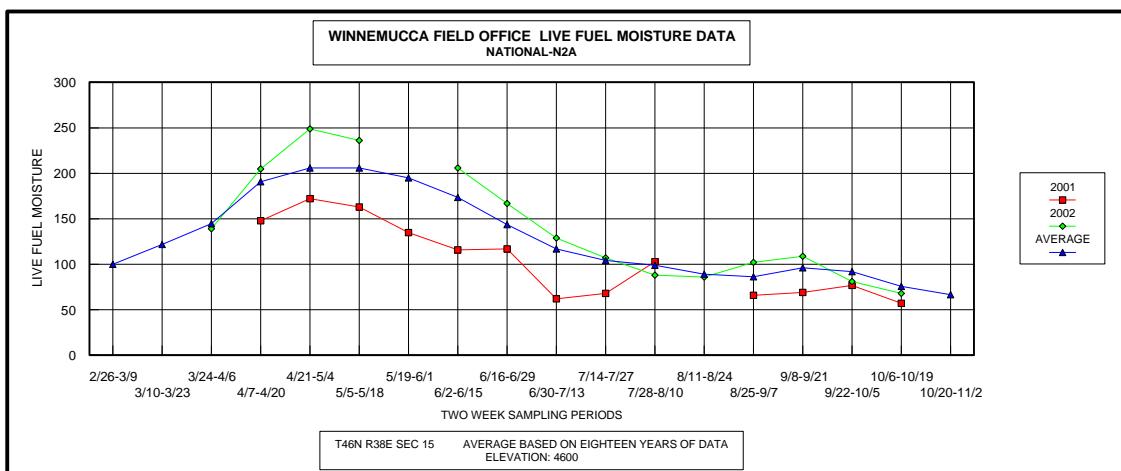
### **6. Precipitation Totals**

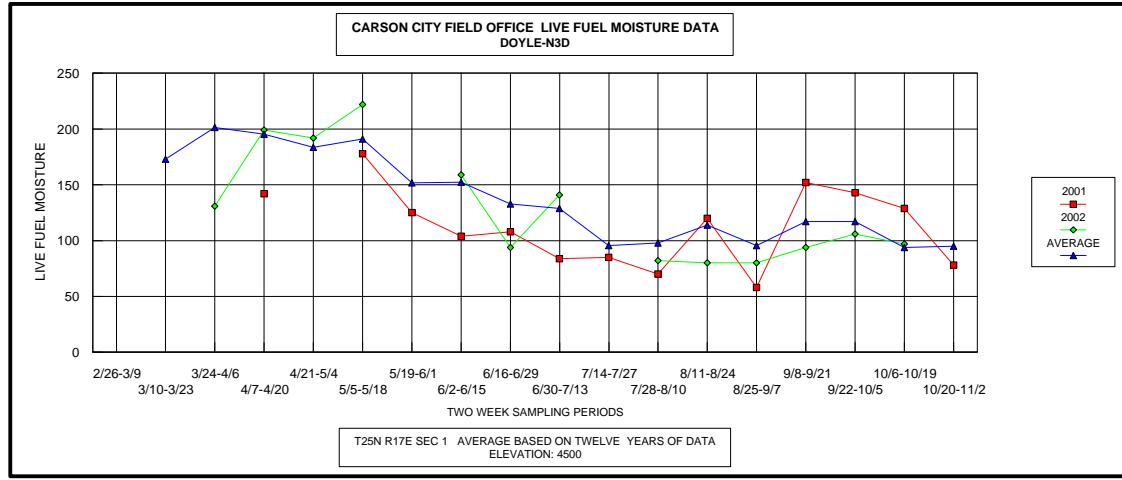
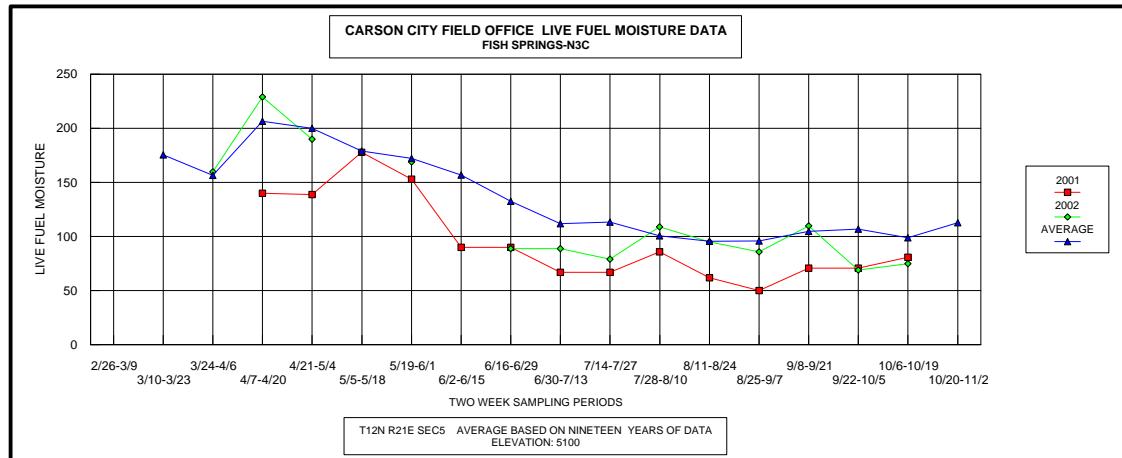
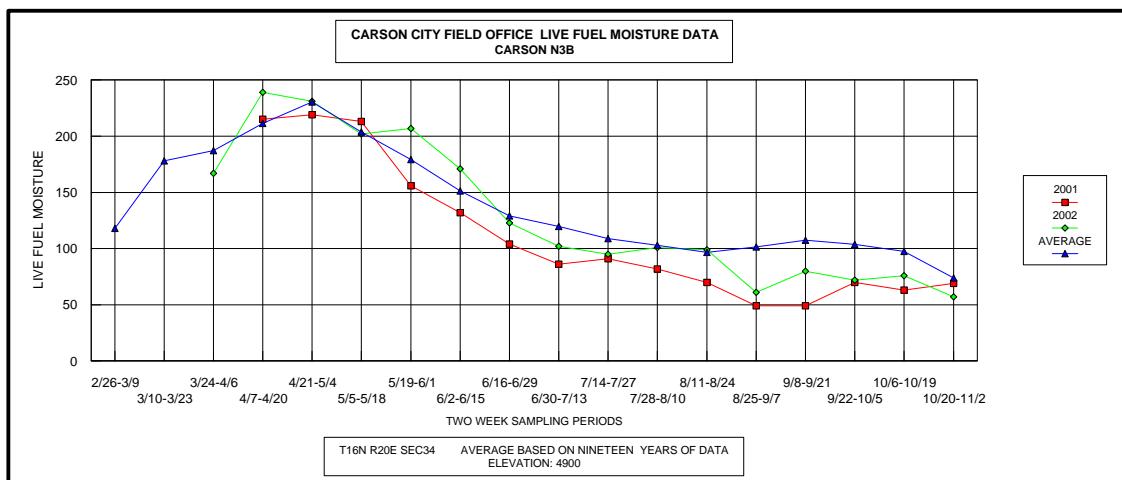
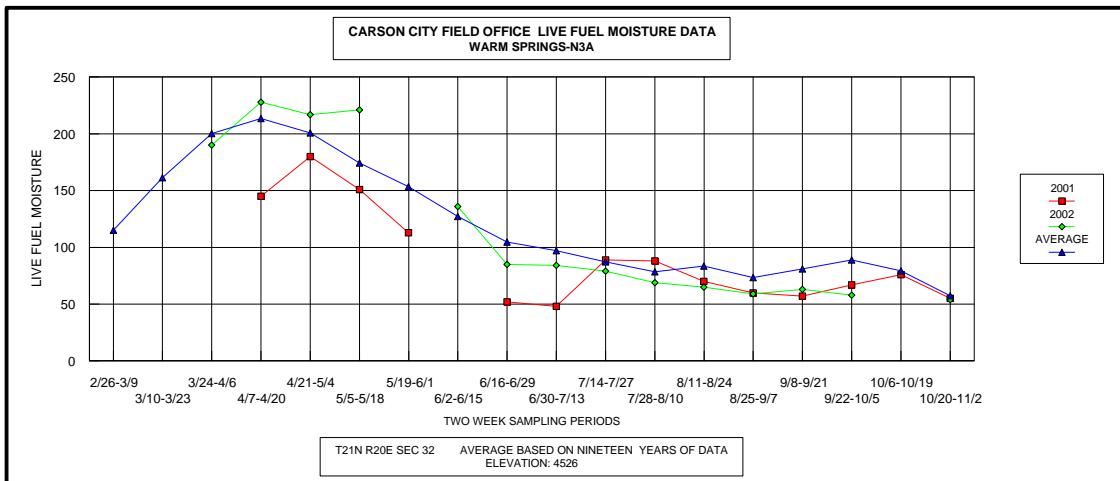
These graphs depict the precipitation amounts from the Automatic Raws (RAWS) throughout the state.

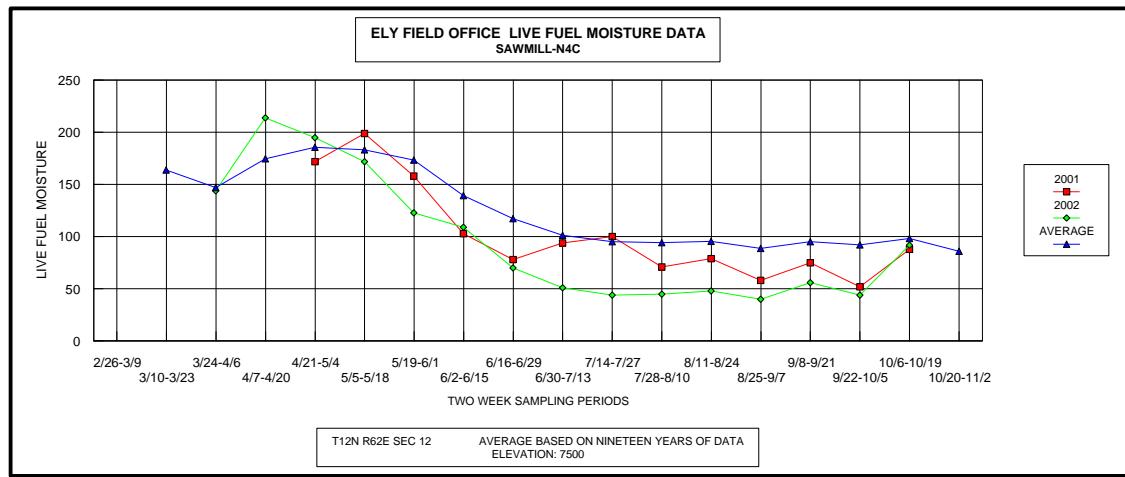
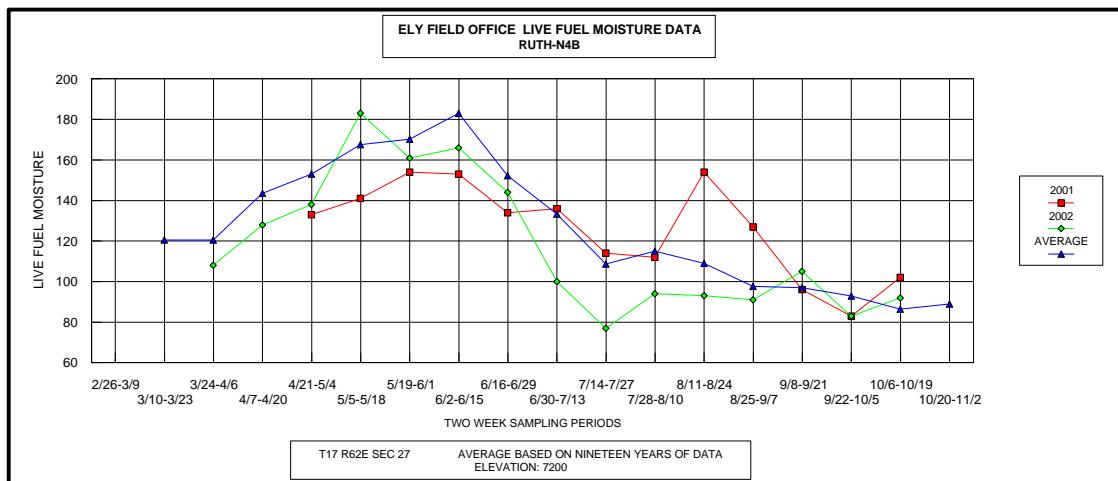
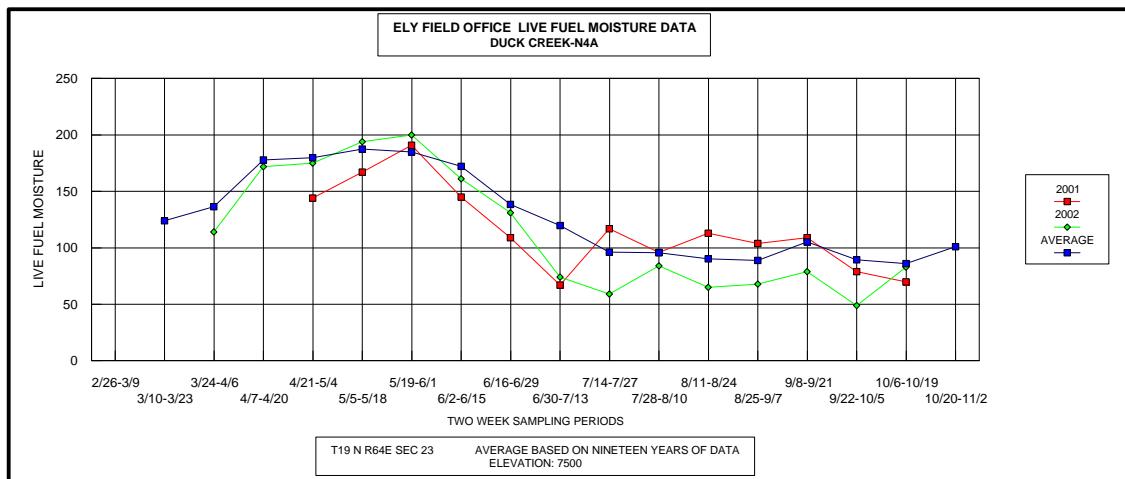
### **7. Fire Danger Rating Graphs (Burning Indexes)**

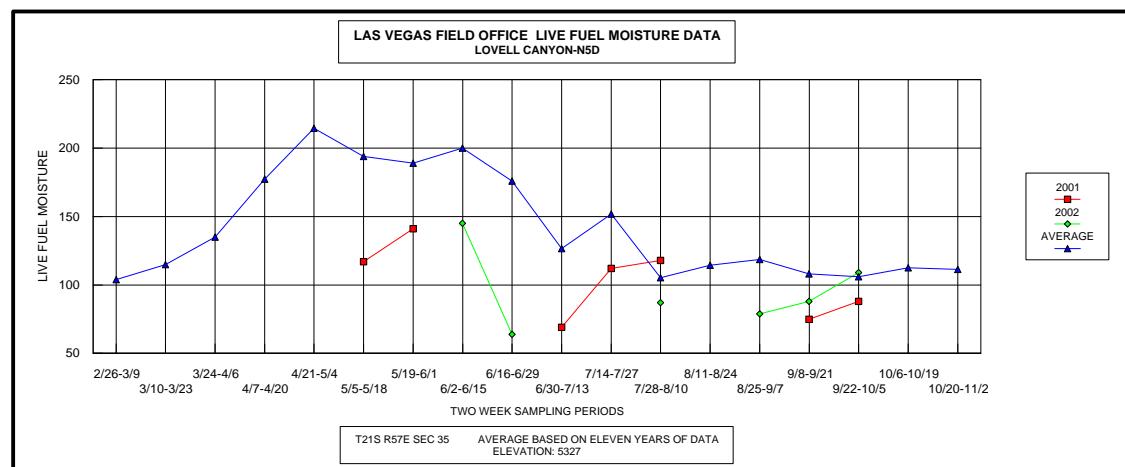
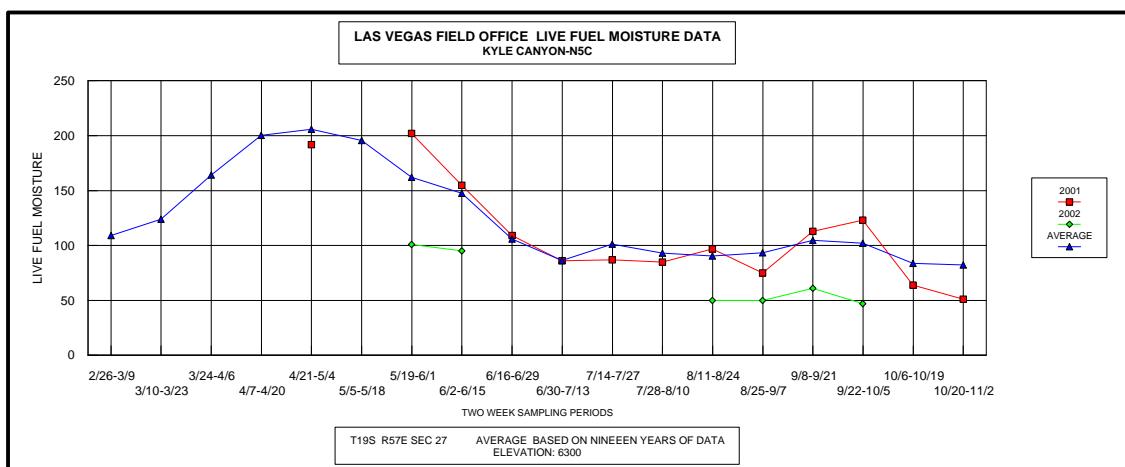
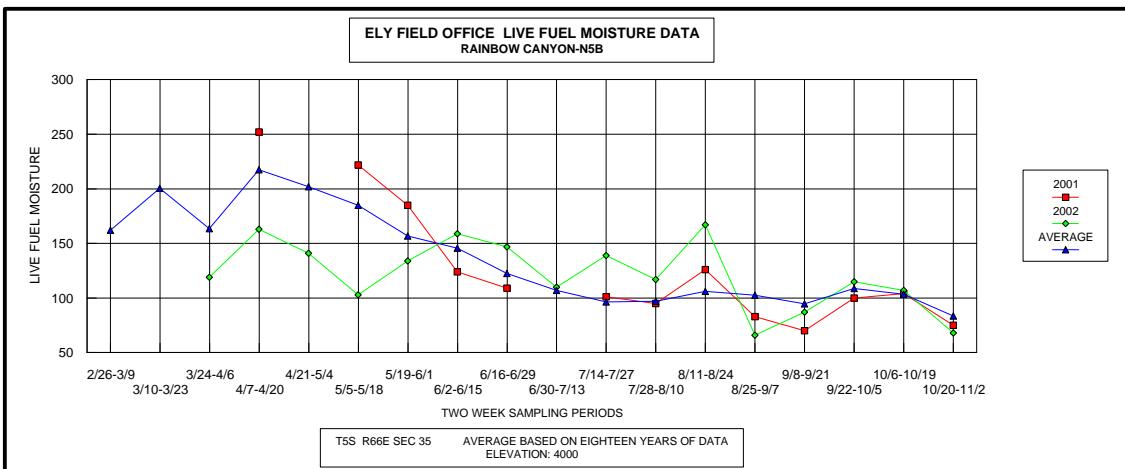
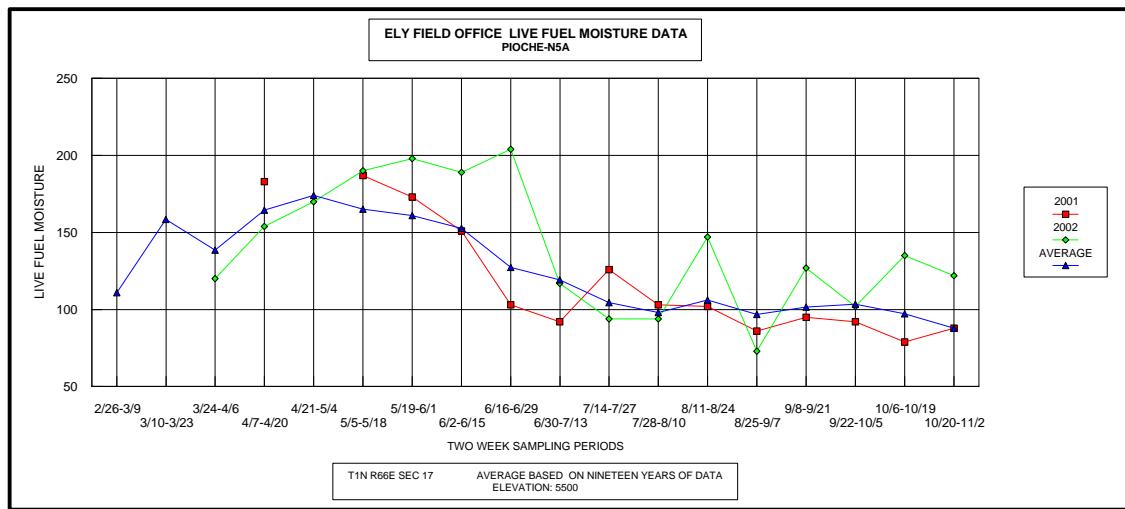
This section shows the representative burning indexes or energy release components for representative RAWS stations.

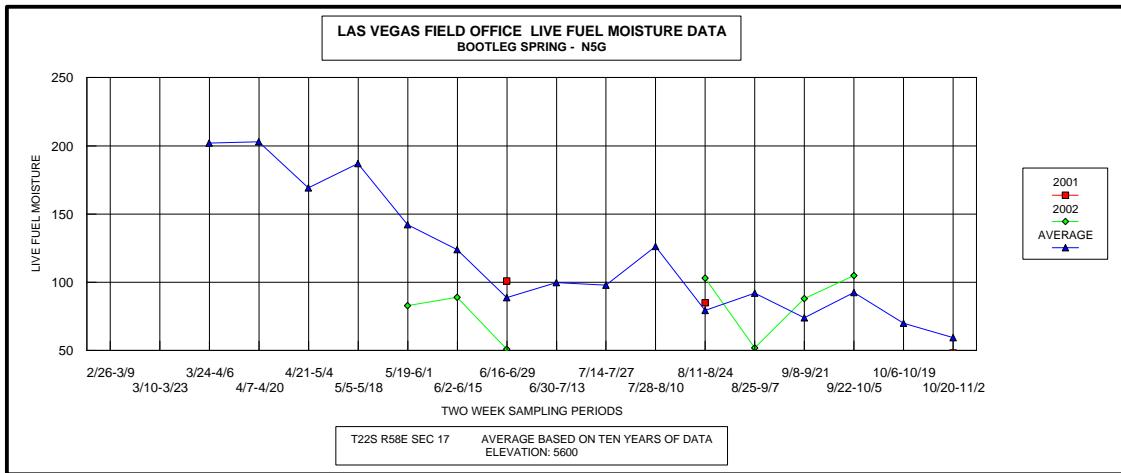
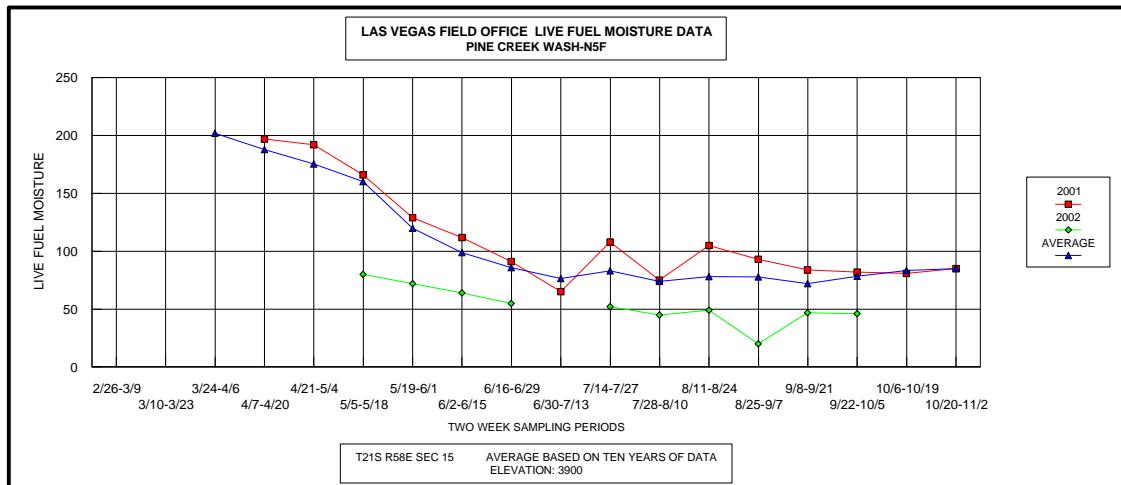
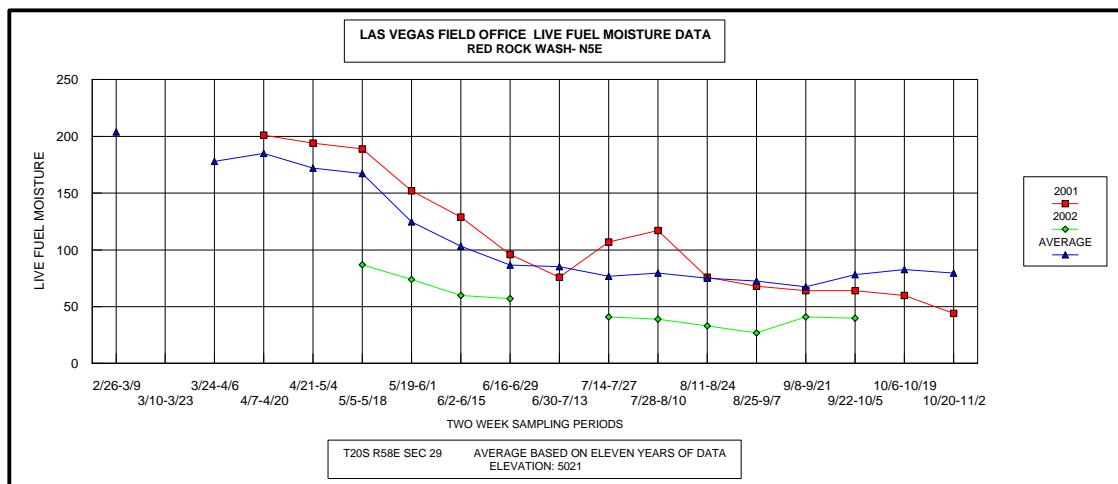


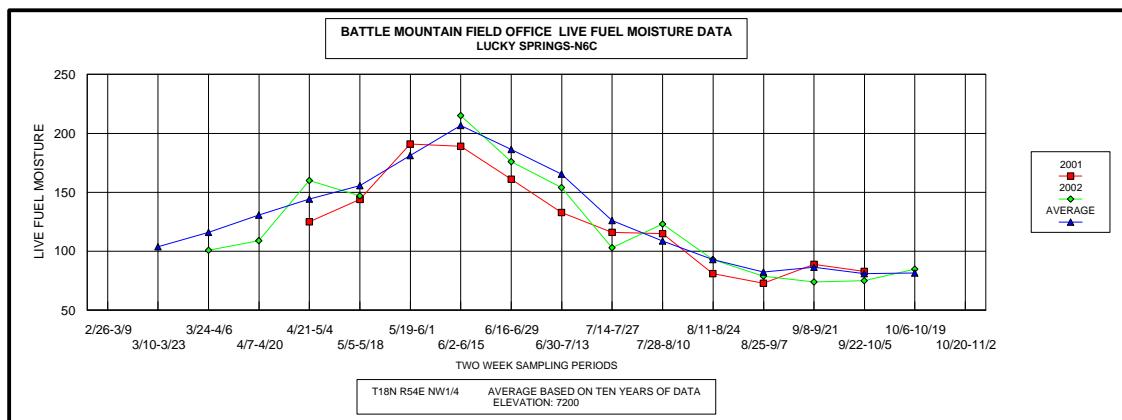
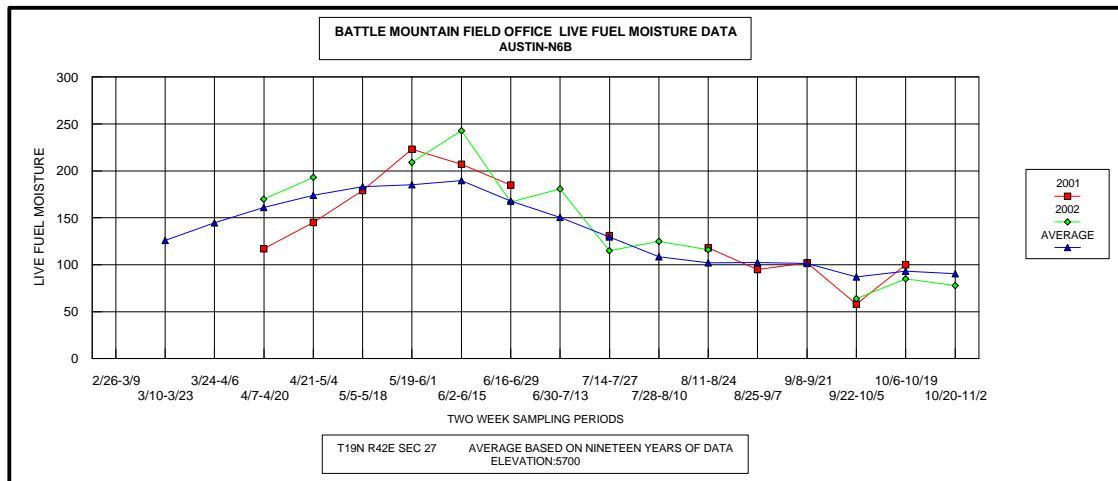
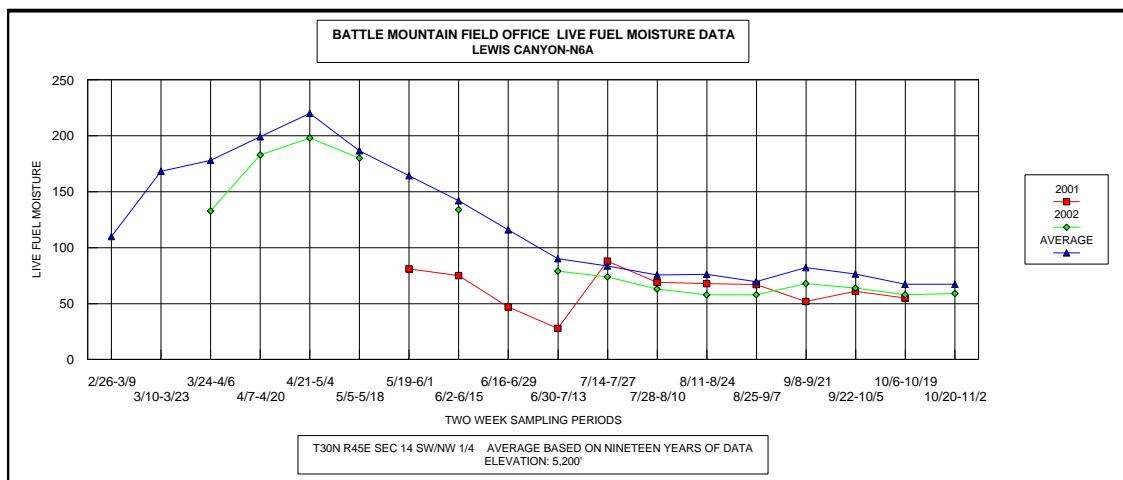


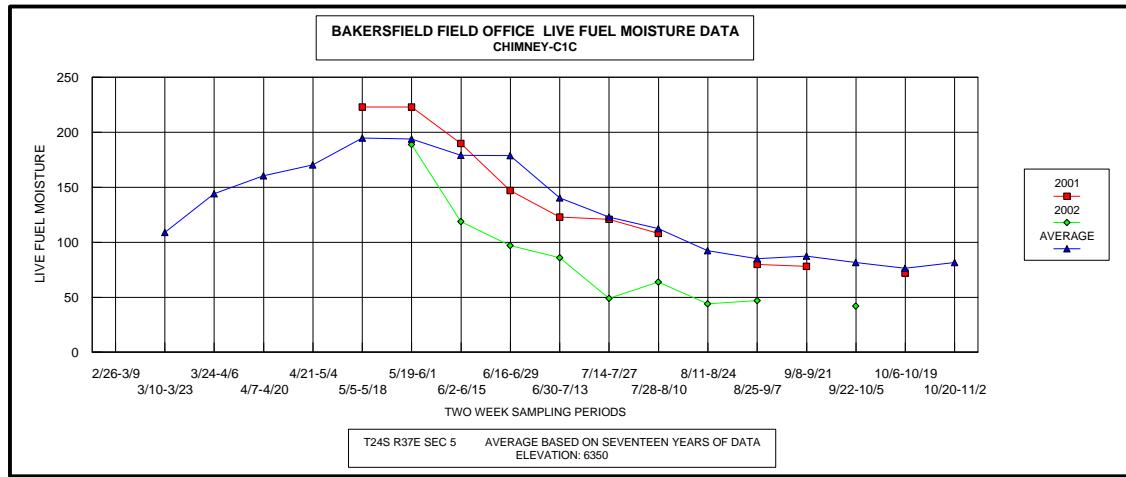
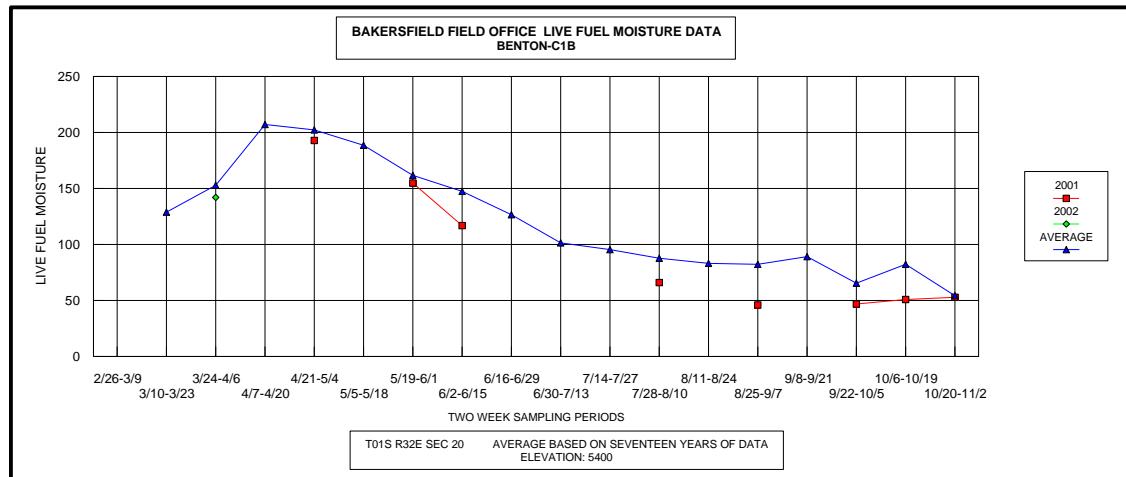
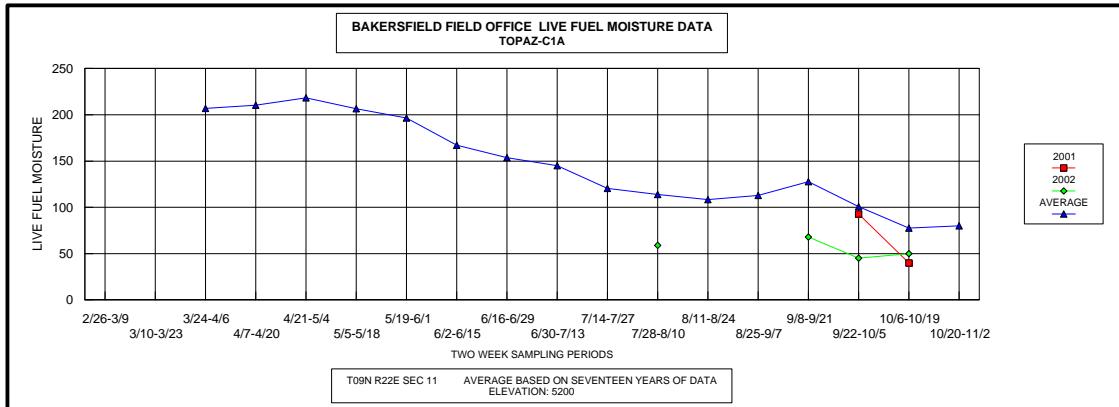


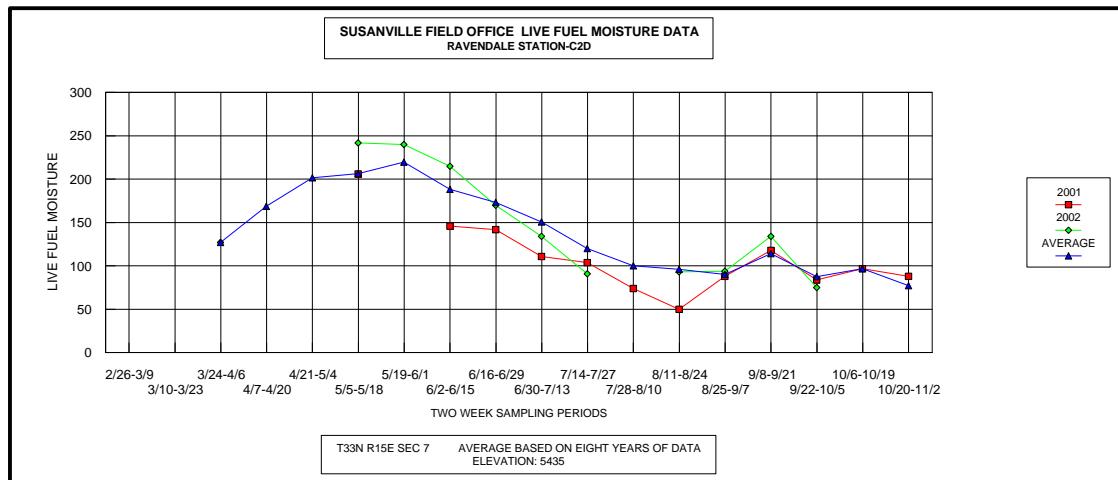
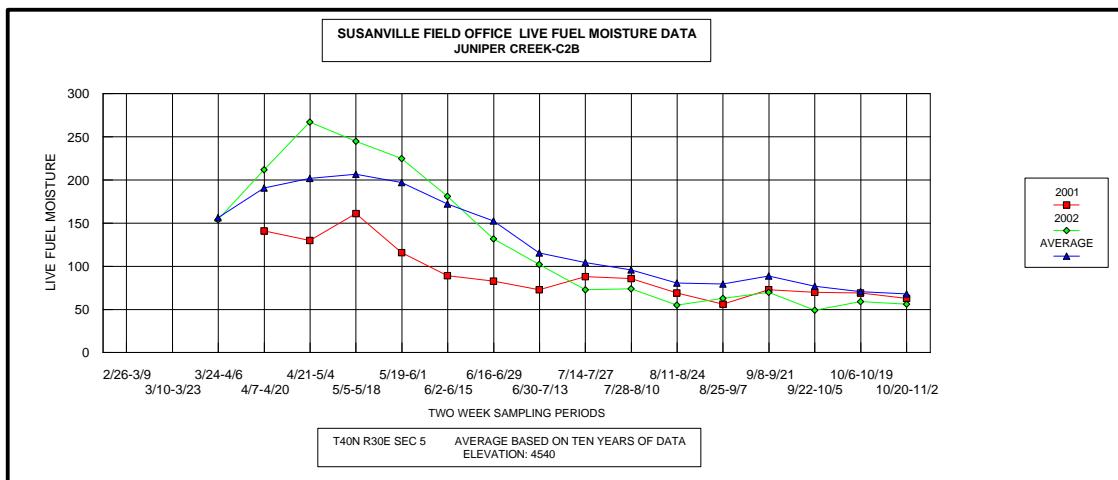
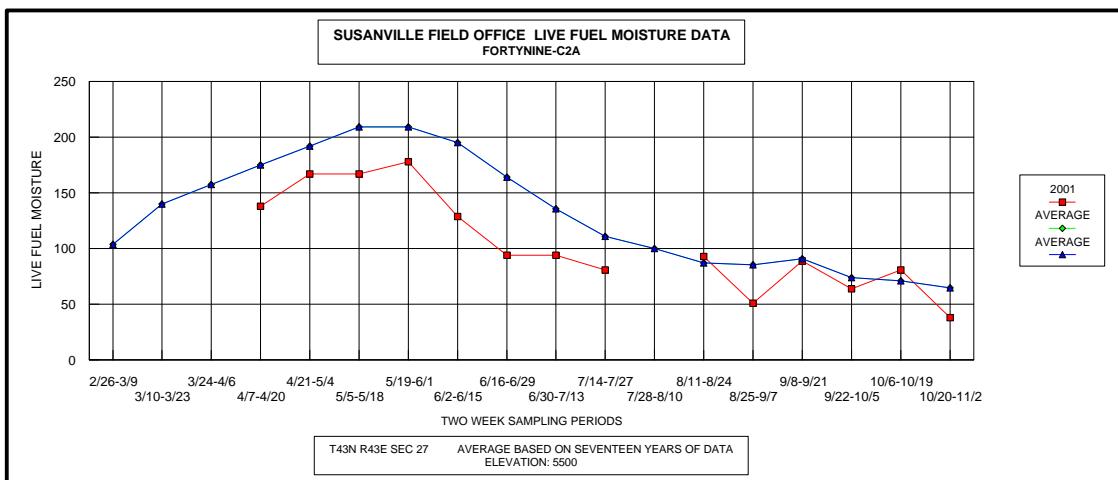


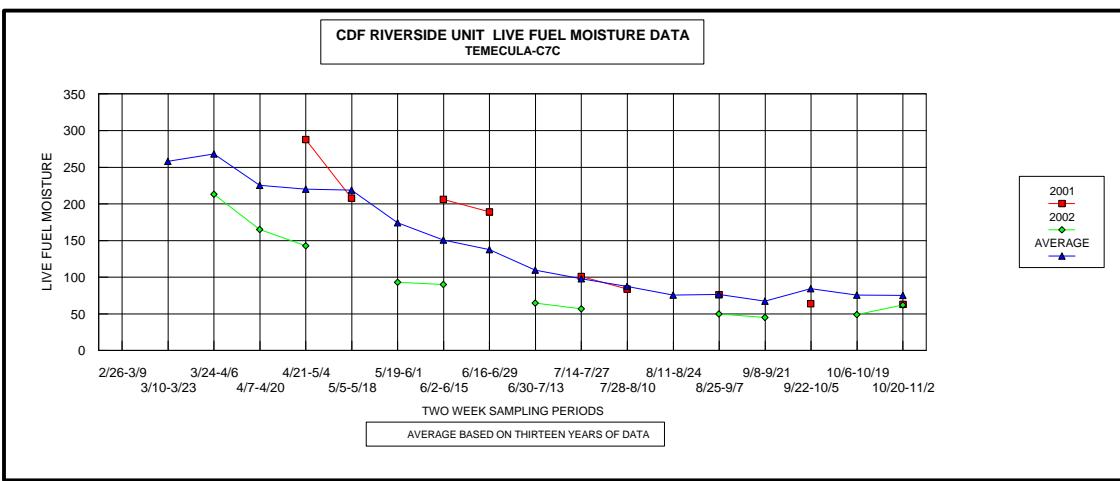
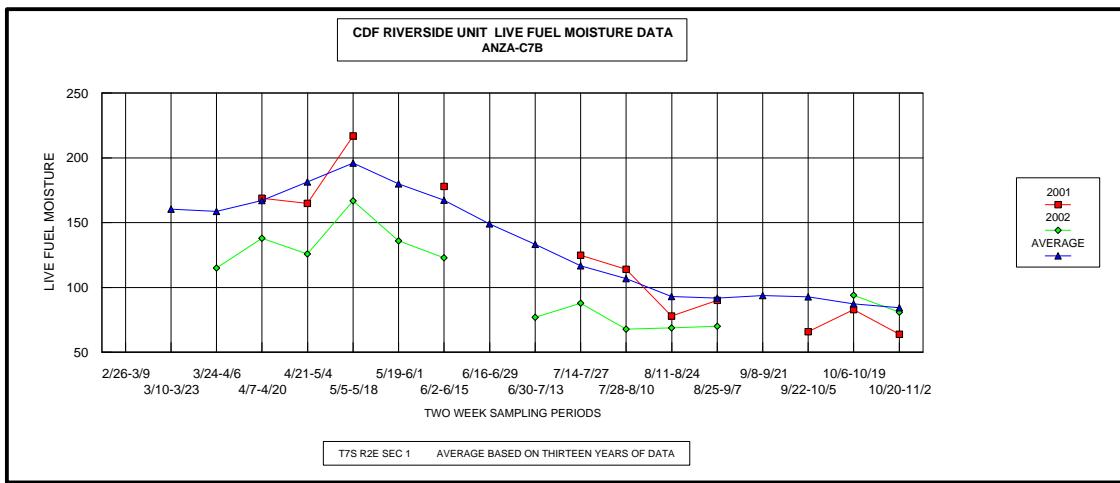
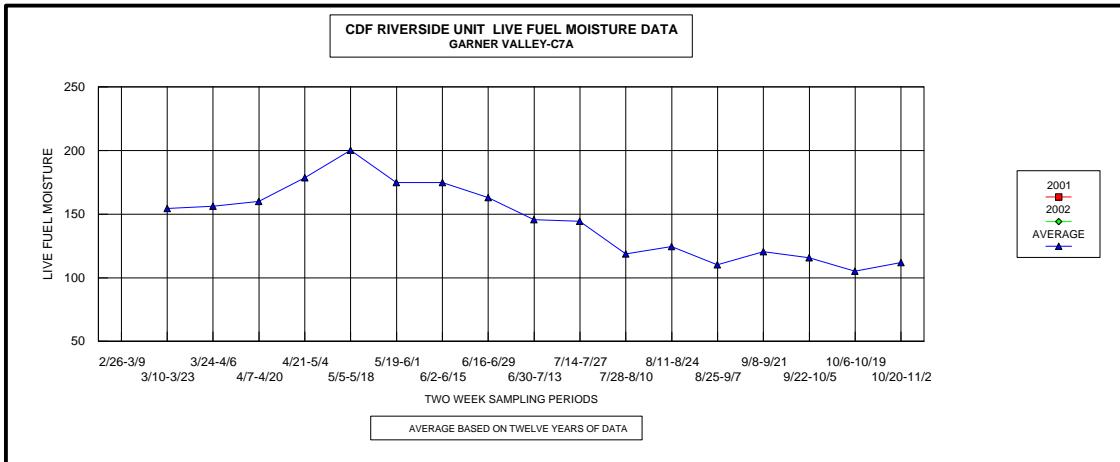
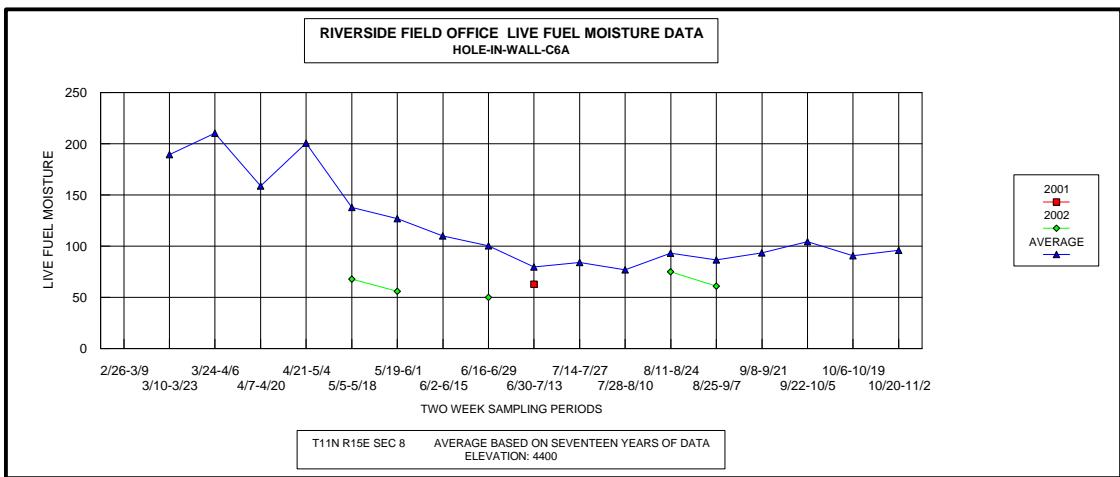


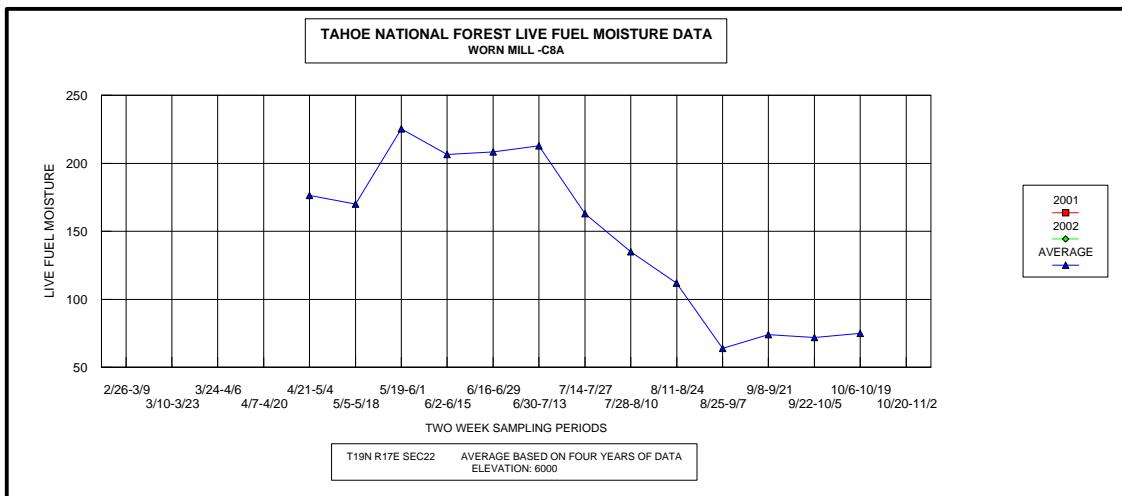


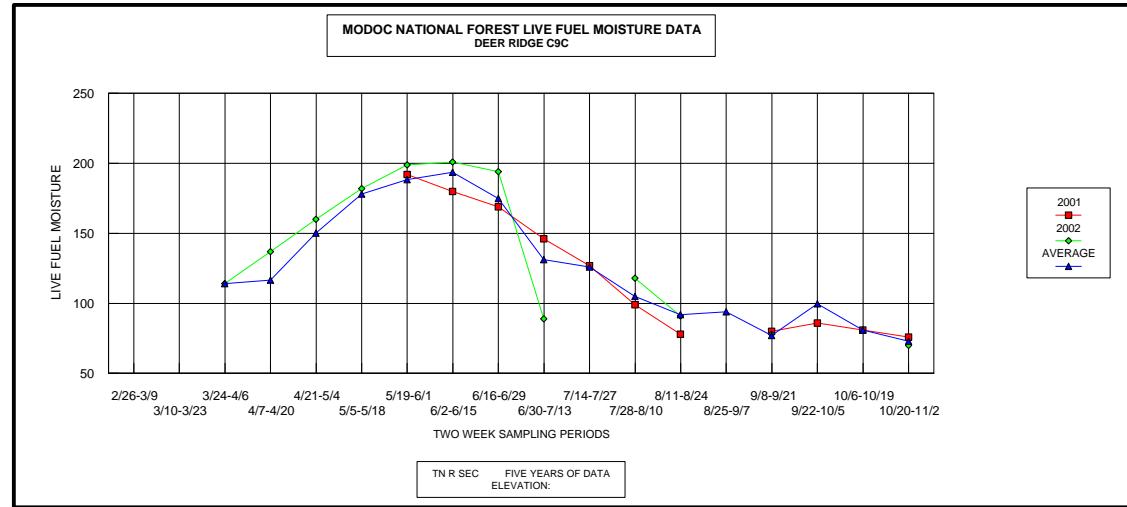
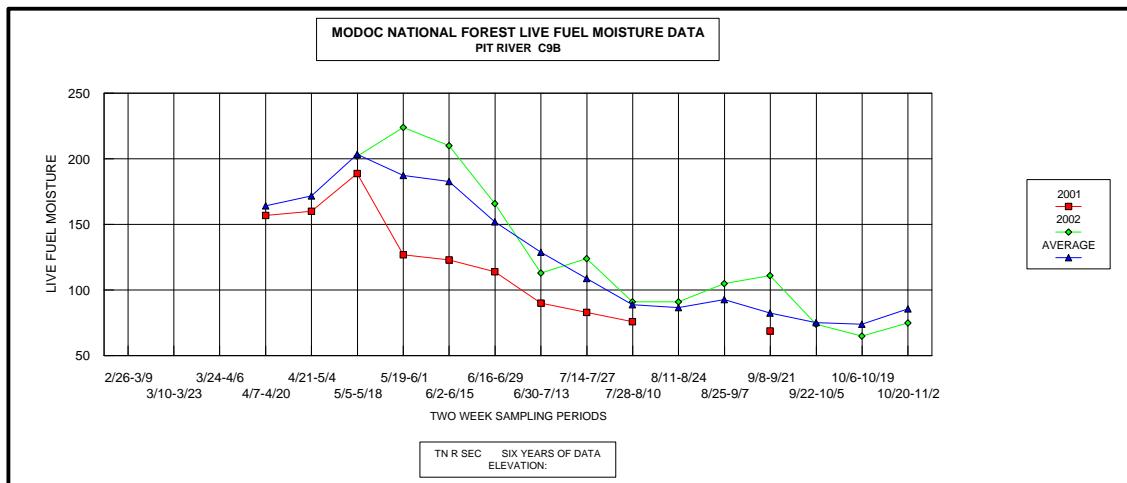
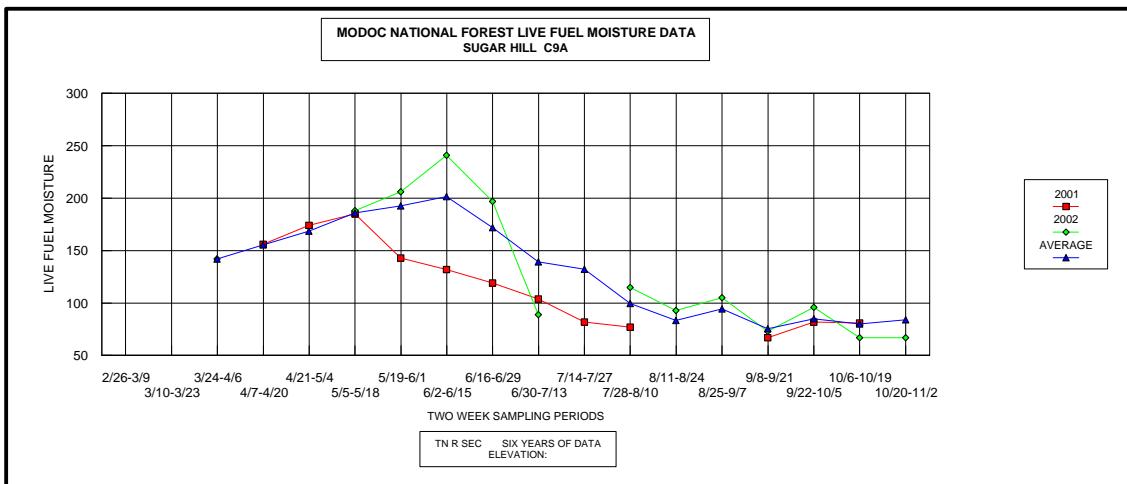


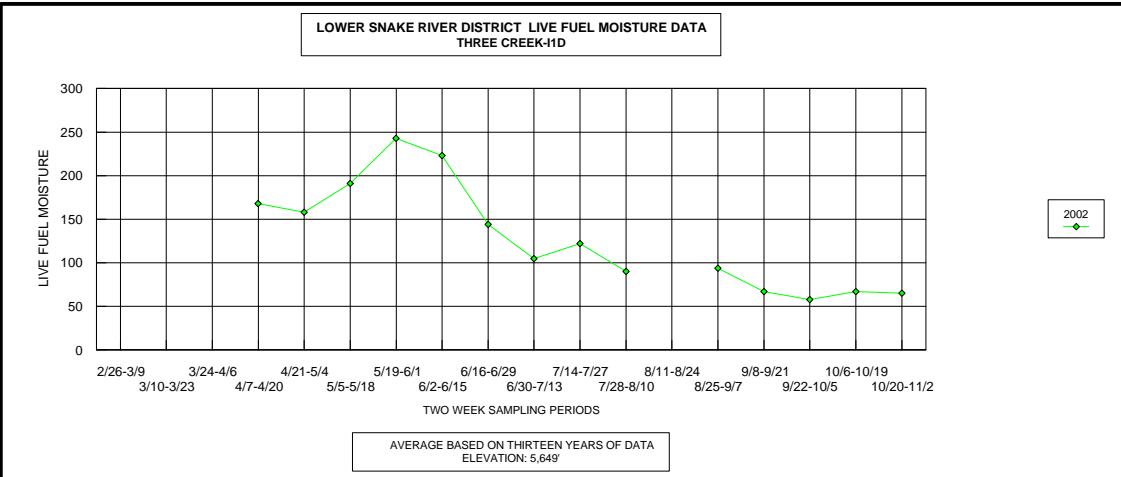
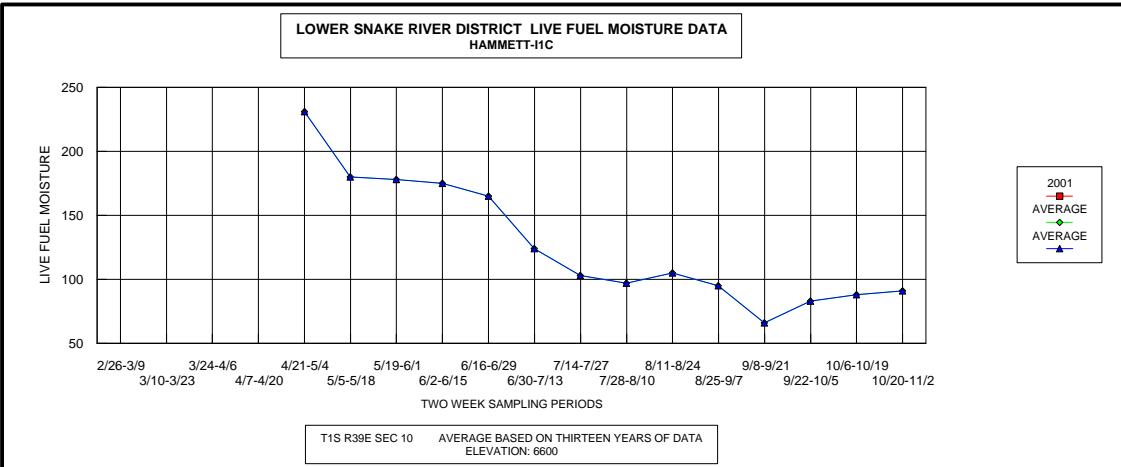
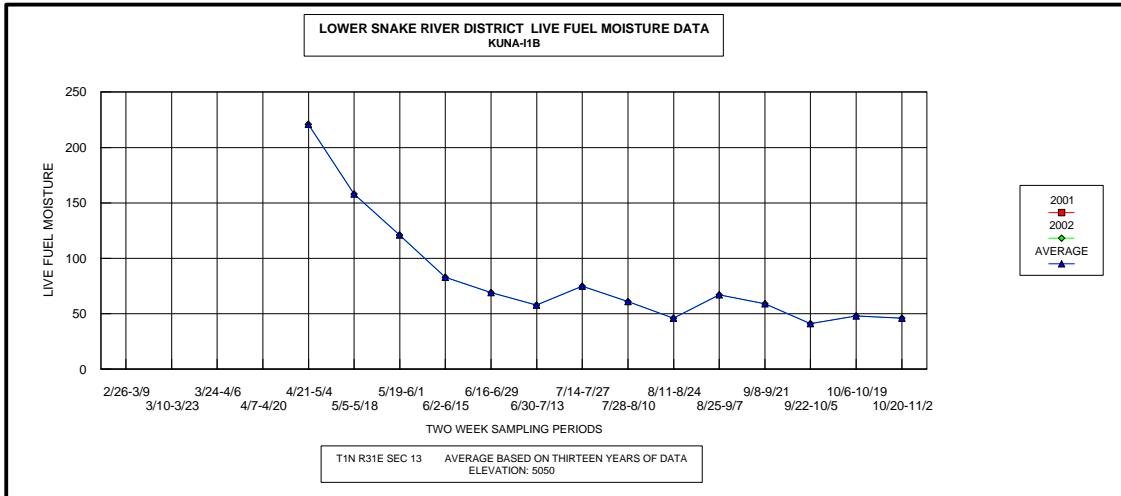
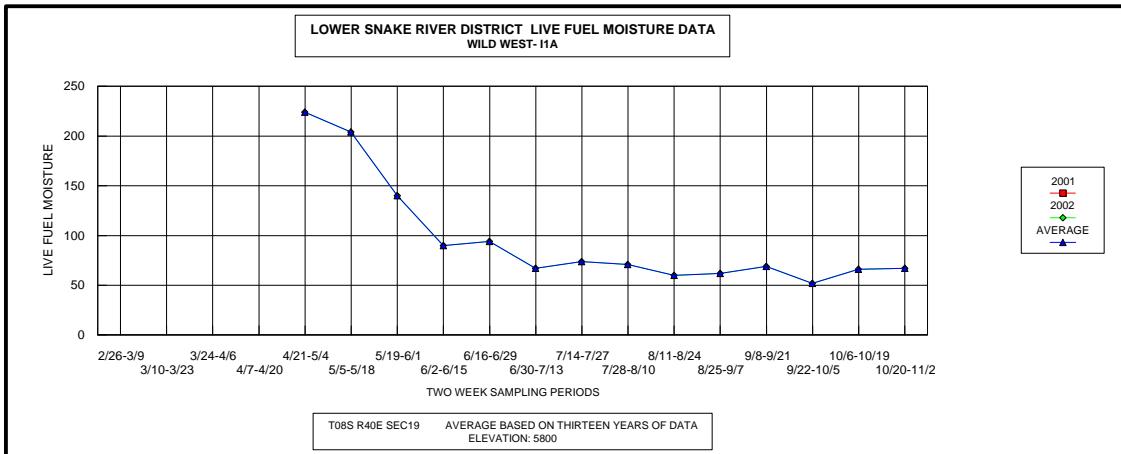


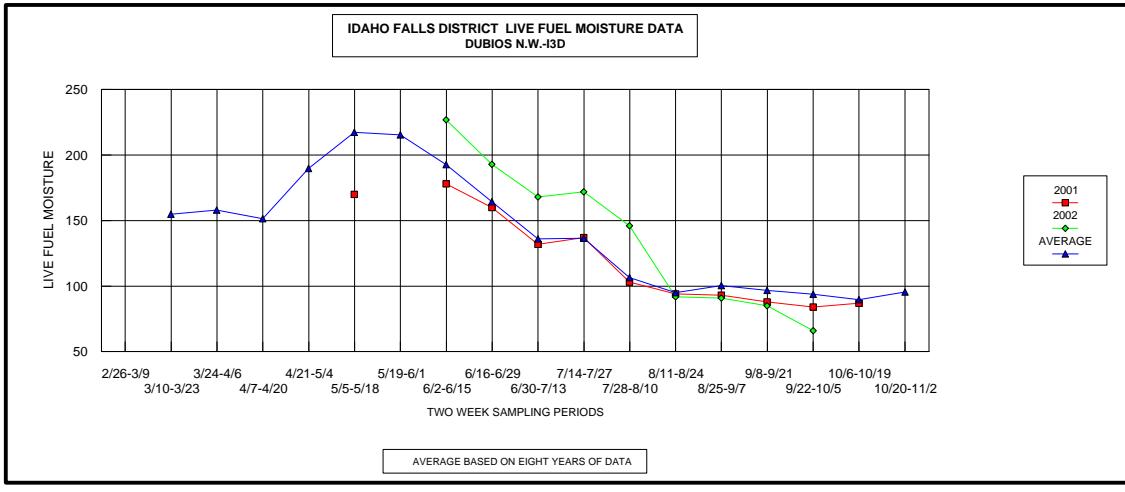
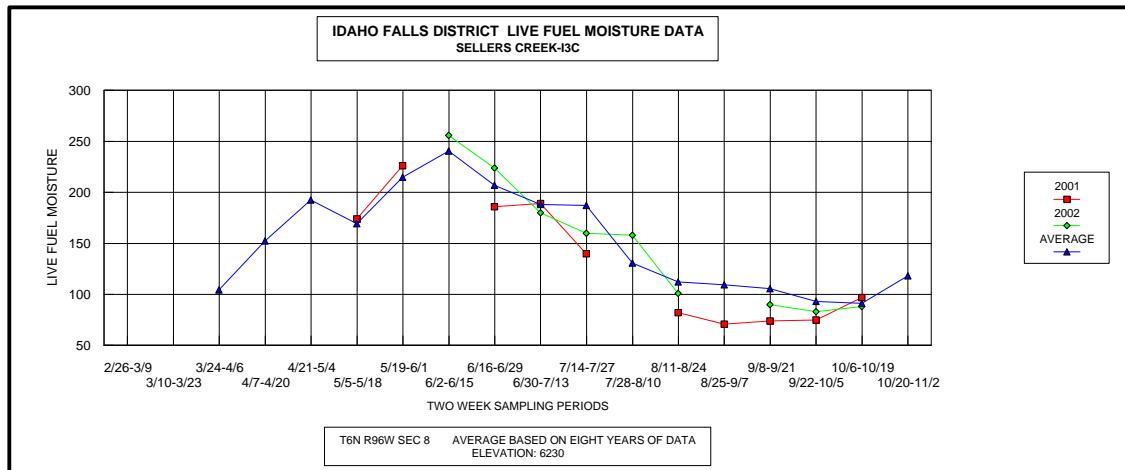
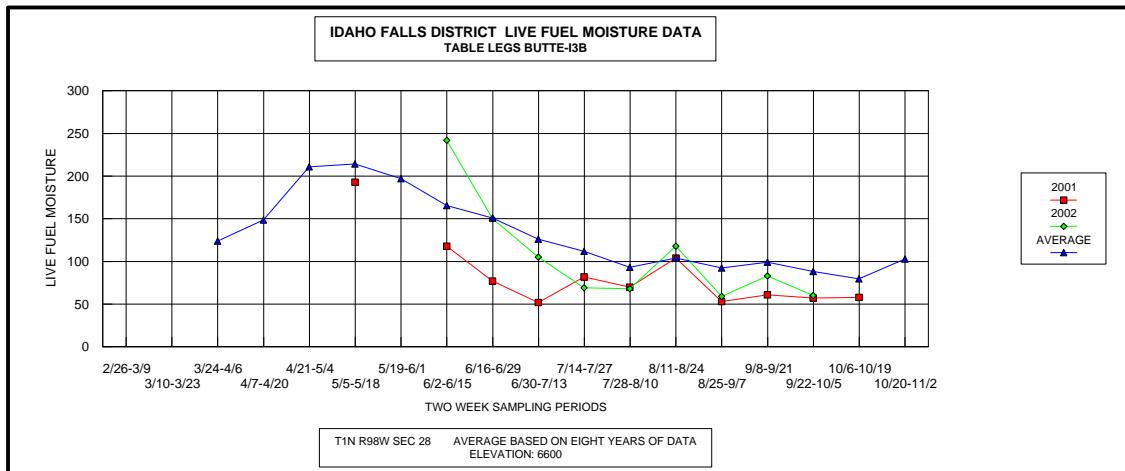
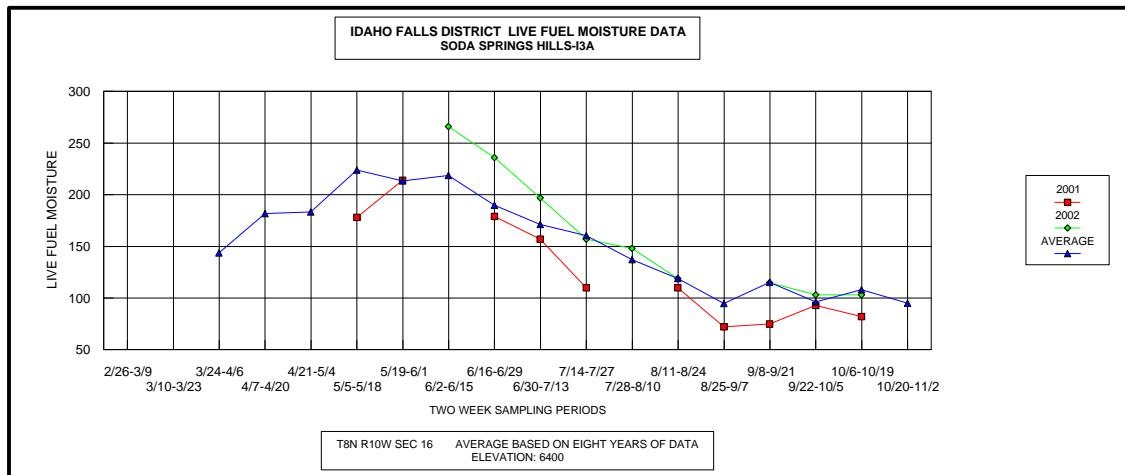


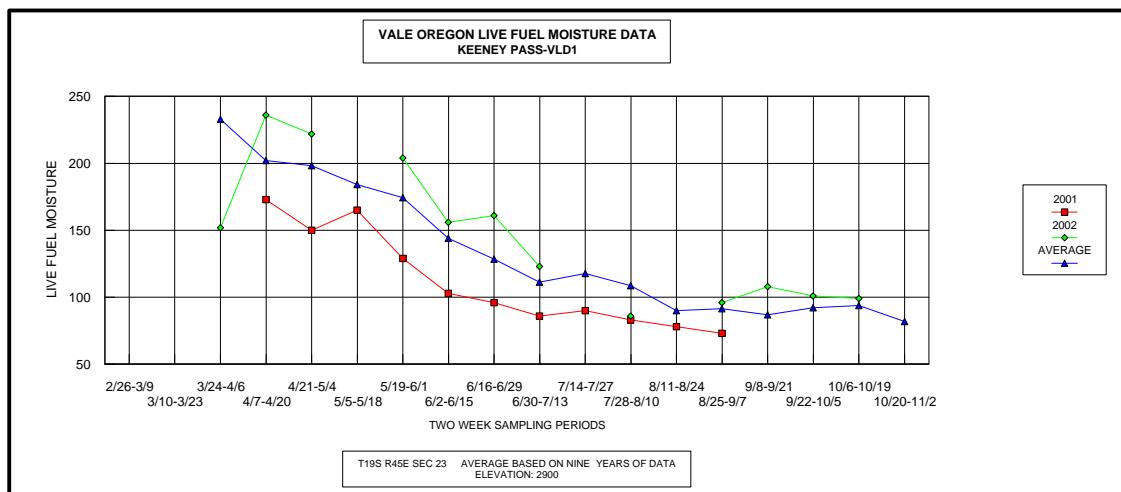


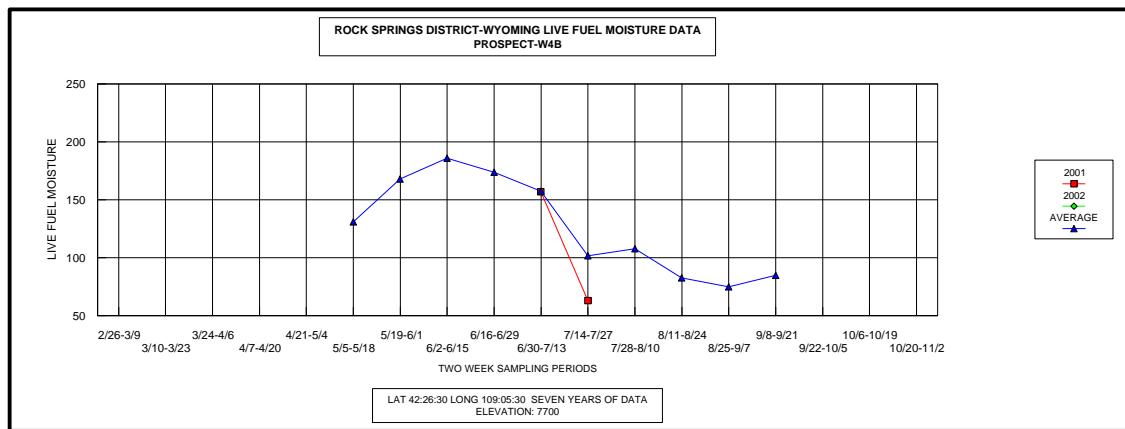
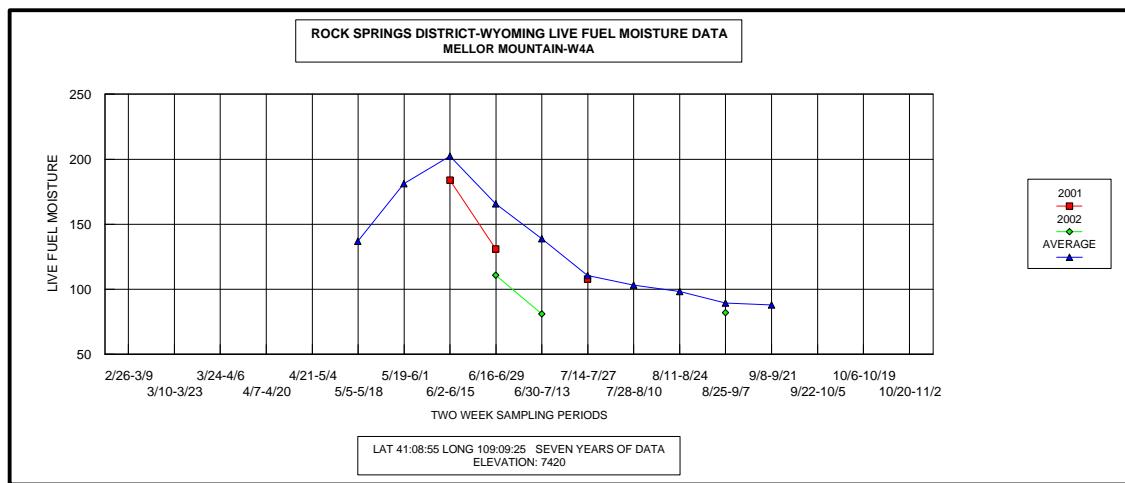


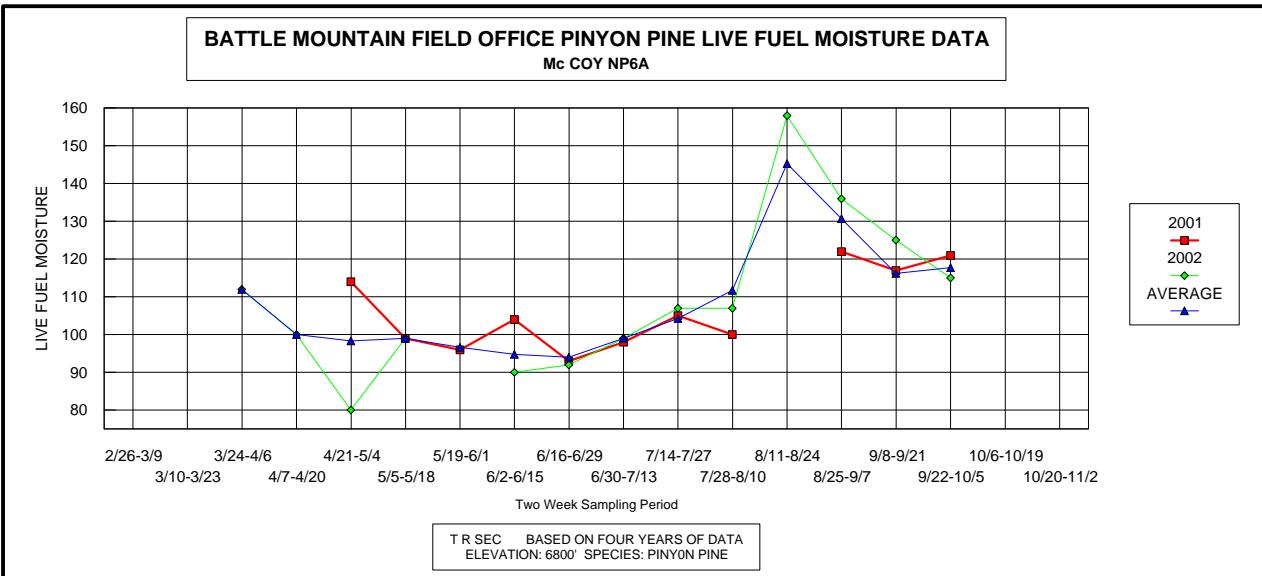
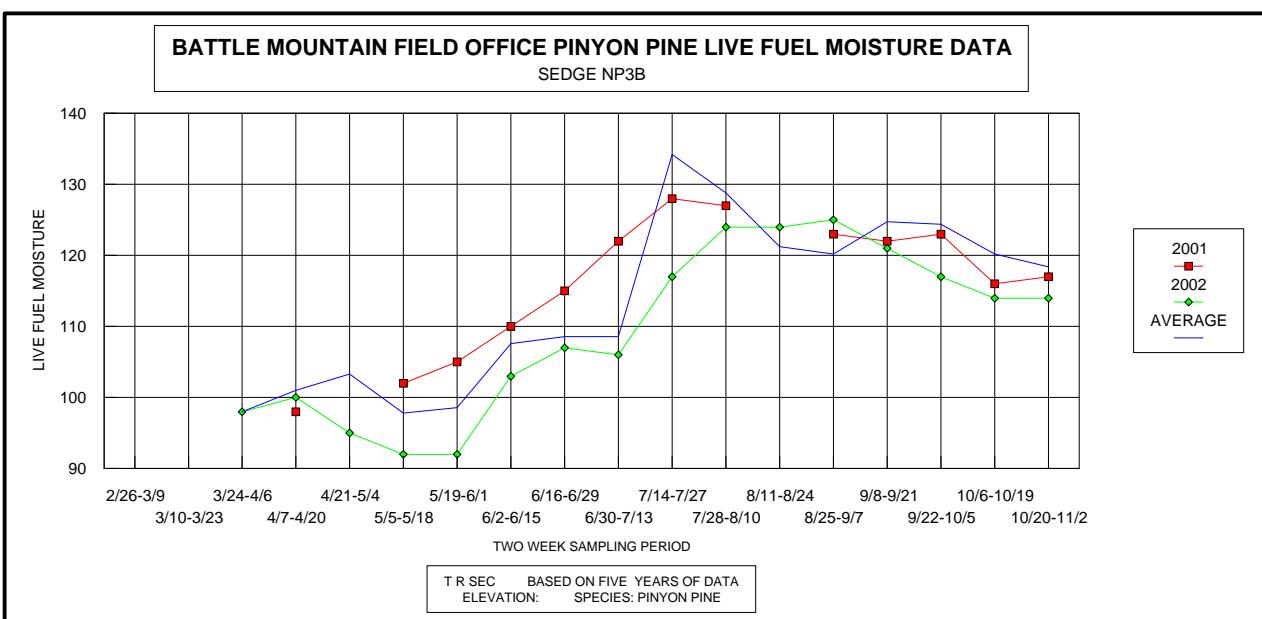
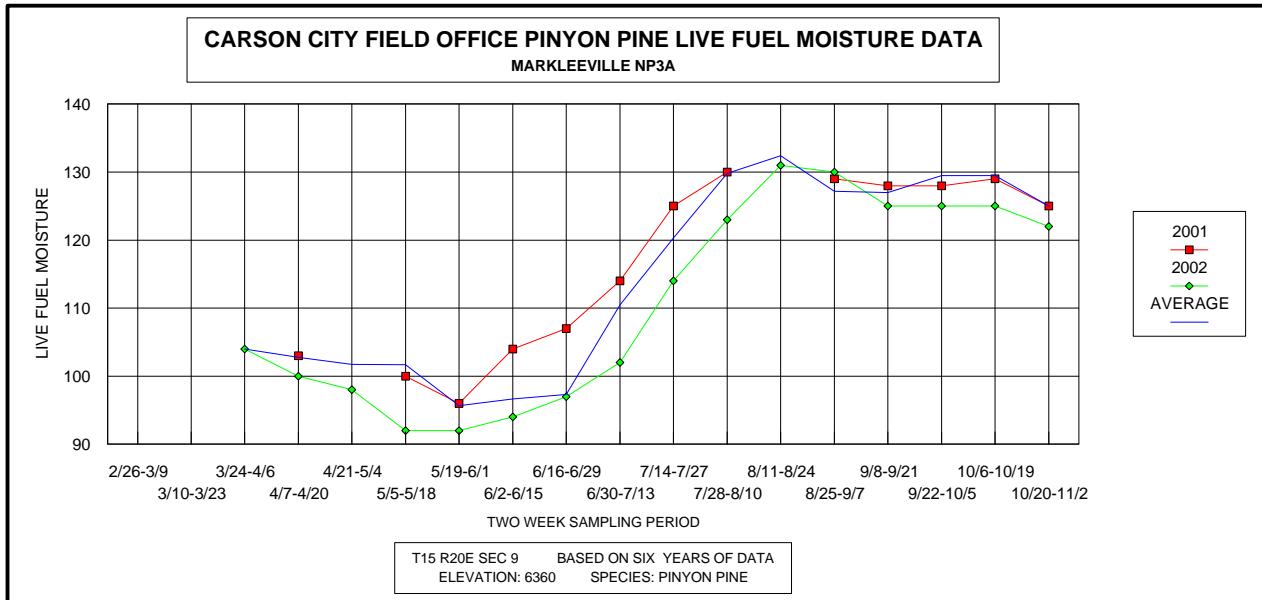




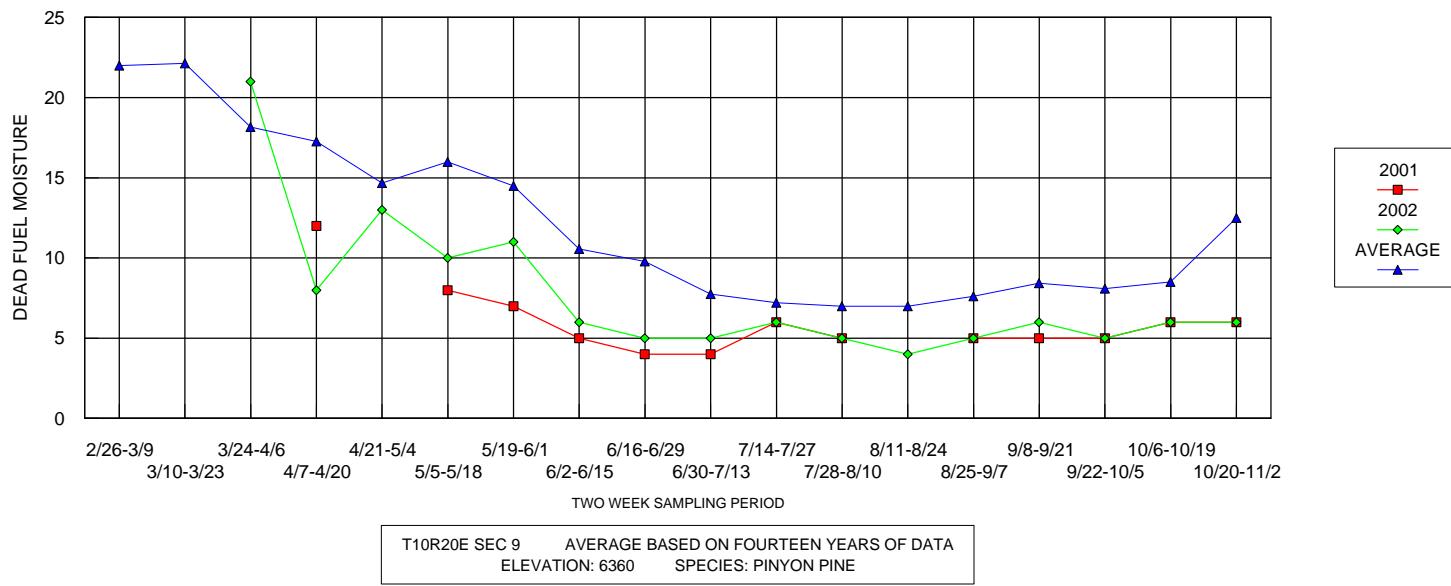




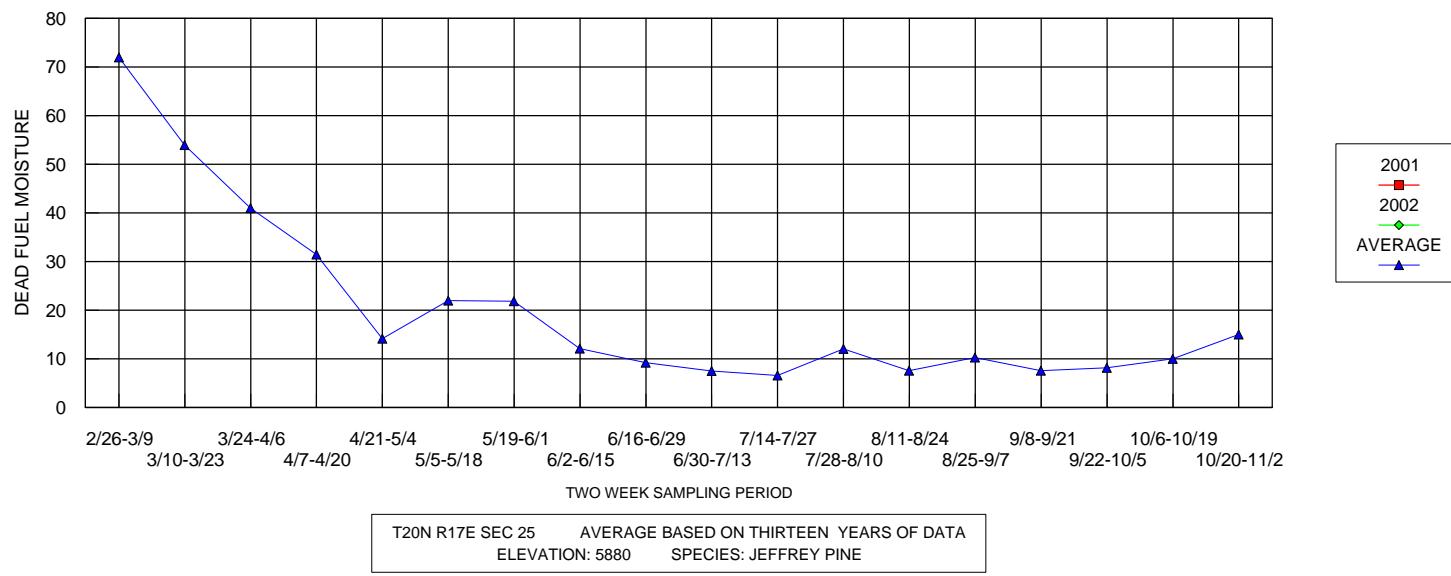


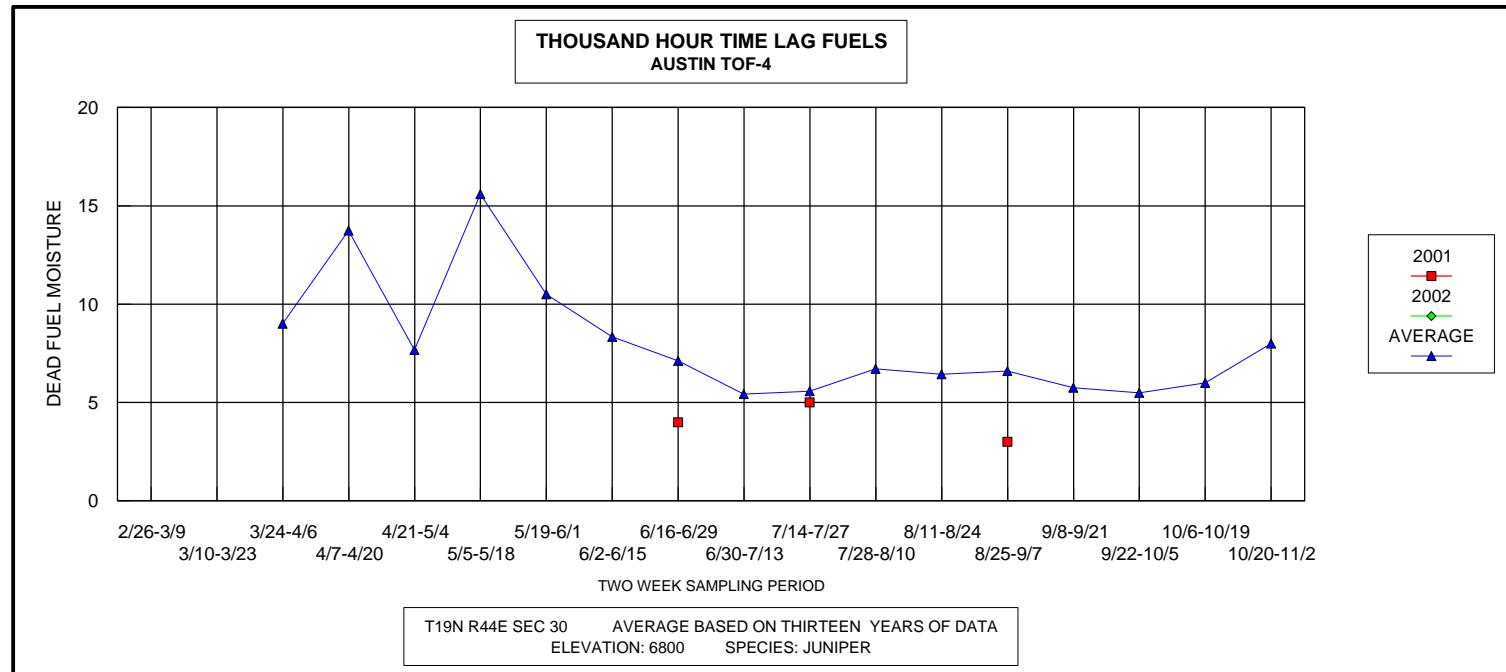
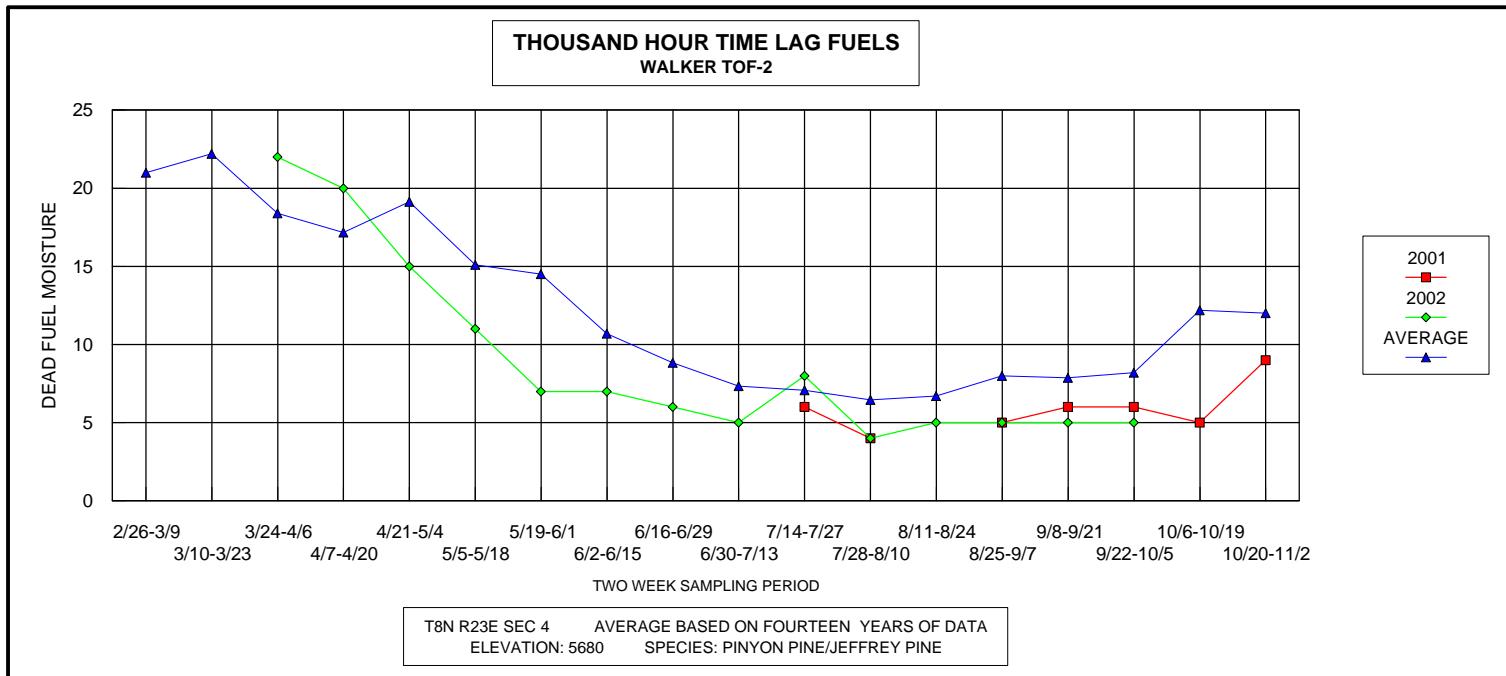


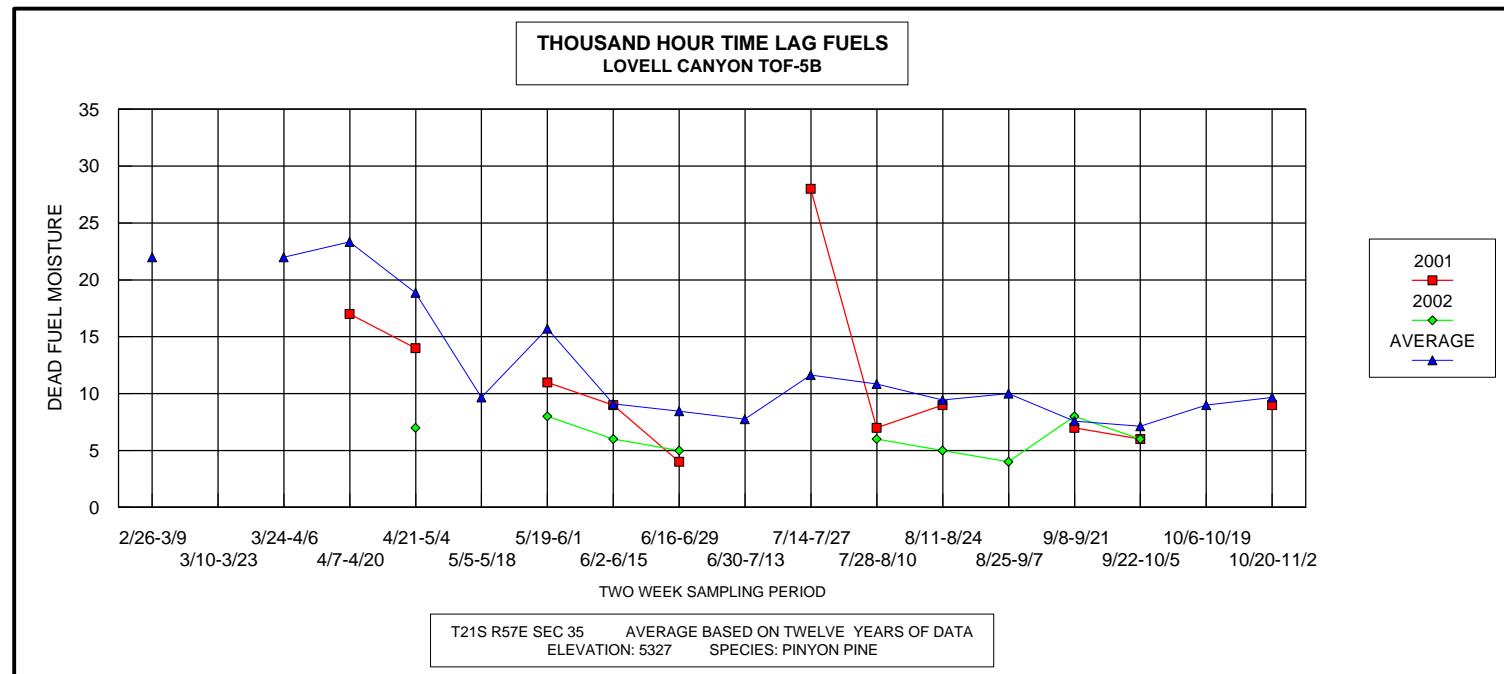
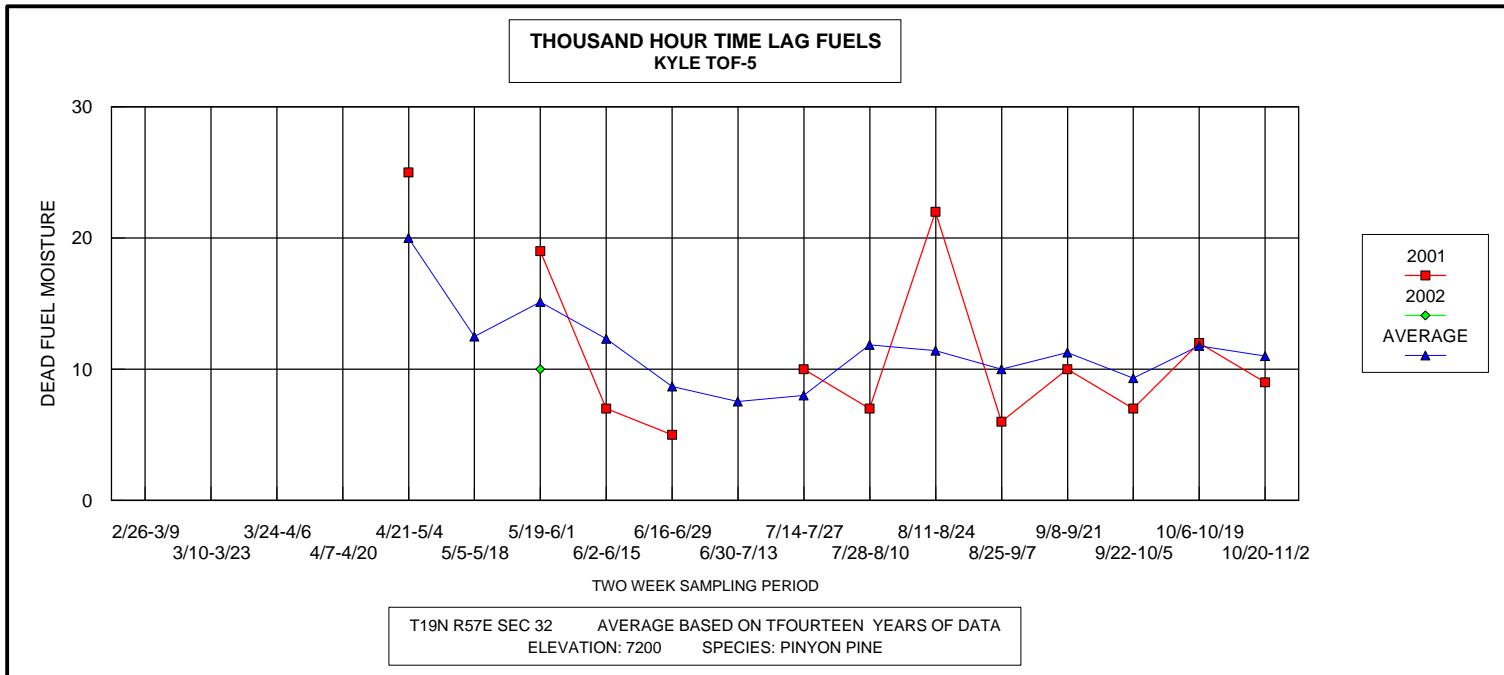
**THOUSAND HOUR TIME LAG FUELS**  
MARKLEEVILLE-CCD1

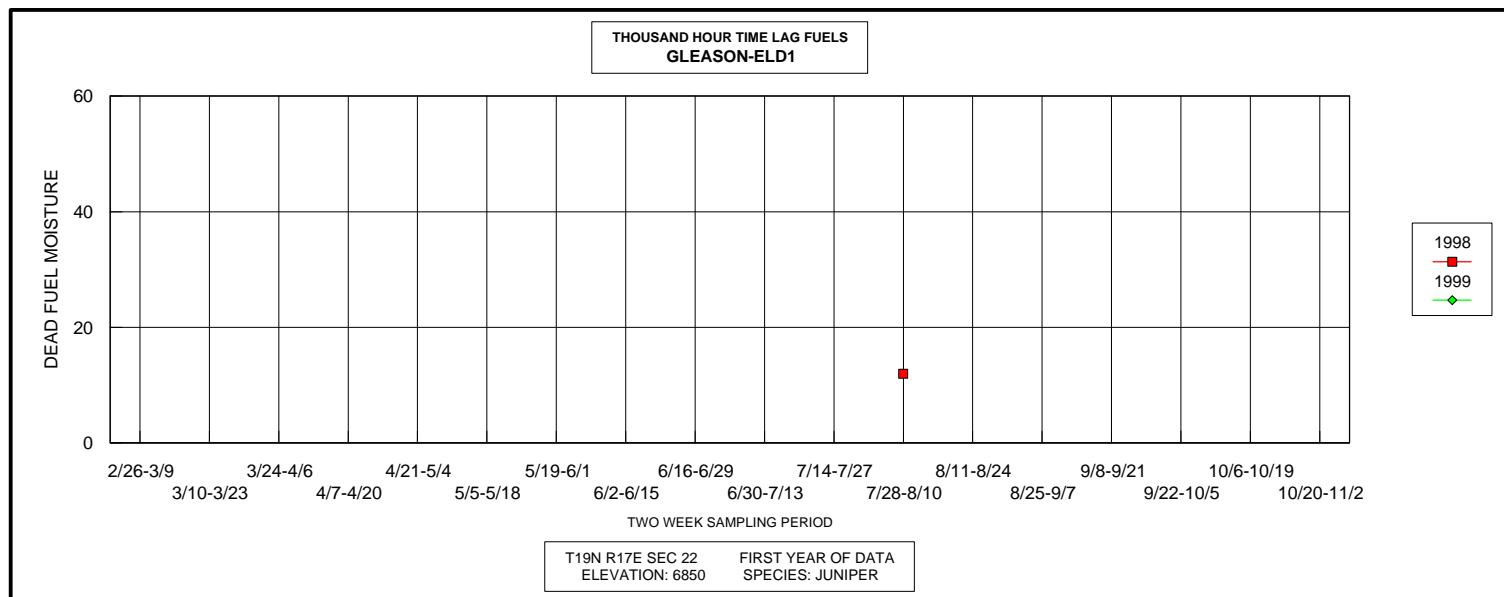
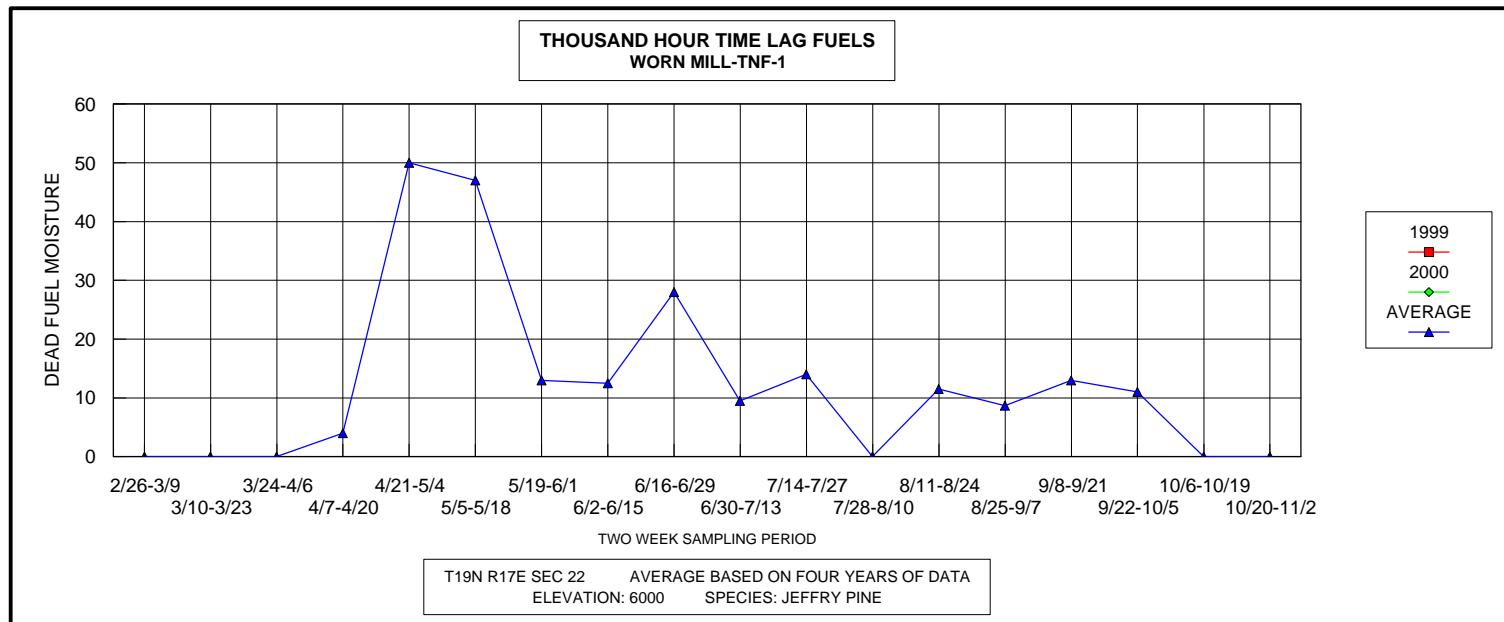


**THOUSAND HOUR TIME LAG FUELS**  
DOG VALLEY-TOF-1









## Report of Missed Sampling Dates for 2002

Note: There was a total of 16 sampling days for 2002 fire season.

### NEVADA

<u>SITE</u>	<u>LOCATION</u>	<u>NUMBER OF SAMPLES MISSED</u>
N1A	WELLS	5
N1B	ADOBE CREEK	5
N1C	PALISADE	5
N2A	NATIONAL	1
N2B	NEW JUNGO	1
N2C	PANTHER	2
N3A	WARM SPRINGS	2
N3B	CARSON	0
N3C	FISH SPRINGS	4
N3D	DOYLE	3
N4A	DUCK CREEK	1
N4B	RUTH	1
N4C	SAWMILL	1
N5A	PIOCHE	0
N5B	RAINBOW CANYON	0
N5C	KYLE CANYON	10
N5D	LOVELL CANYON	10
N5E	RED ROCK	6
N5F	PINE CREEK	6
N5G	BOOTLEG	9
N6A	BATTLE MOUNTAIN	2
N6B	AUSTIN	4
N6C	LUCKY SPRINGS	2

**CALIFORNIA**

<u>SITE</u>	<u>LOCATION</u>	<u>NUMBER OF SAMPLES MISSED</u>
C1A	TOPAZ	12
C1B	BENTON	15
C1C	CHIMNEY	7
C2A	FORTYNINE	0
C2B	JUNIPER CREEK	0
C2D	RAVENDALE	5
C6A	HOLE-IN-WALL	11
C7A	KEEN WILD	16
C7B	ANZA	3
C7C	TEMECULA	5
C8A	WORN MILL	16
C9A	SUGAR HILL	3
C9B	PIT RIVER	3
C9C	DEER RIDGE	4

**IDAHO**

I1A	WILD WEST	2
I1B	KUNA	2
I1C	HAMMETT	2
I1D	THREE CREEK	2
I3A	SODA SPRINGS	7
I3B	TABLE LEGS BUTTE	7
I3C	SELLERS CREEK	7
I3D	DUBOIS	7

**OREGON**

VLD1	KEENEY PASS	4
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**WYOMING**

<u>SITE</u>	<u>LOCATION</u>	<u>NUMBER OF SAMPLES MISSED</u>
W4A	MELLOR MOUNTAIN	13

W4B	PROSPECT	16
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**PINYON**

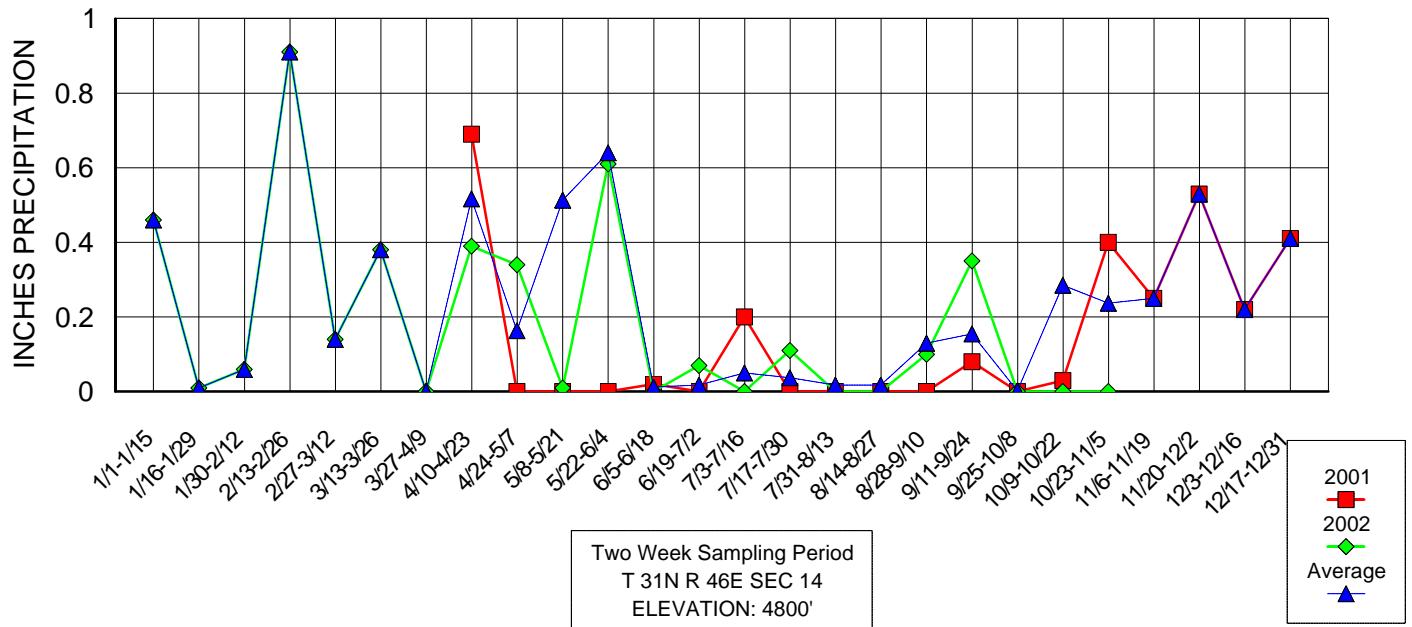
NP3A	MARKLEEVILLE	0
NP3B	SEDGE	0
NP6A	McCoy Ridge	3

**1000 HOUR**

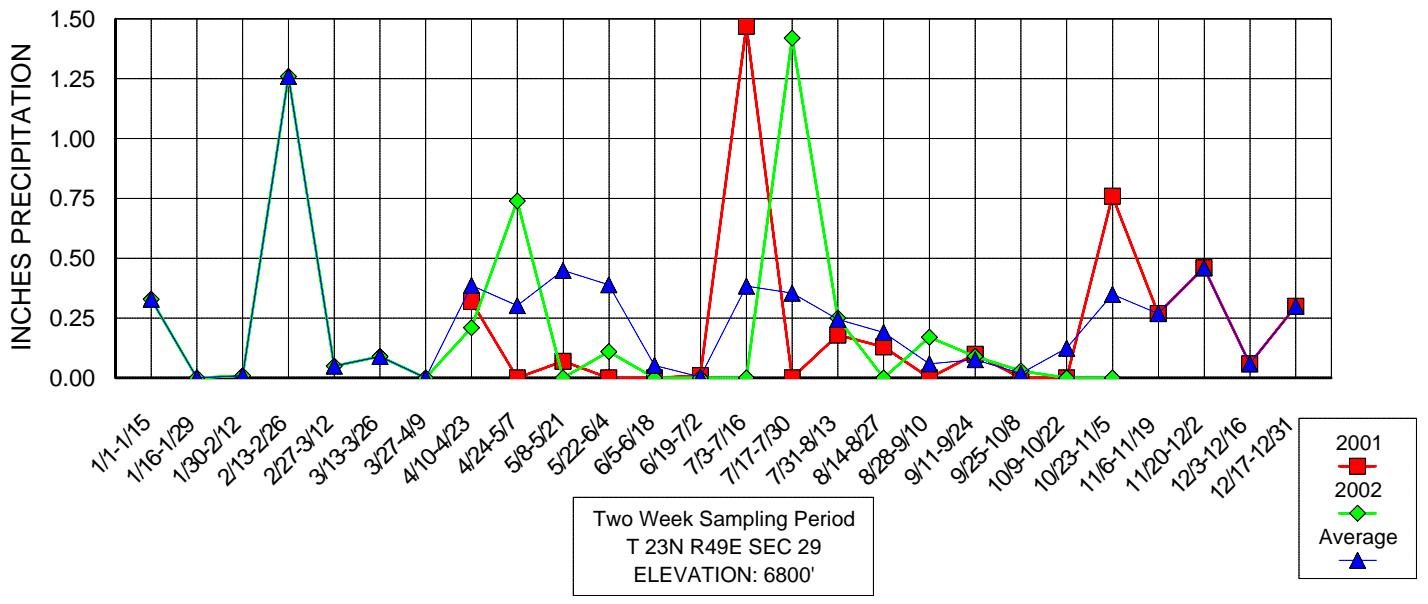
CCD	MARKEEVILLE	0
TOF1	DOG VALLEY	16
TOF2	WALKER	2
TOF4	AUSTIN	16
TOF5	KYLE	15
TOF5B	LOVELL CANYON	7

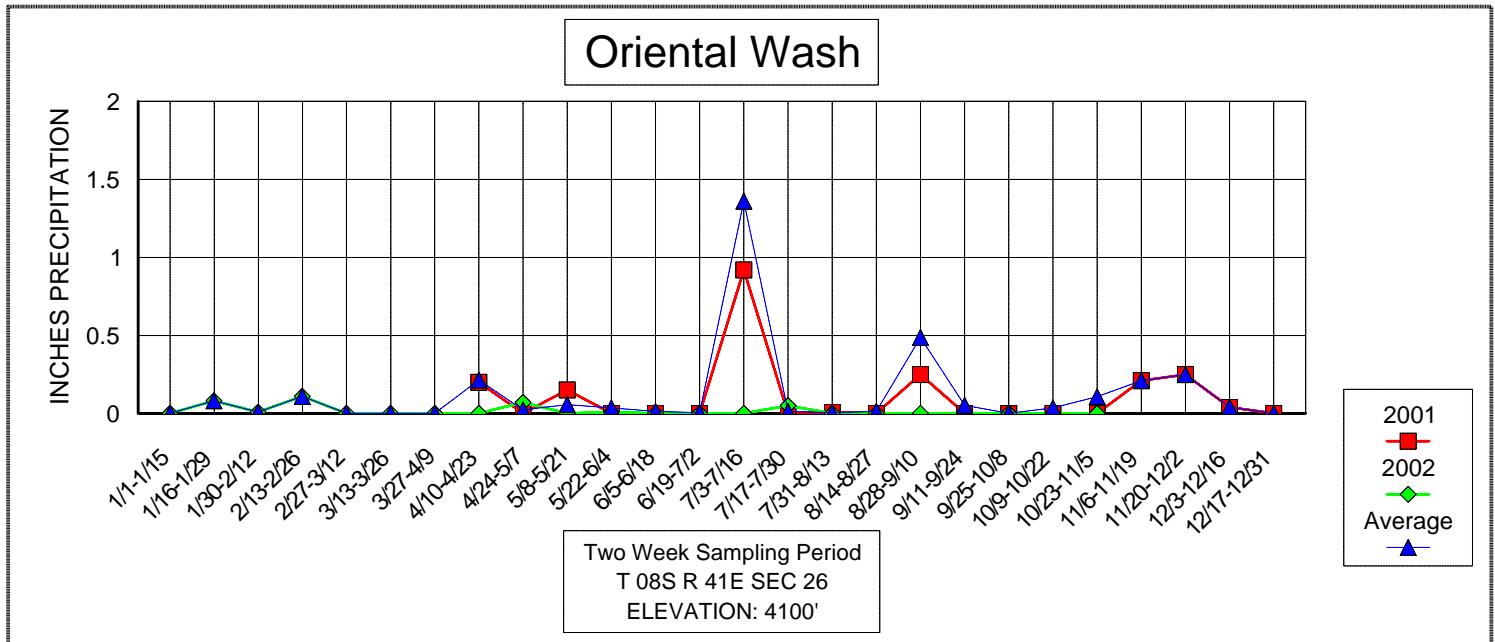
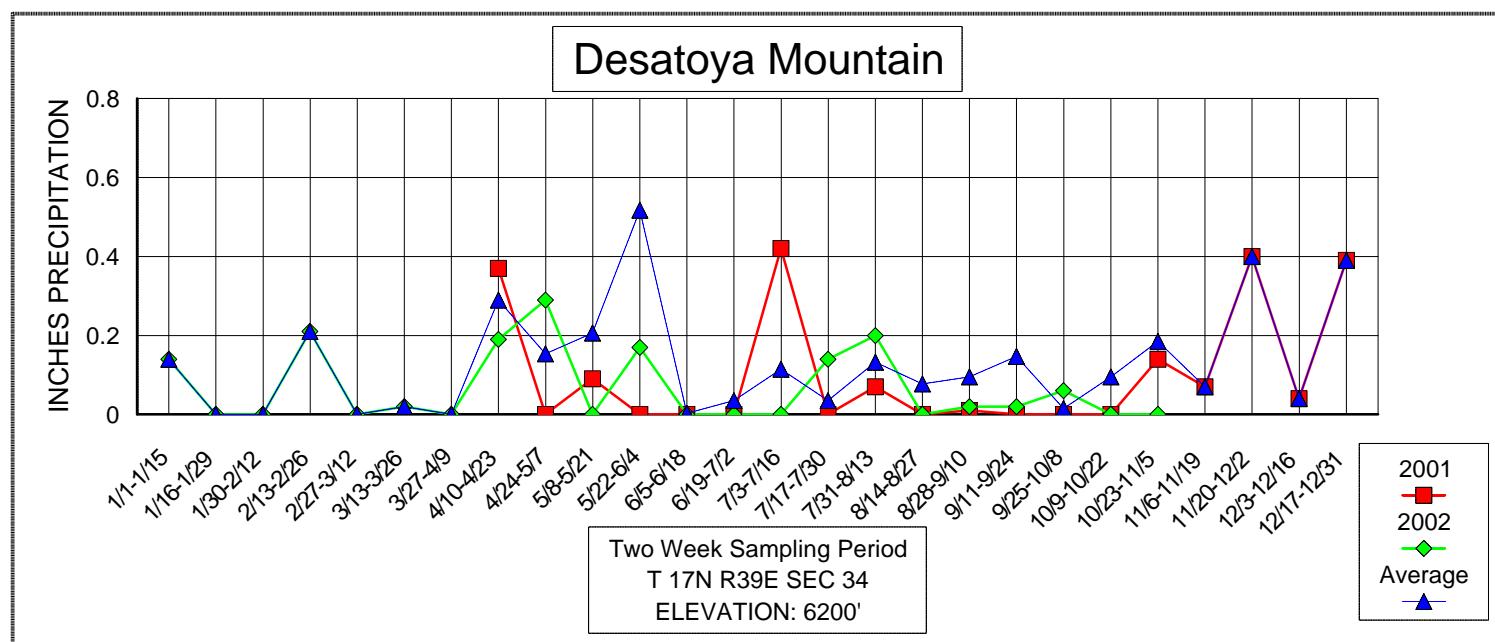
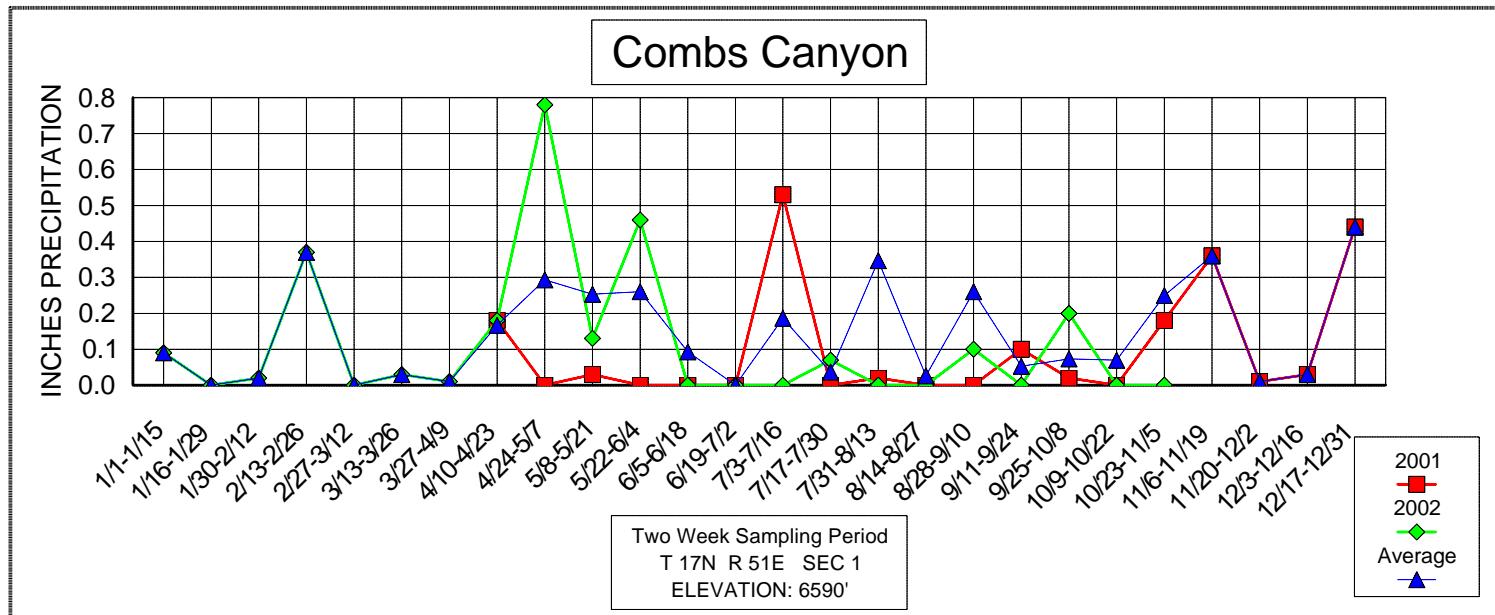
**2002 FIRE SEASON**  
**TWO WEEK REPORTING PERIODS**

**Beacon Light**

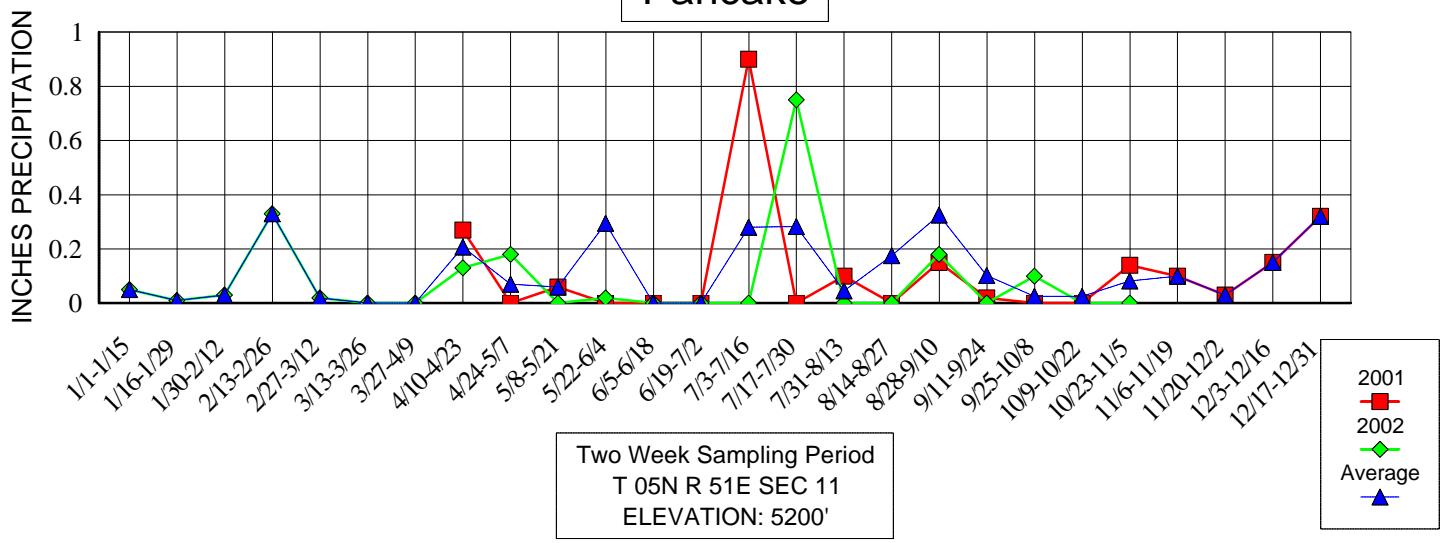


**Coils Creek**

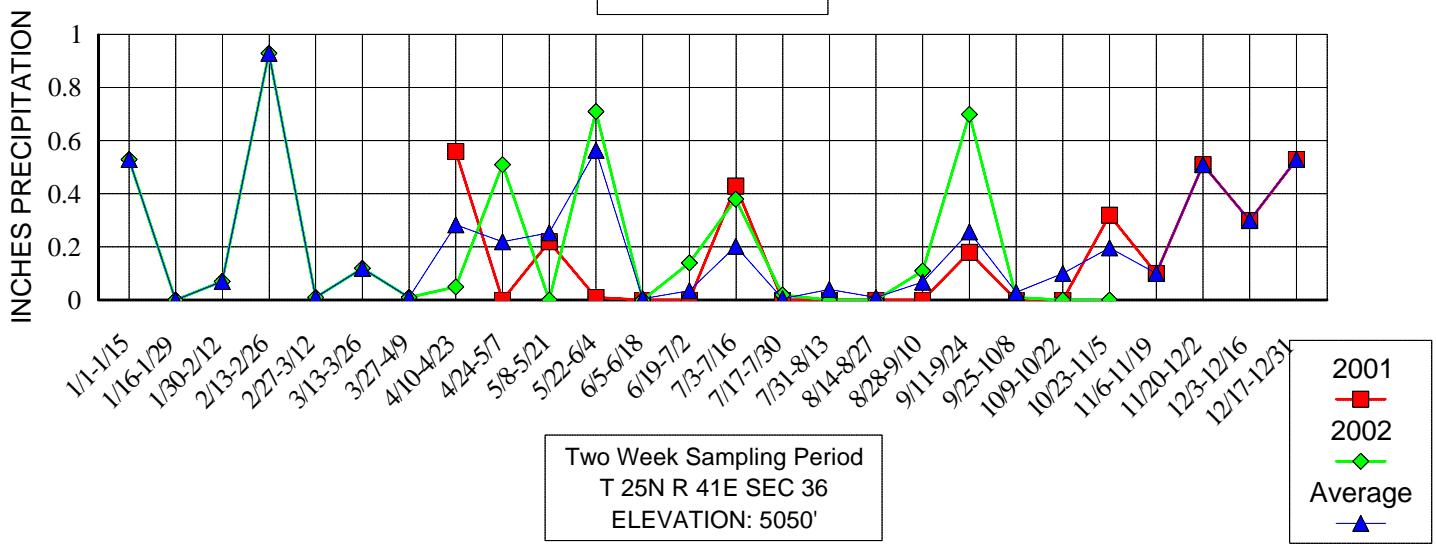




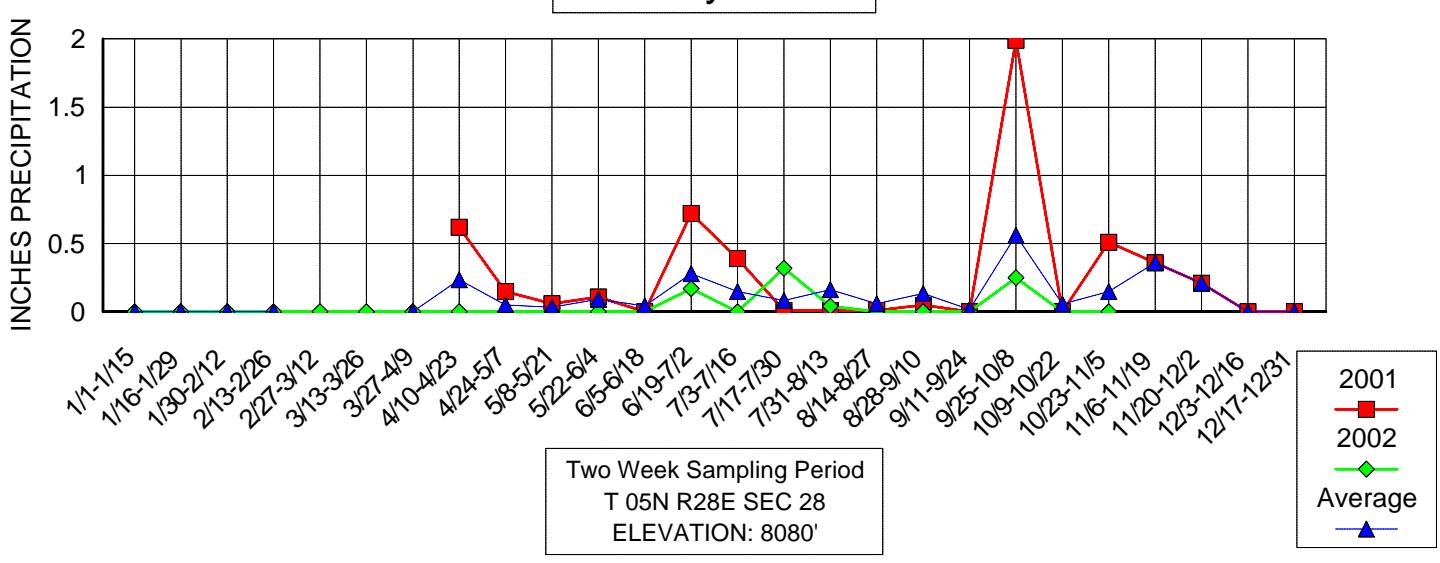
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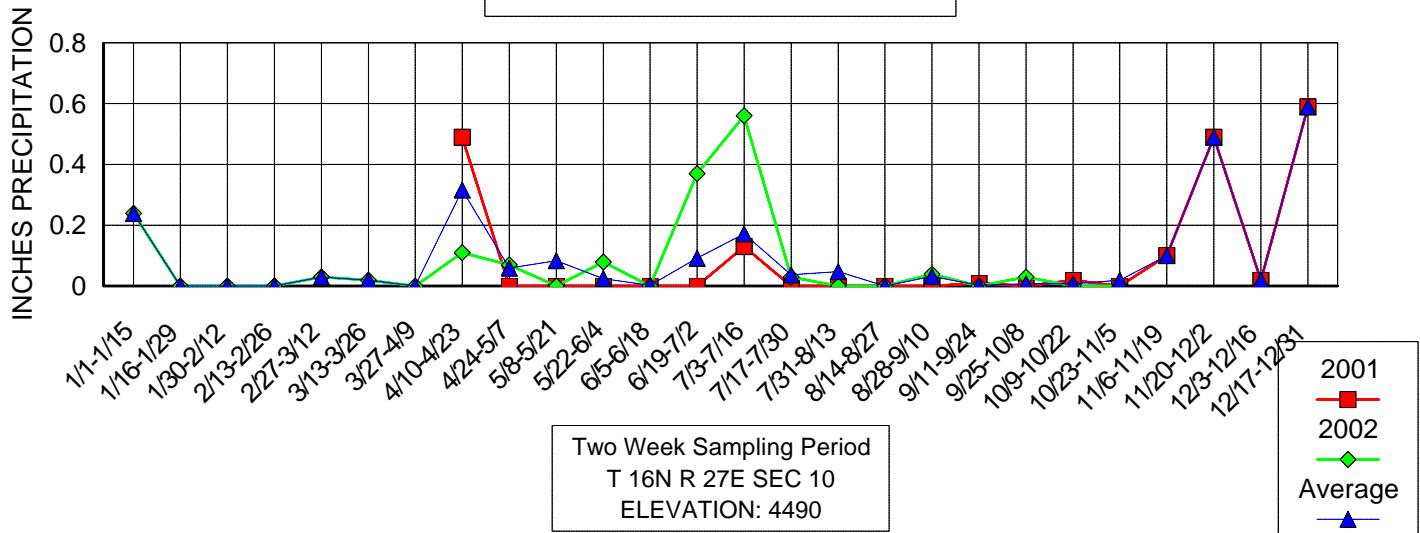
## Red Butte



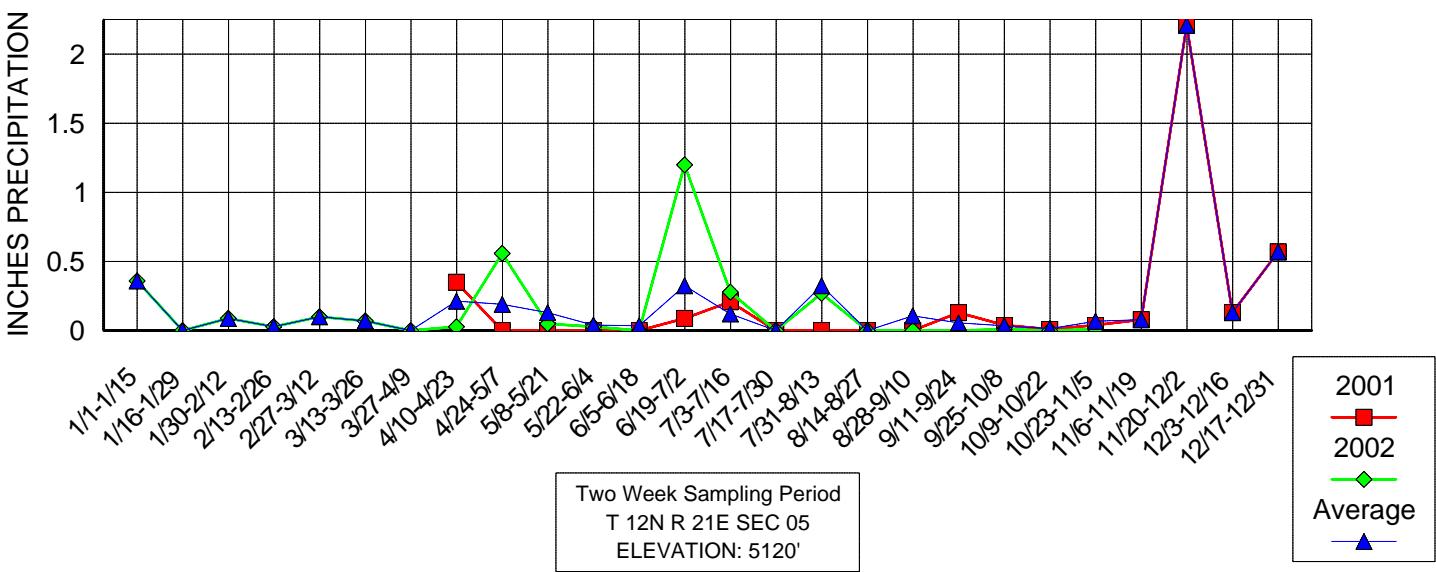
## Brawley Peaks



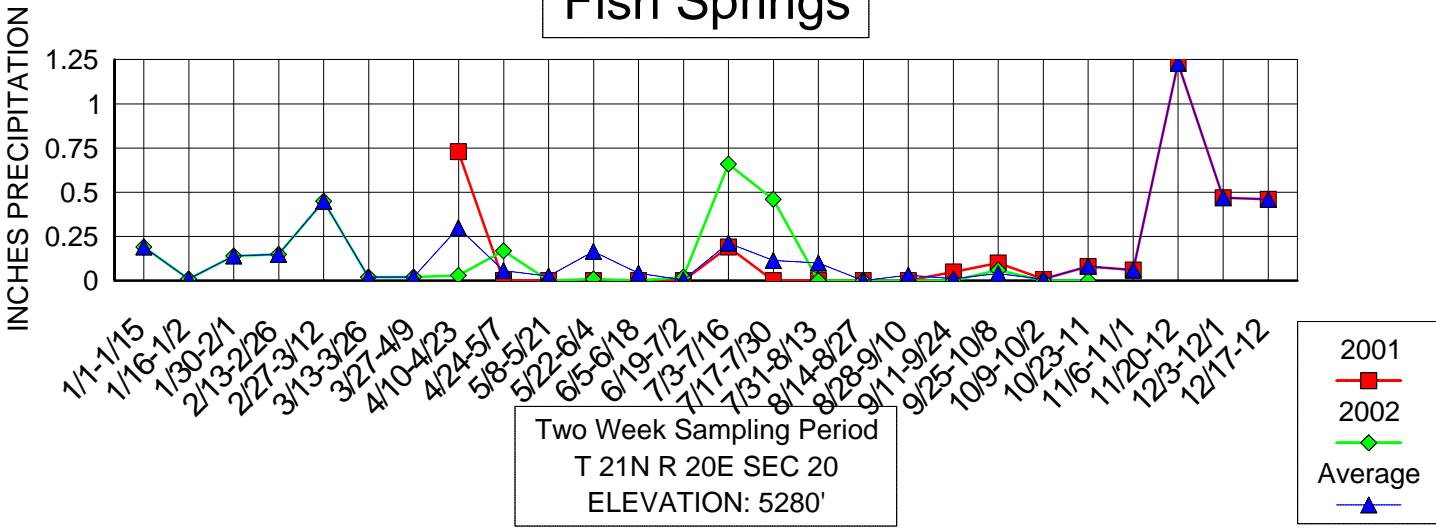
## Dead Camel Mountain



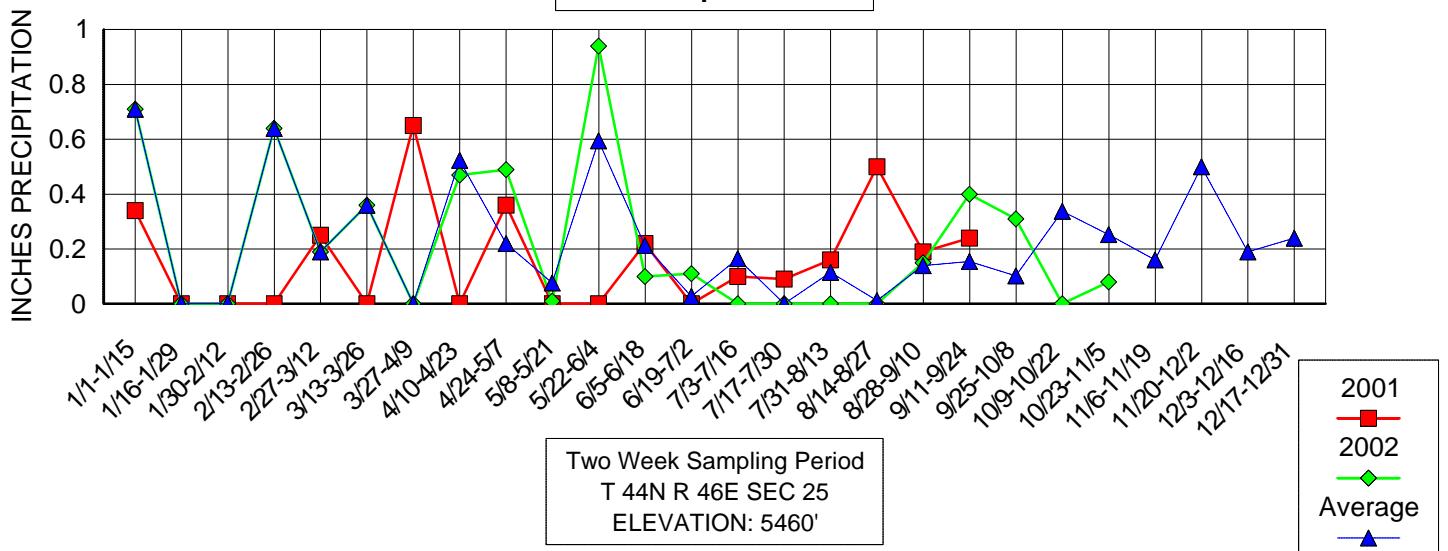
## Desert Springs



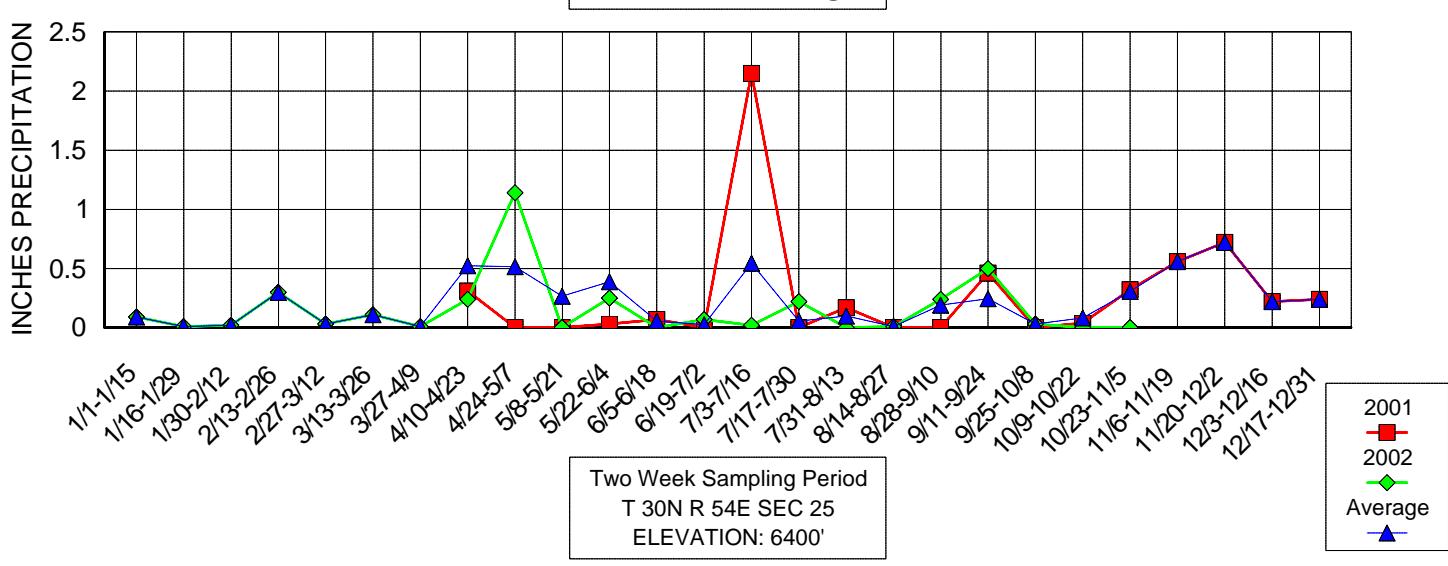
## Fish Springs



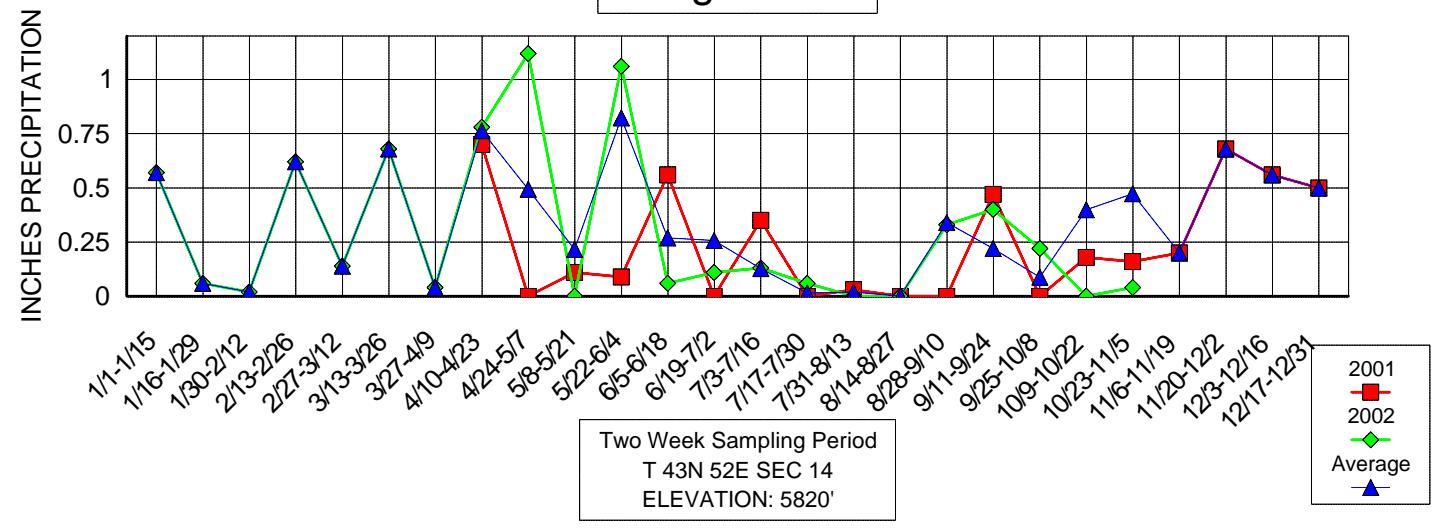
## Antelope Lake



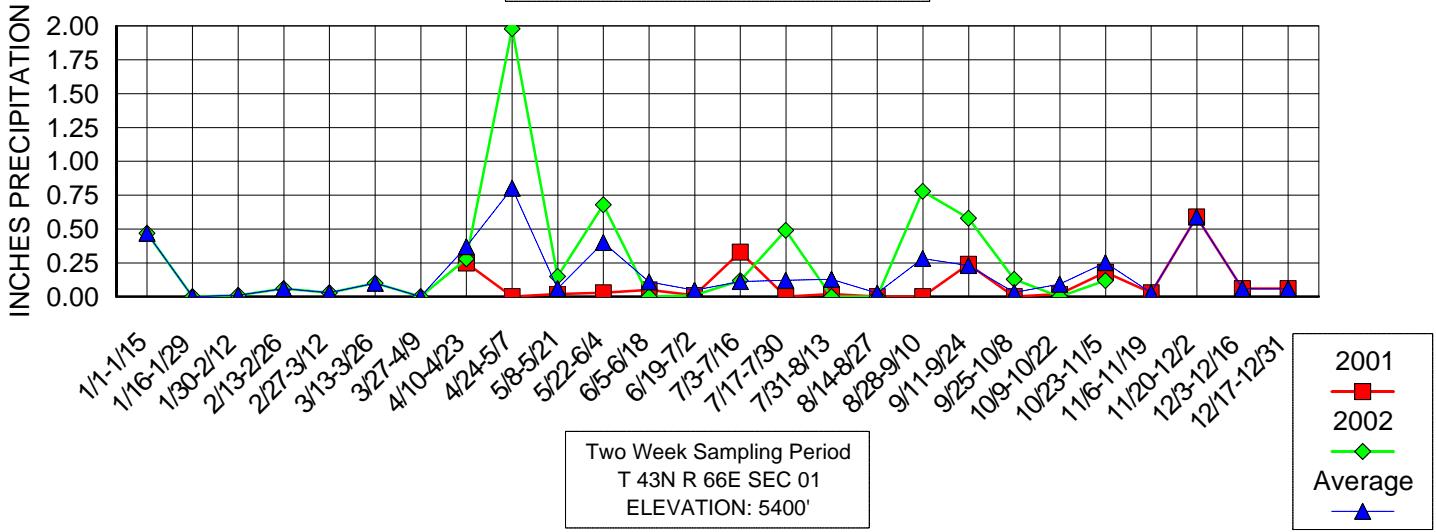
## Crane Springs



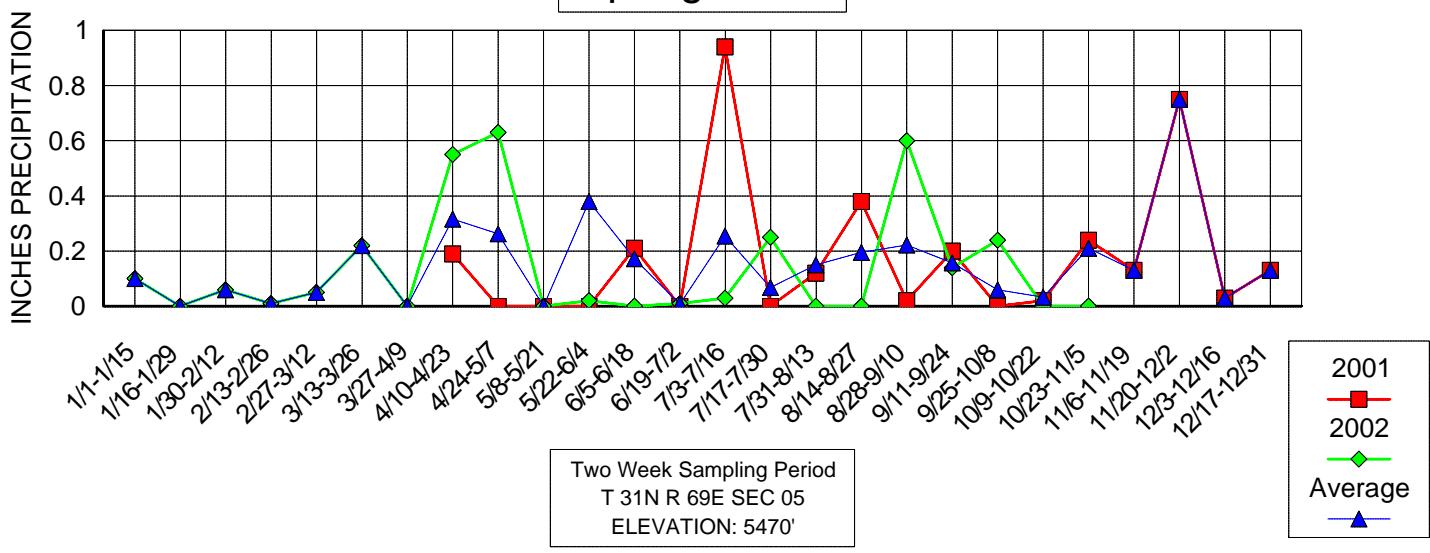
## Long Hollow



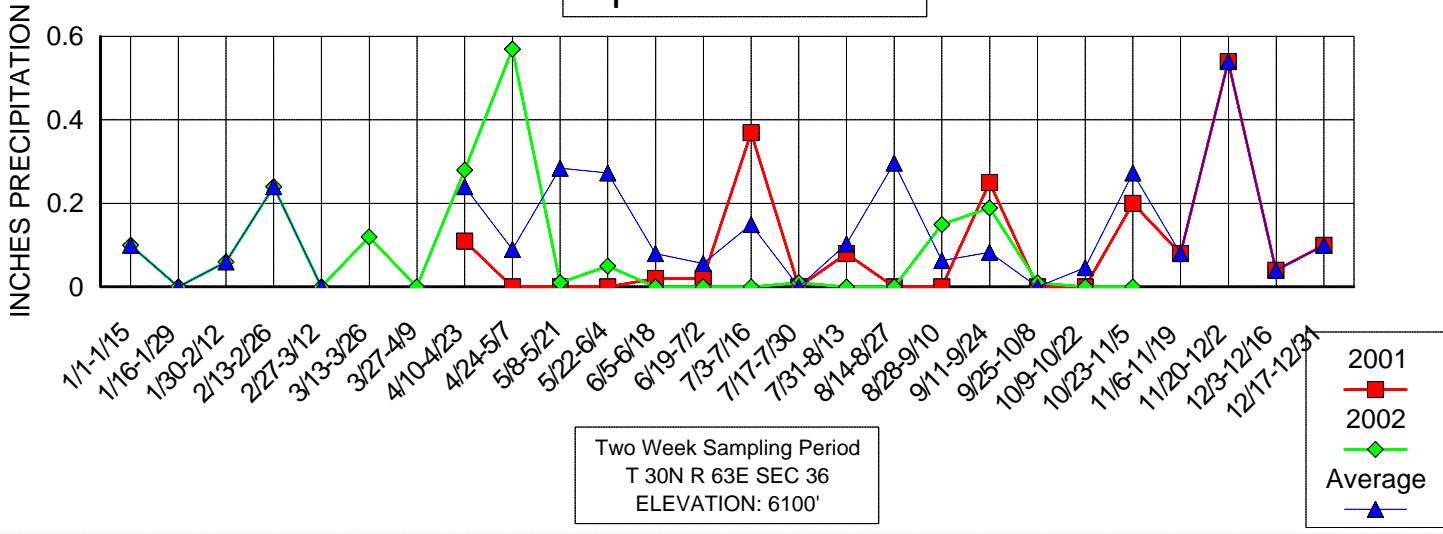
## Rock Springs Creek



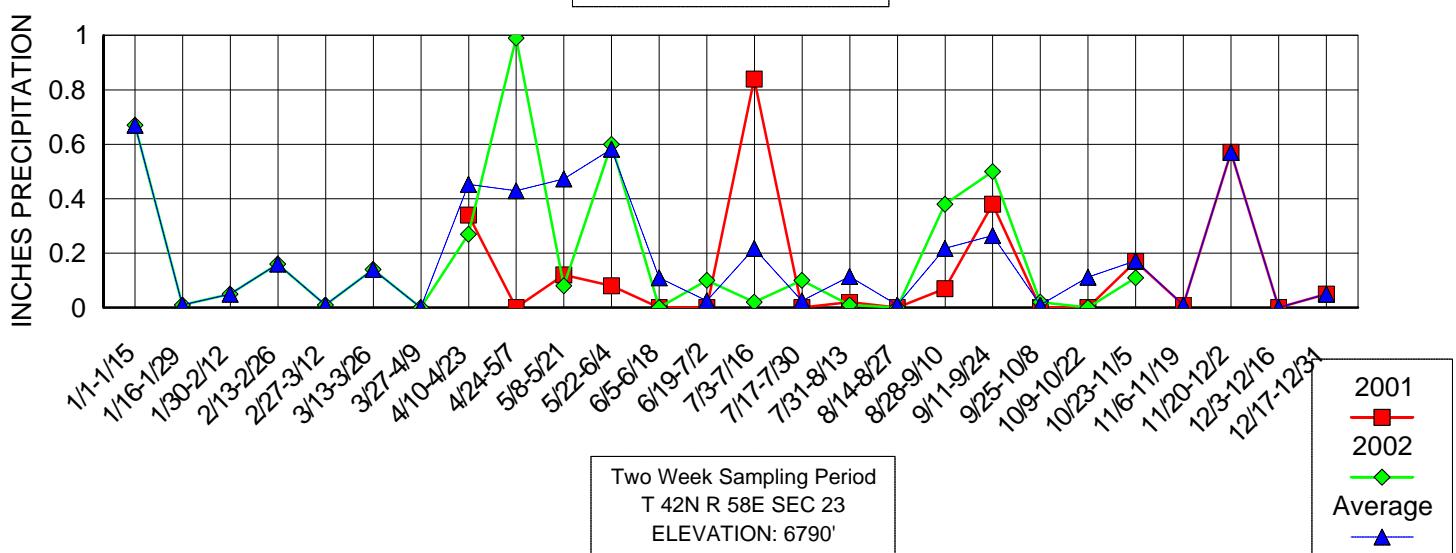
## Spring Gulch



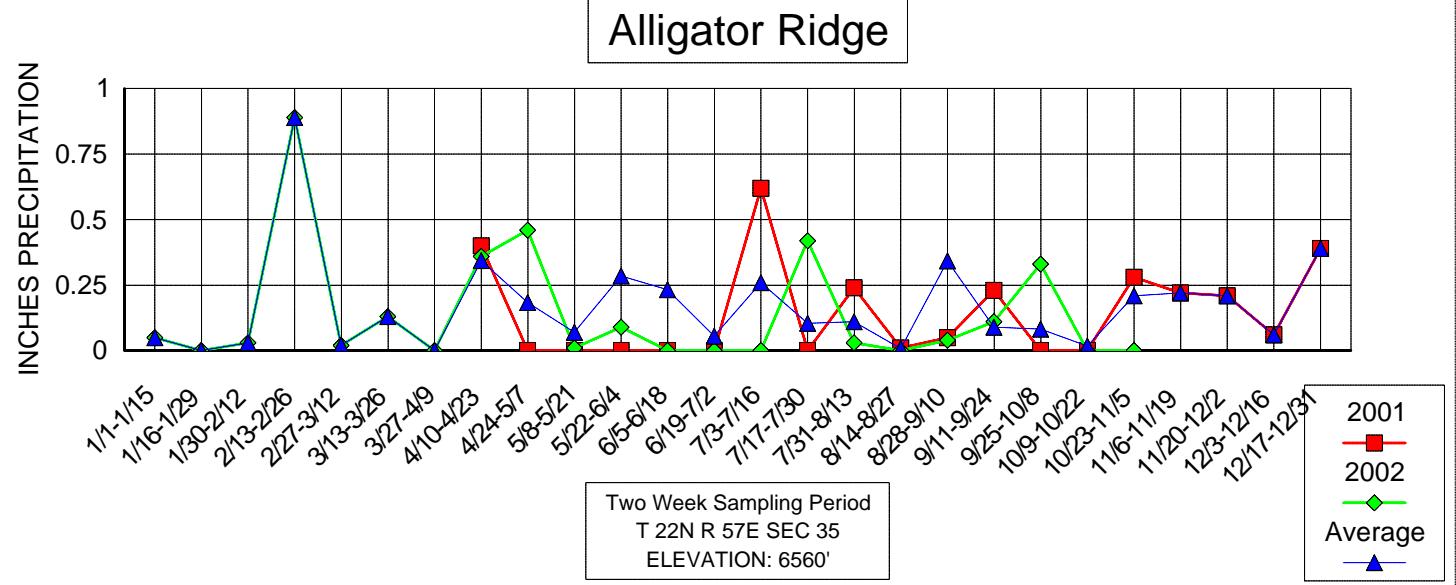
## Spruce Mountain



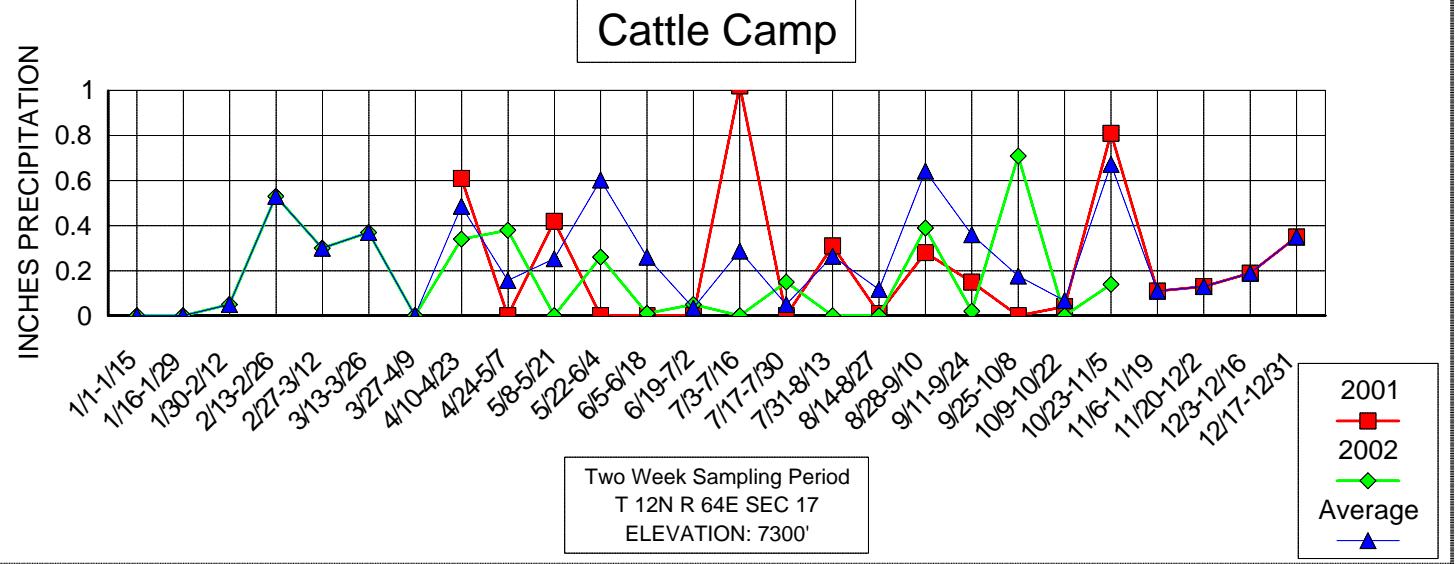
## Stag Mountain



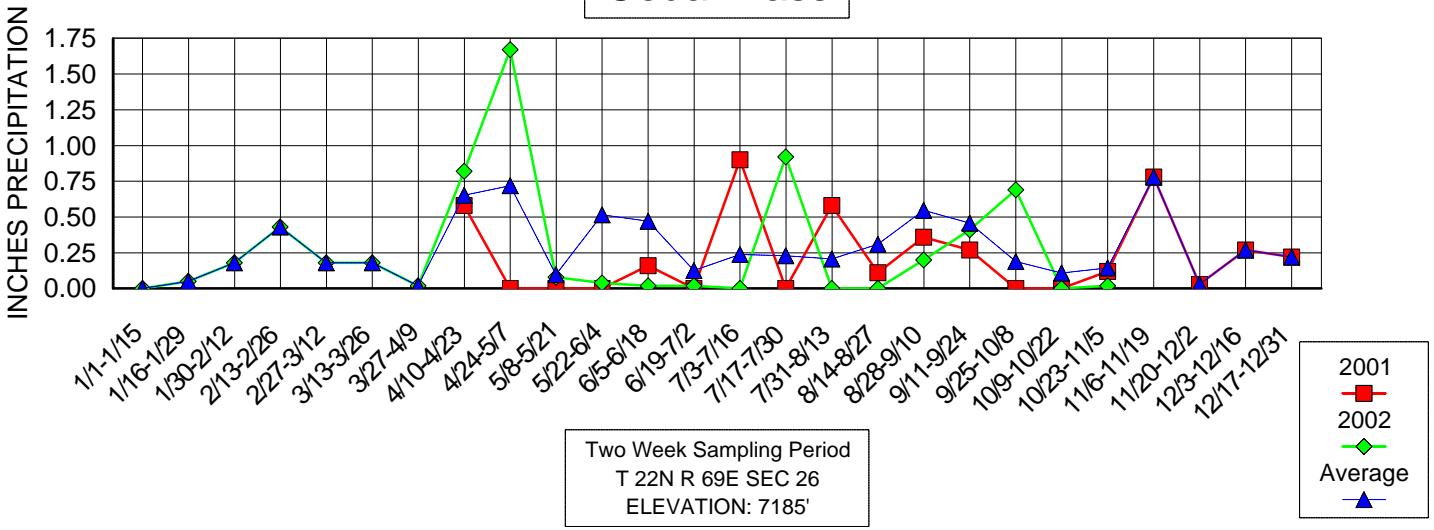
## Alligator Ridge



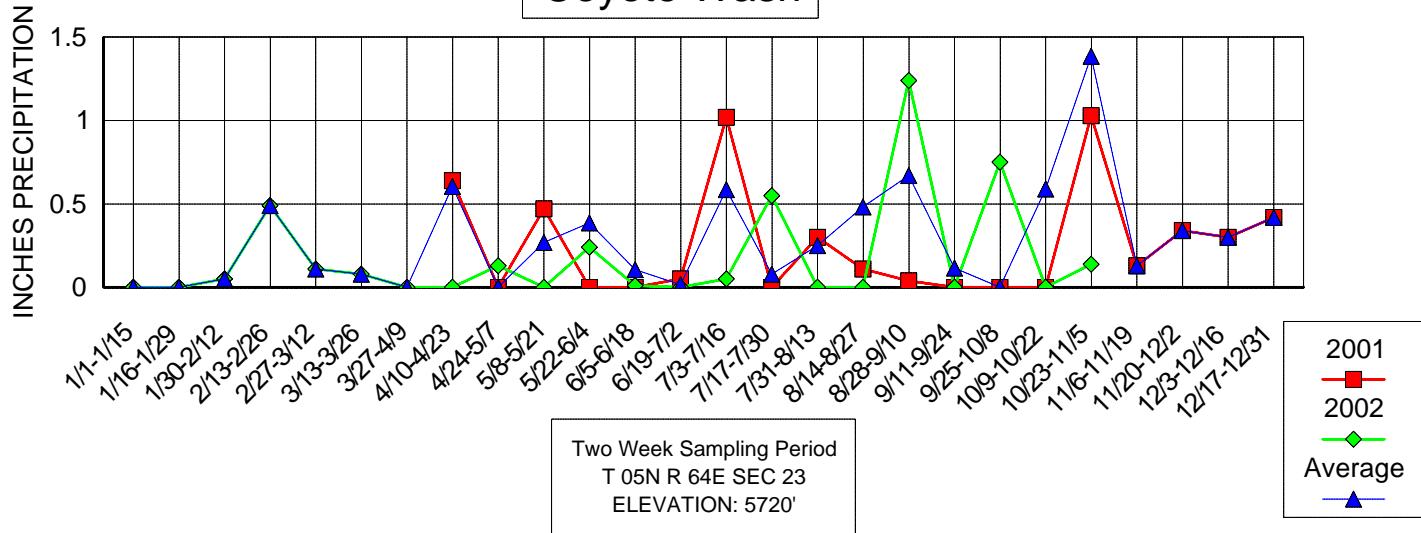
## Cattle Camp



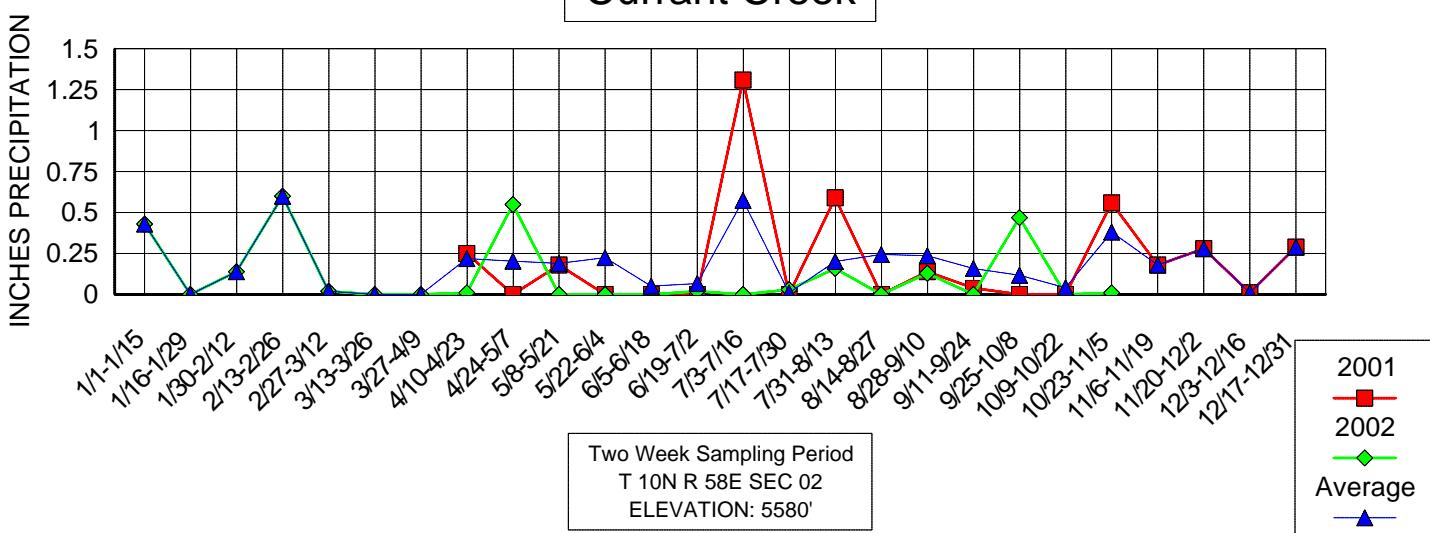
## Cedar Pass



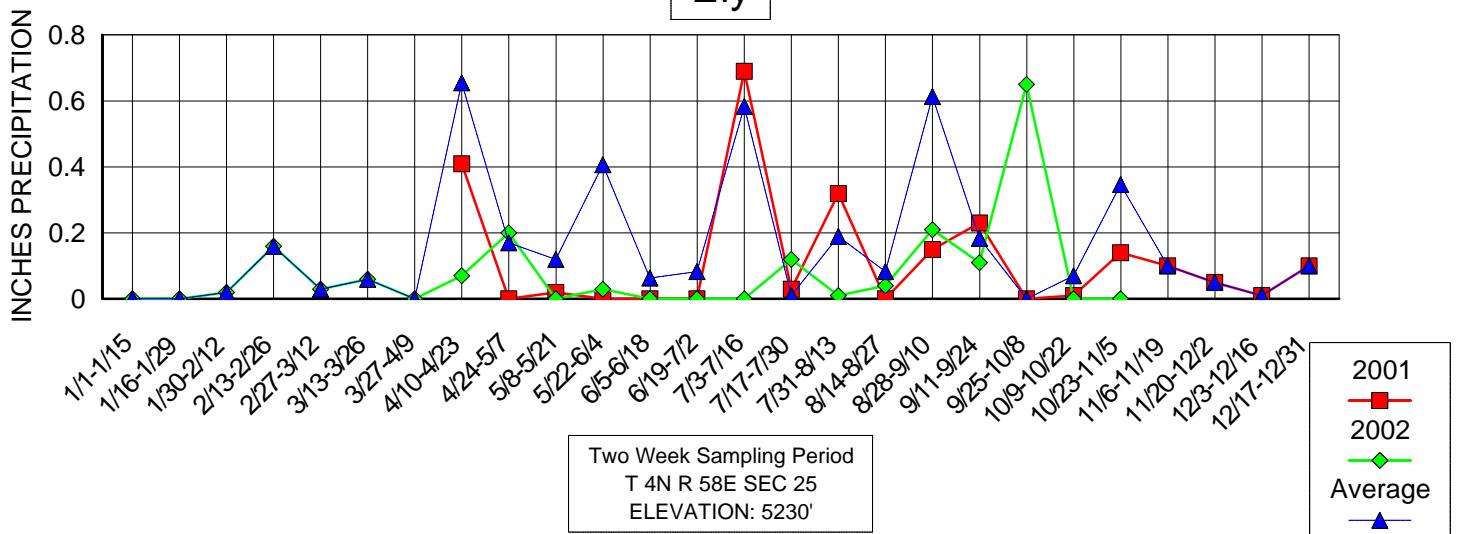
## Coyote Wash



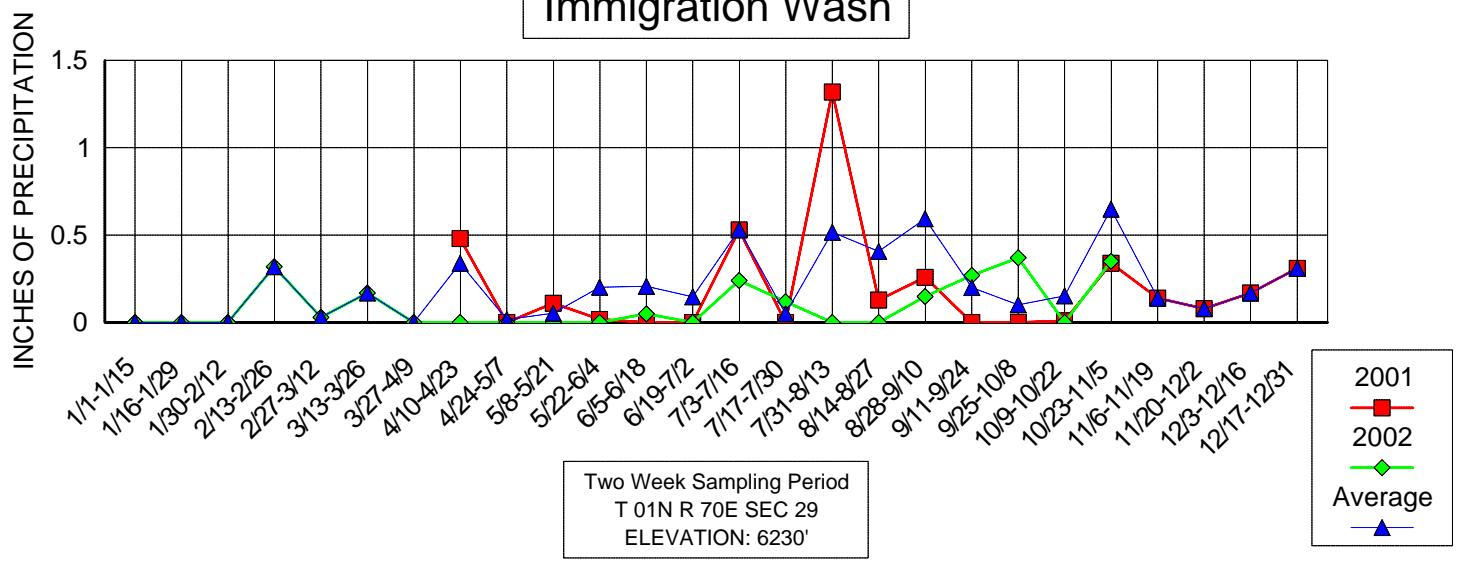
## Currant Creek



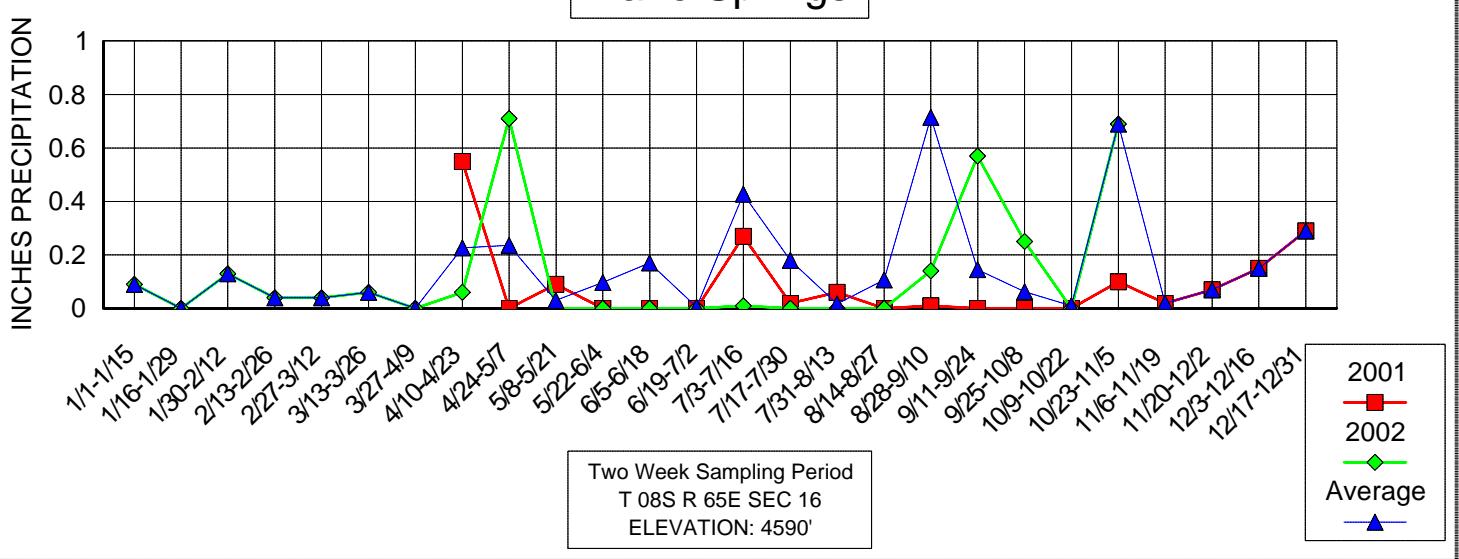
## Ely



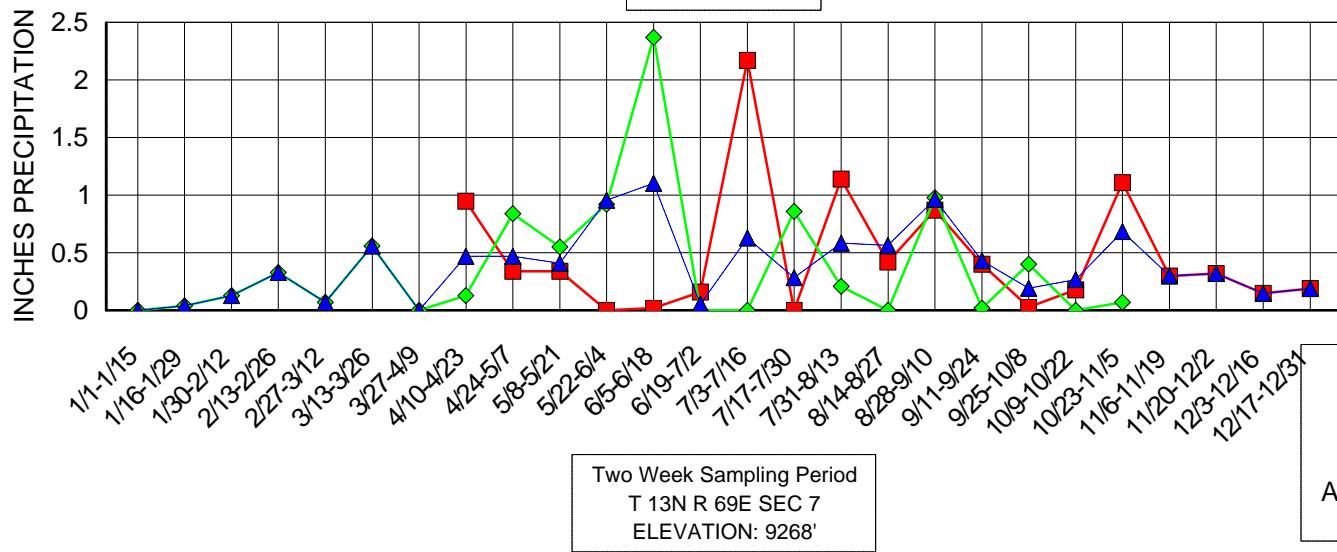
## Immigration Wash



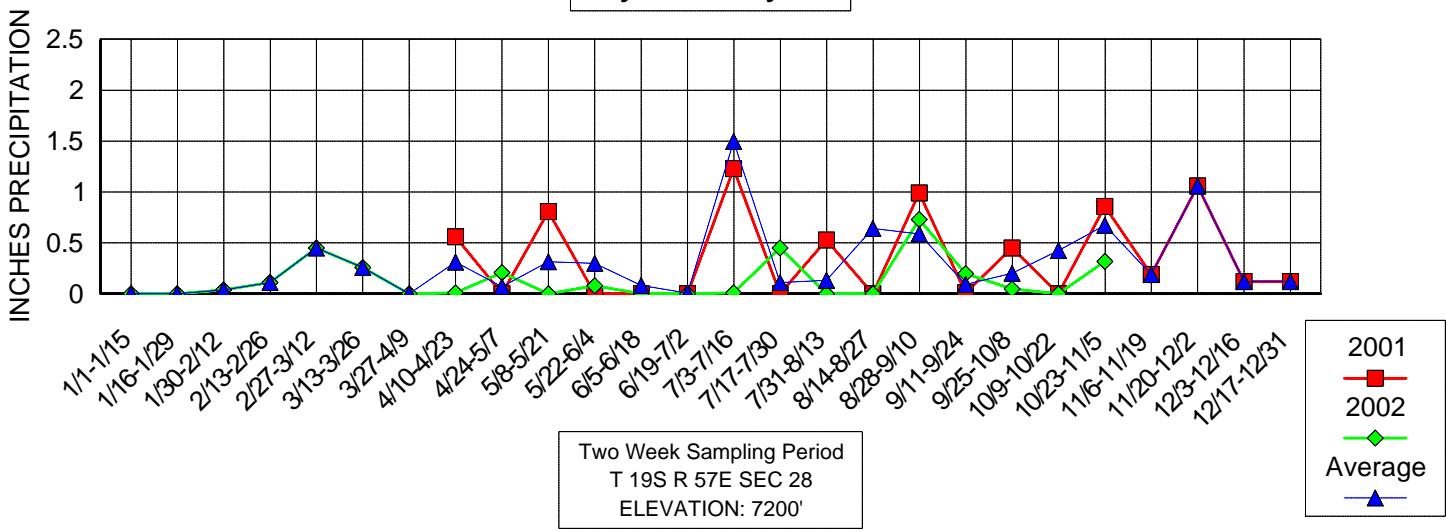
## Kane Springs



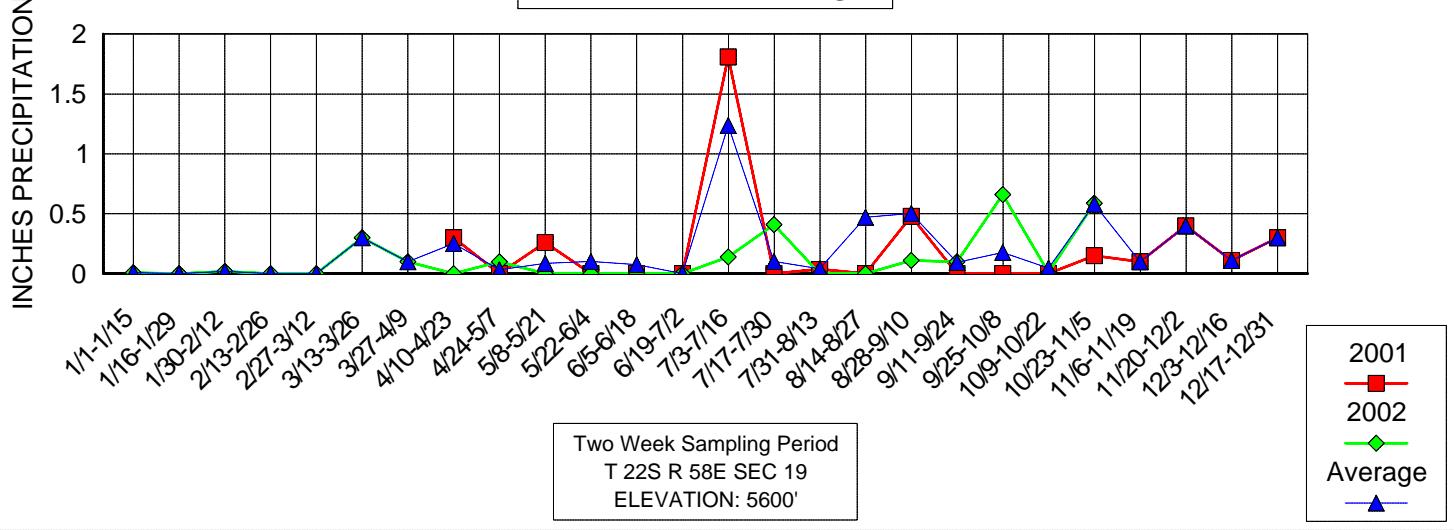
## Mathers



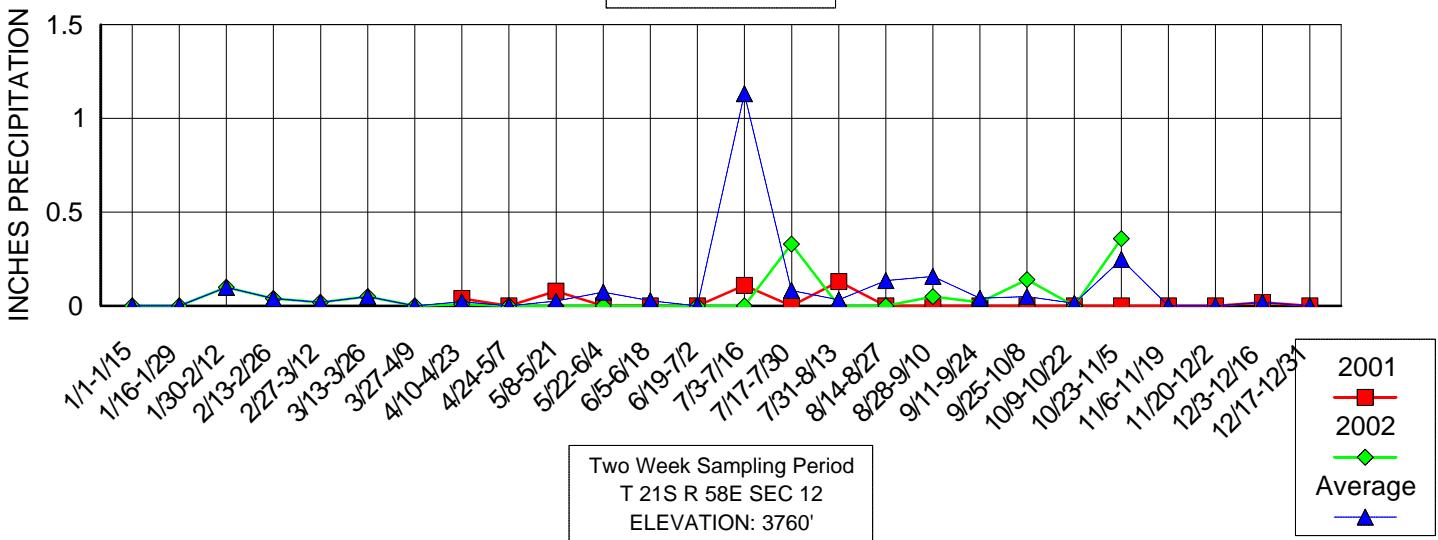
## Kyle Canyon



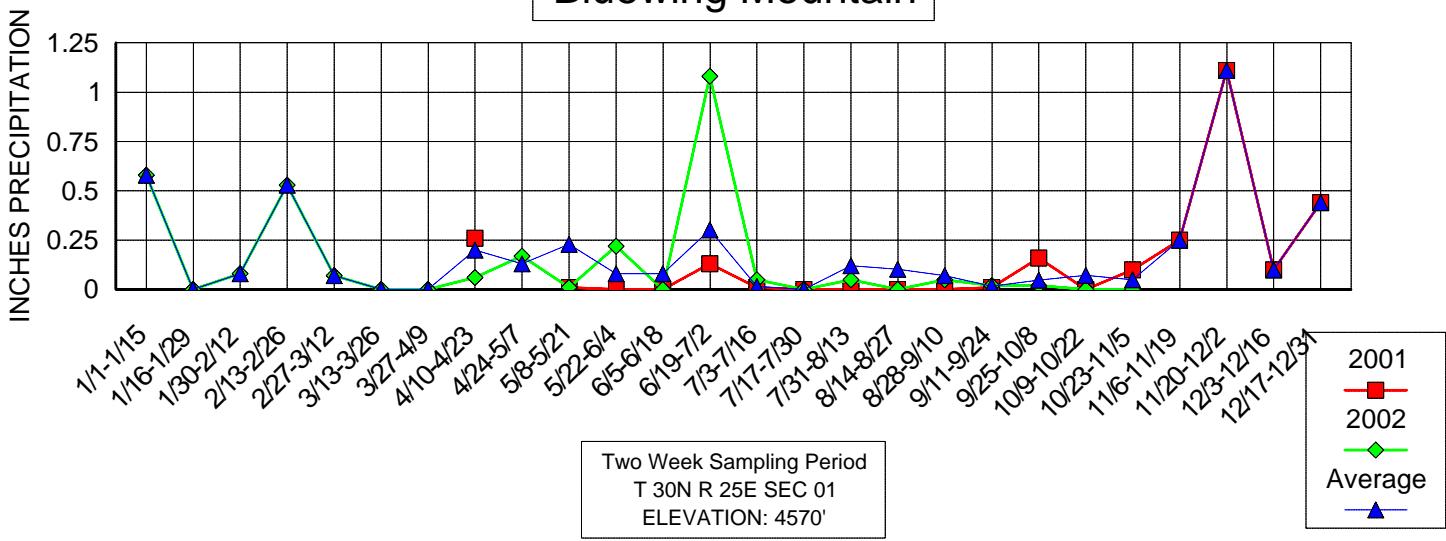
## Mountain Springs



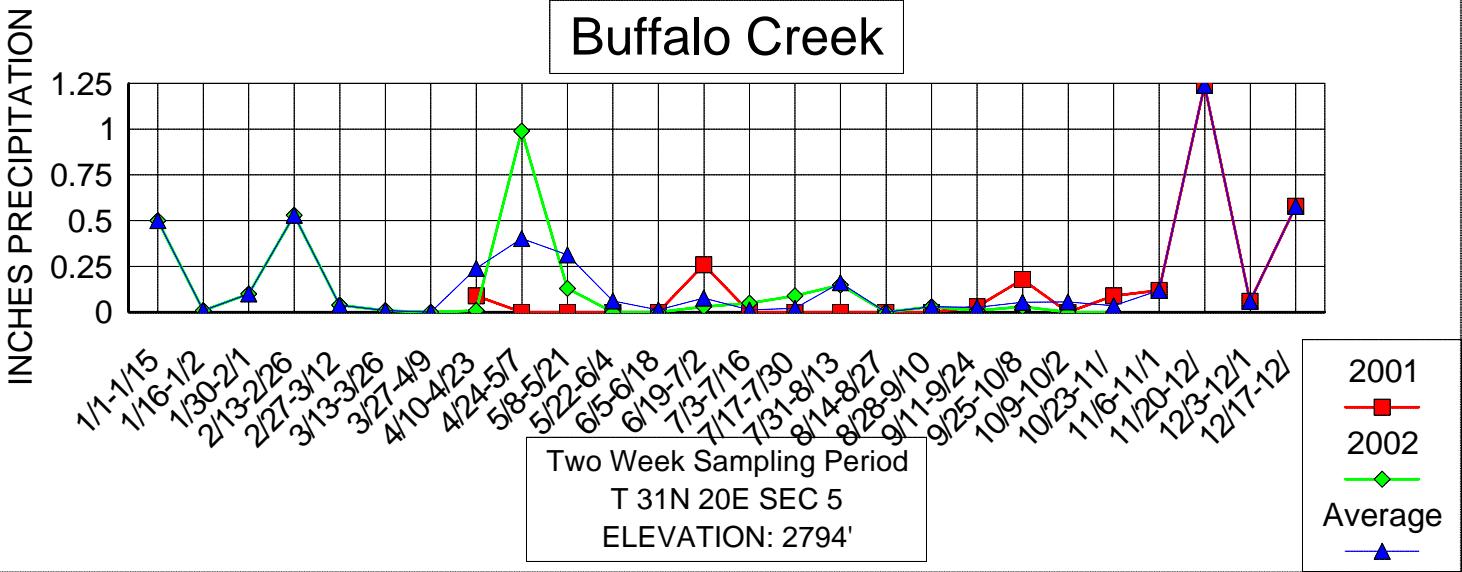
## Red Rock



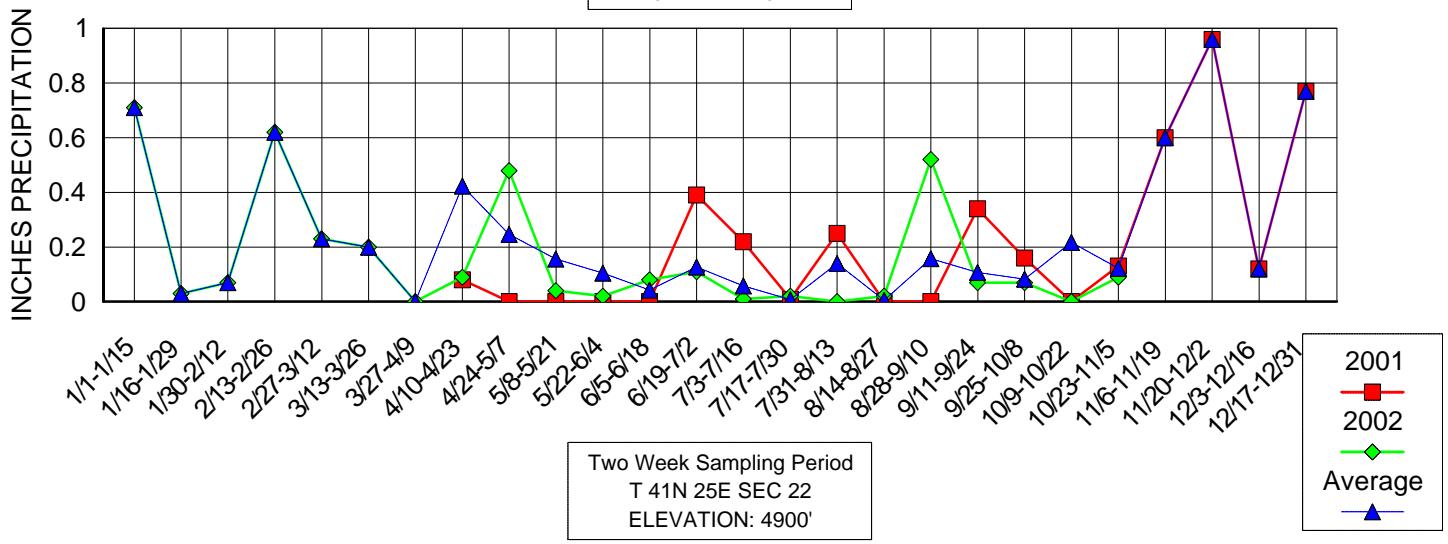
## Bluewing Mountain



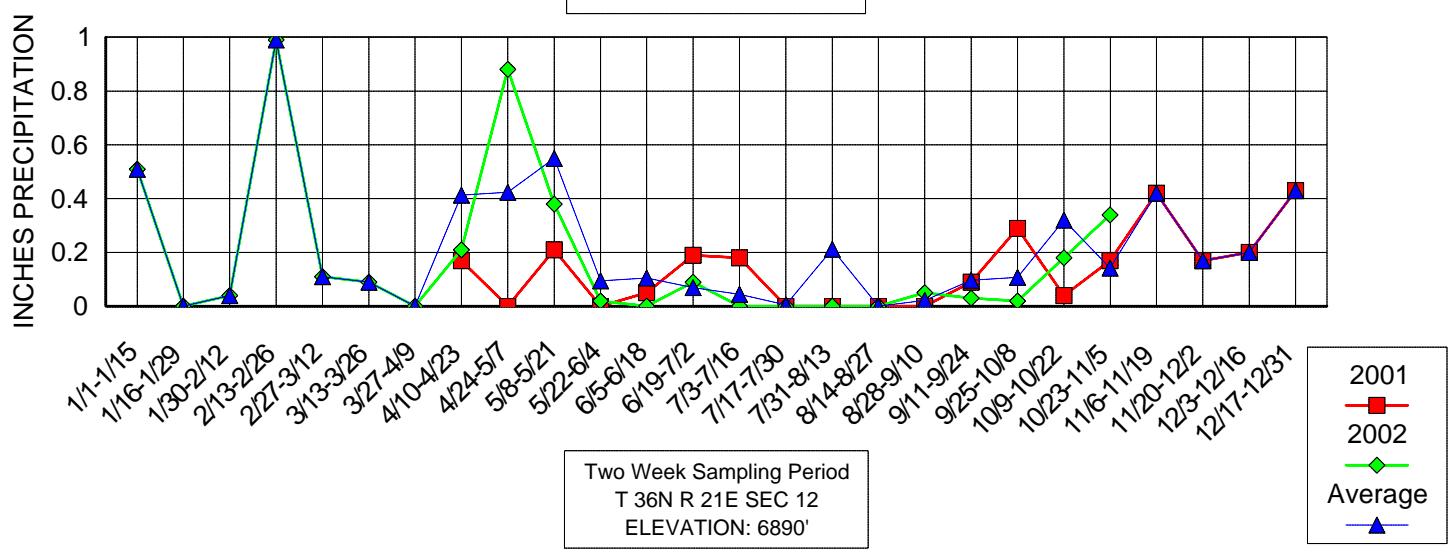
## Buffalo Creek



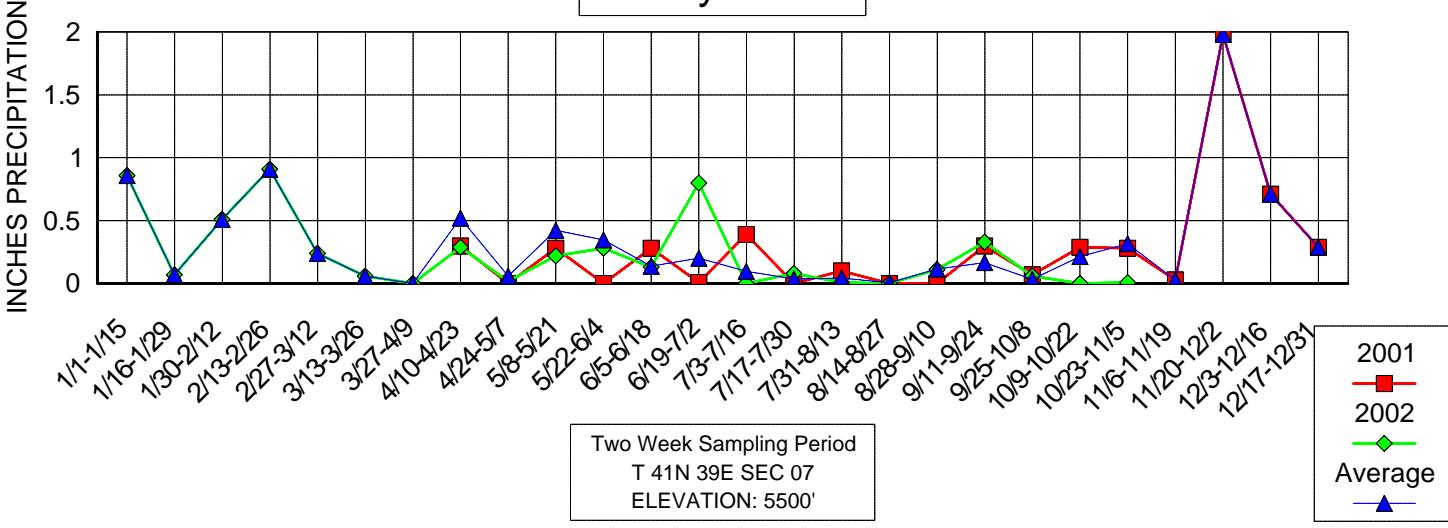
## Dry Canyon



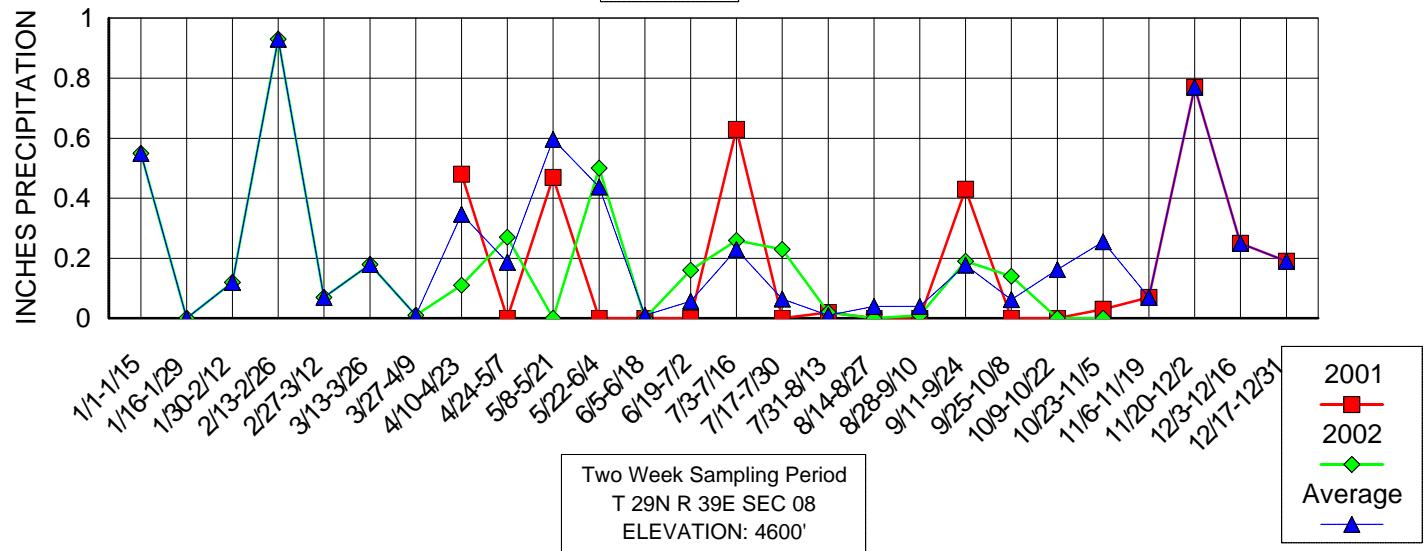
## Fox Mountain



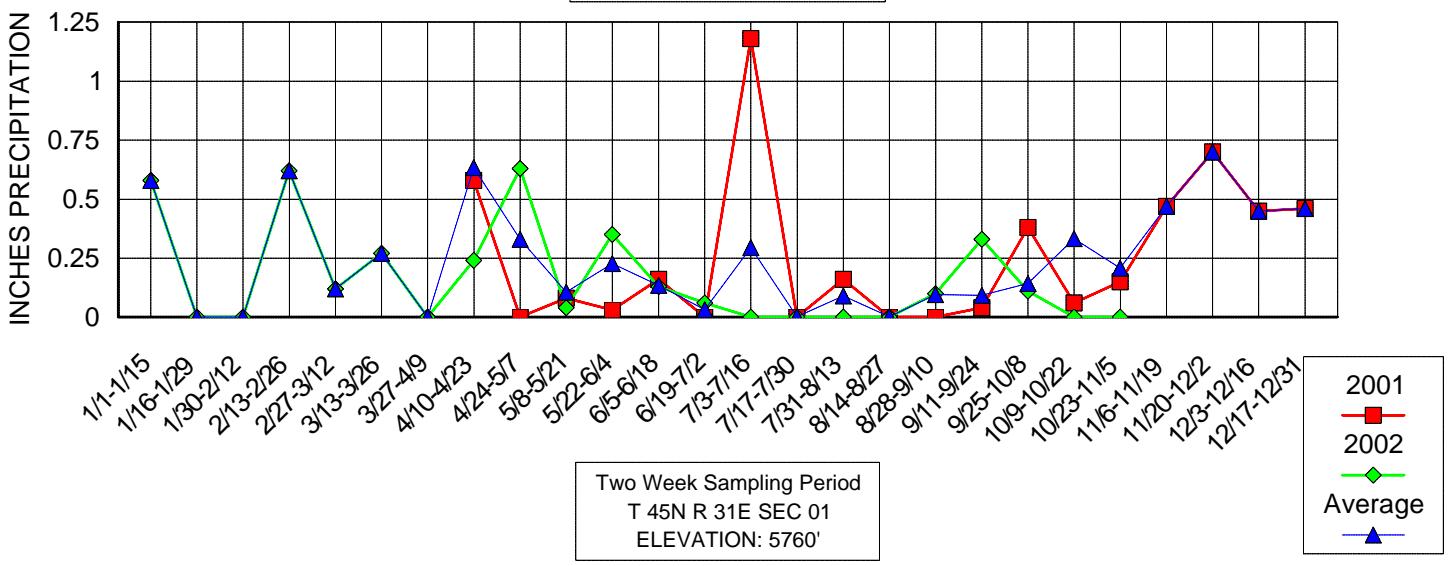
## Morey Creek



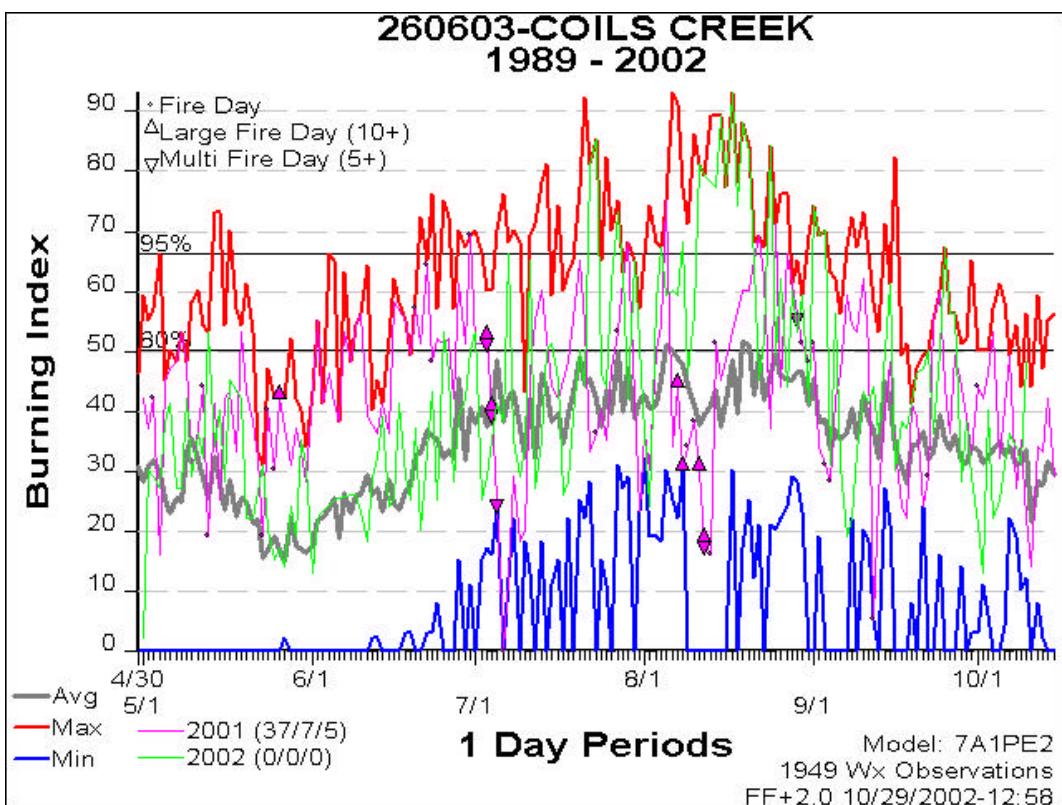
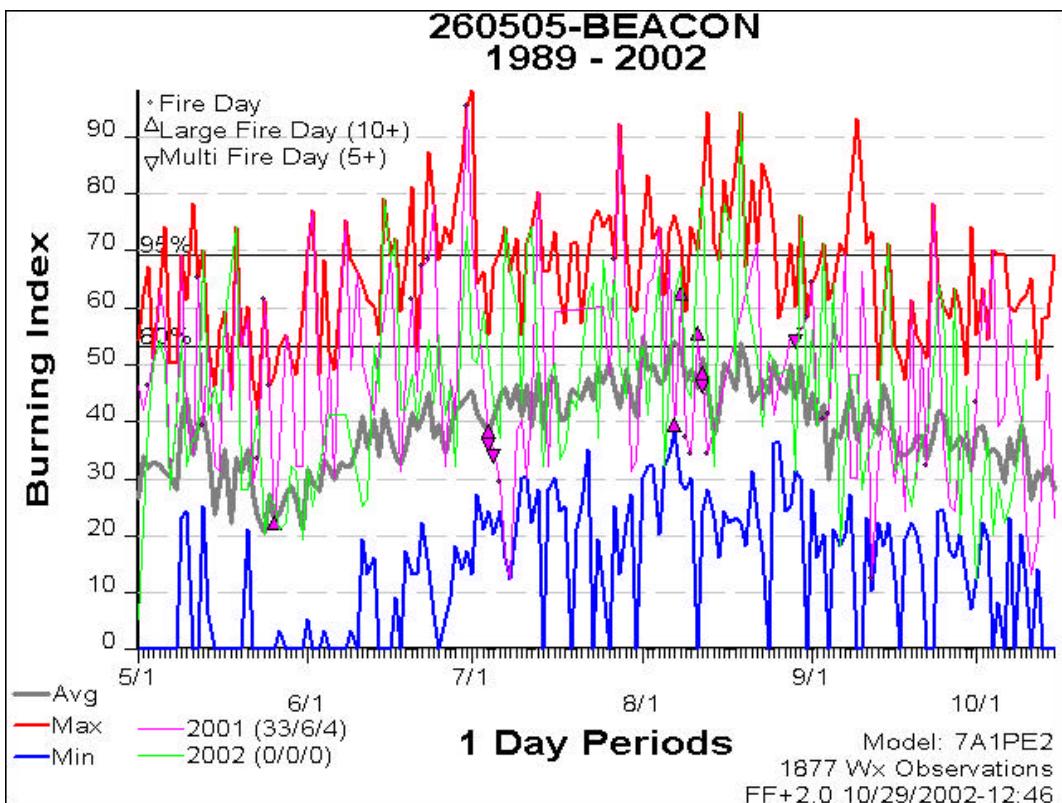
## Siard

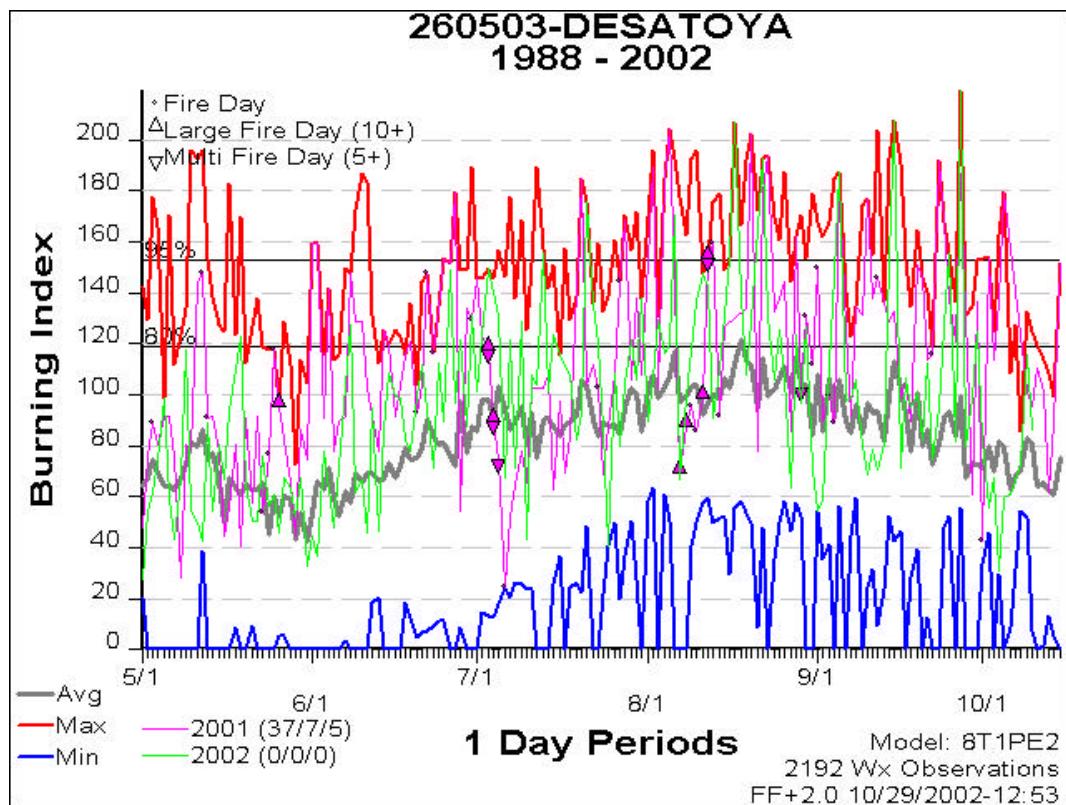


## Texas Springs

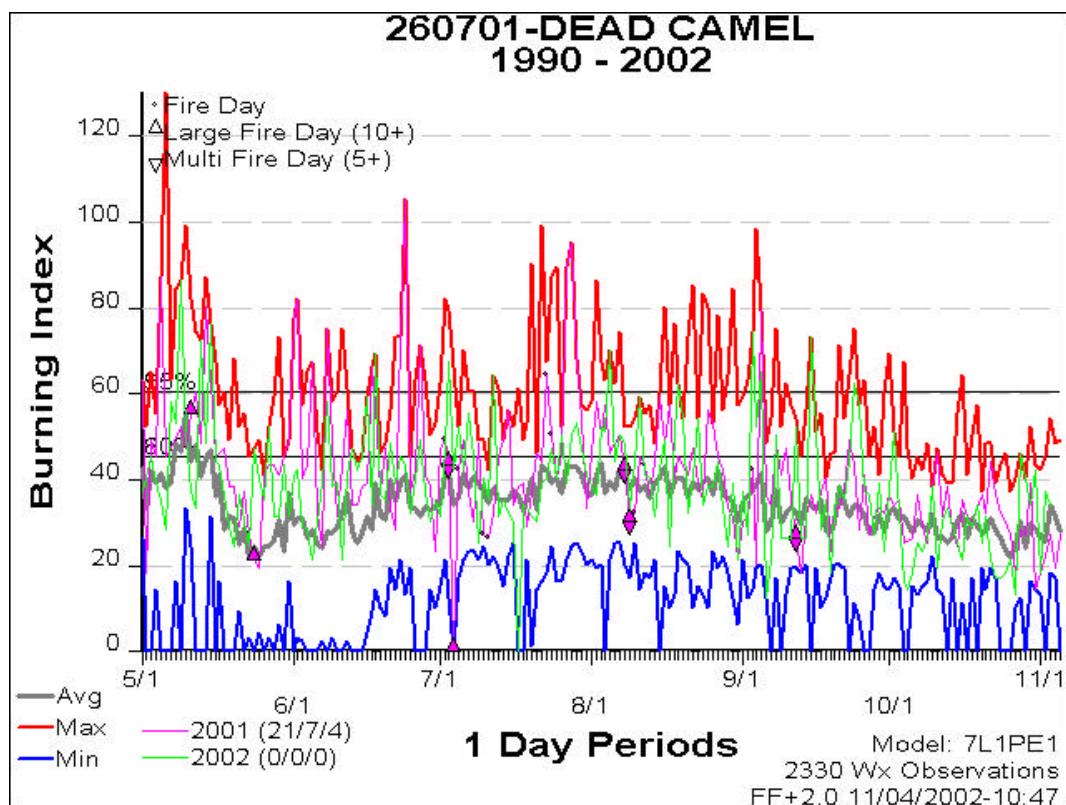


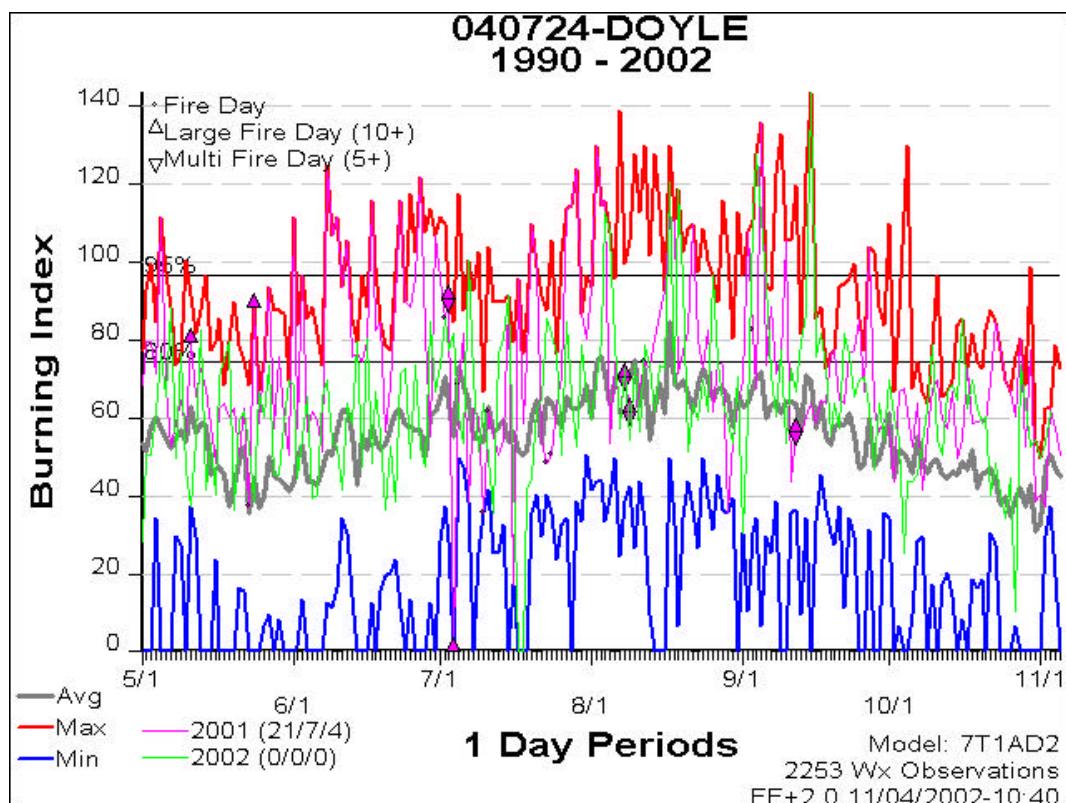
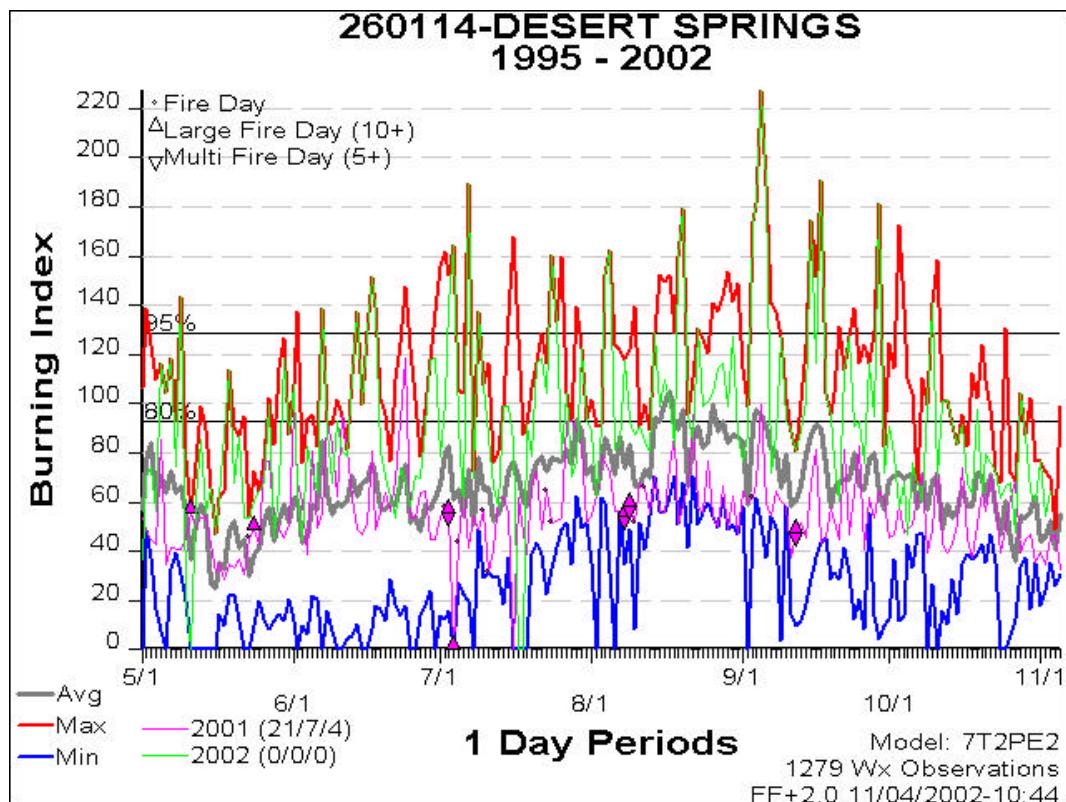
## BATTLE MOUNTAIN

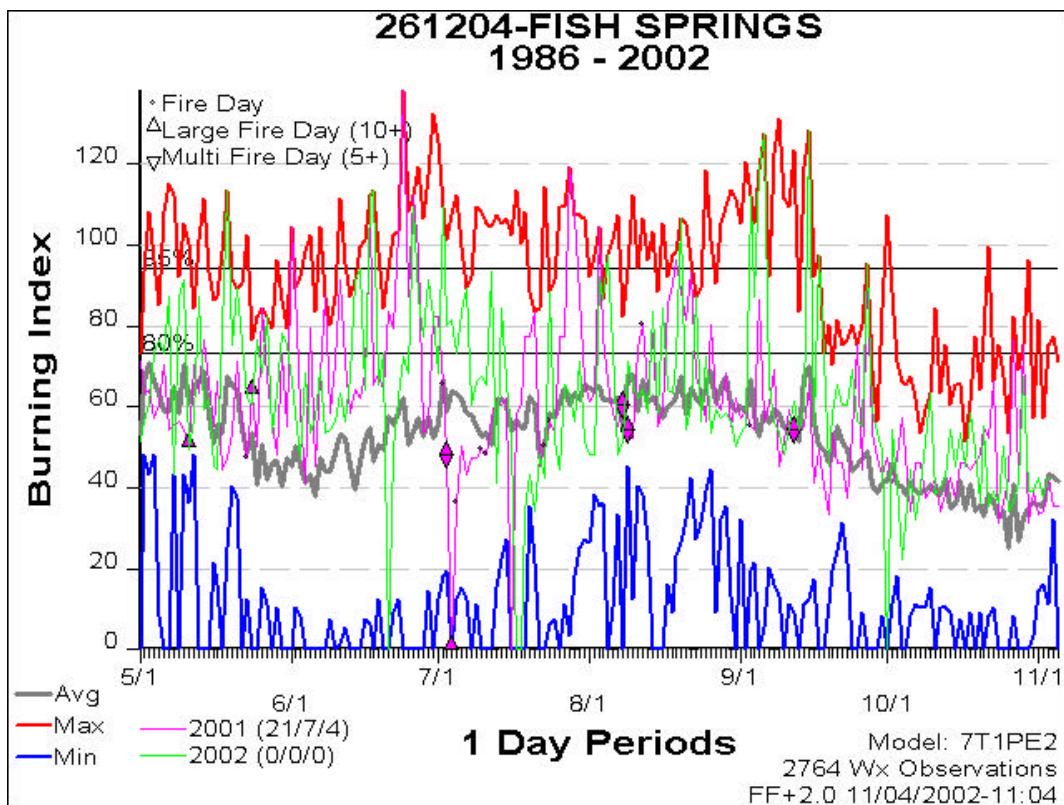




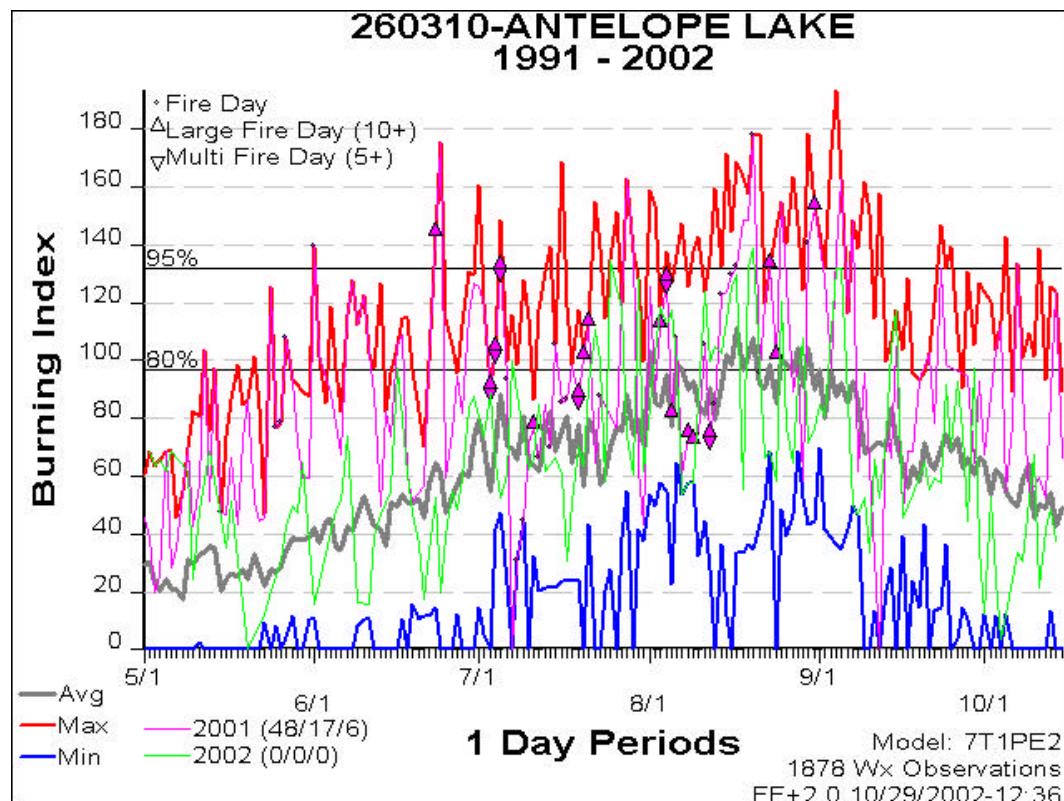
## CARSON CITY

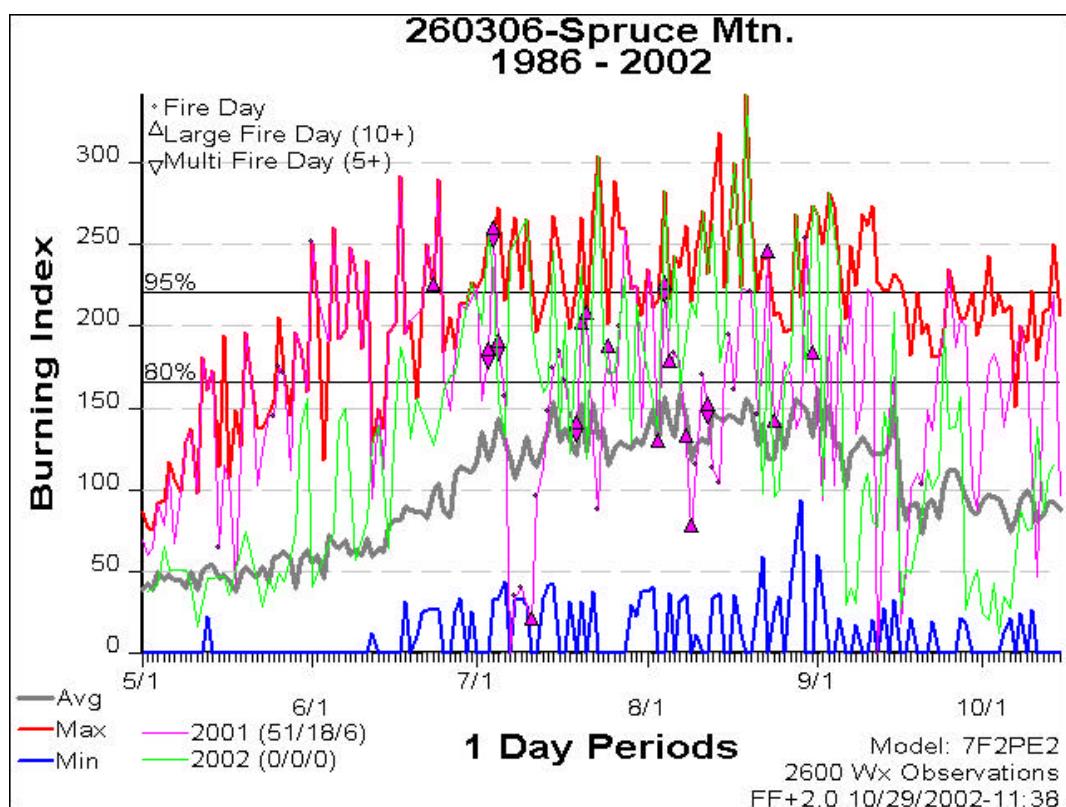
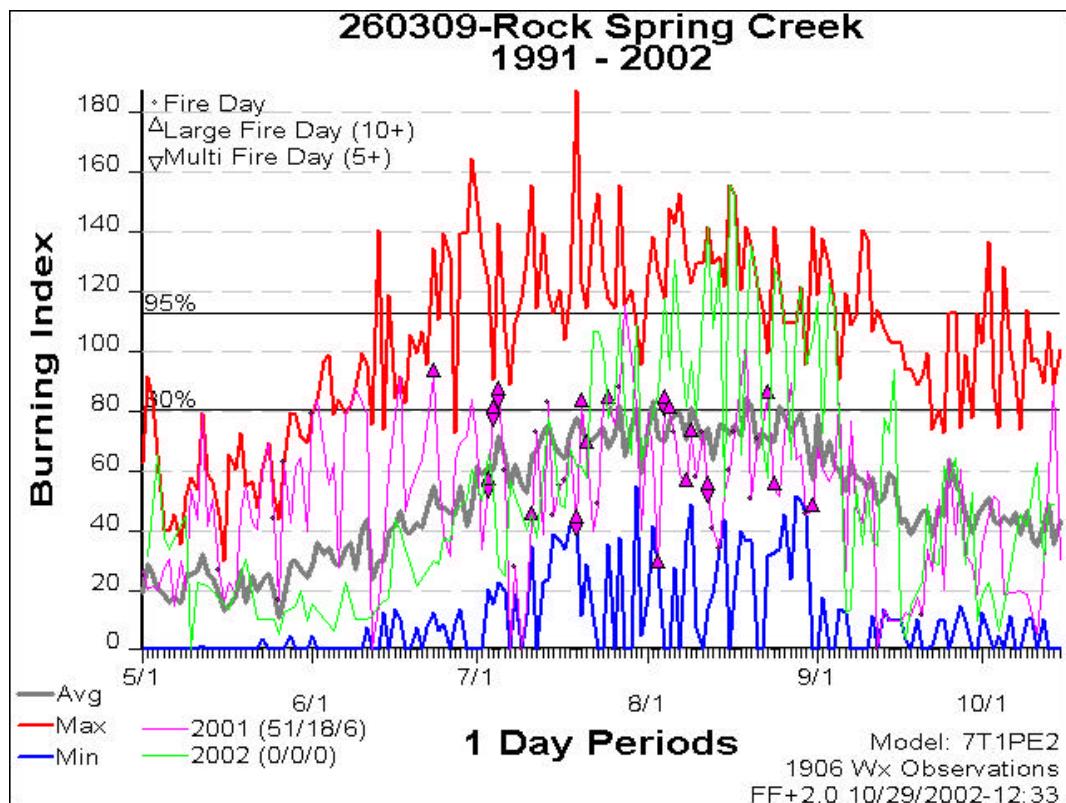




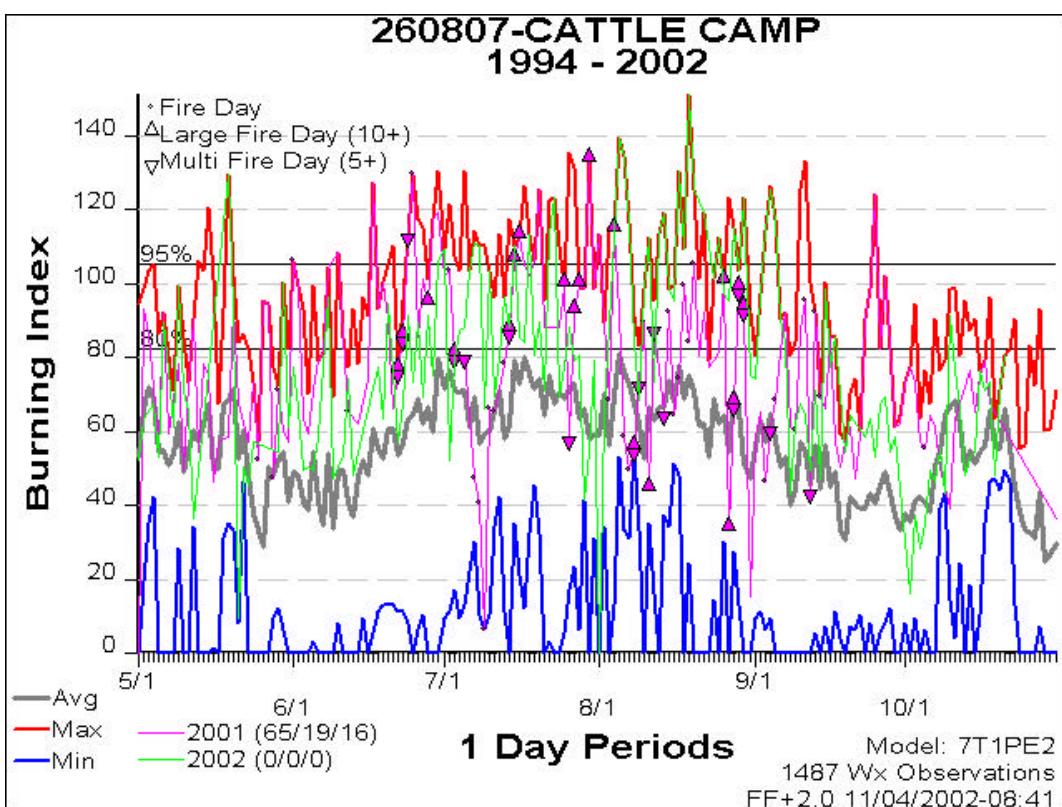
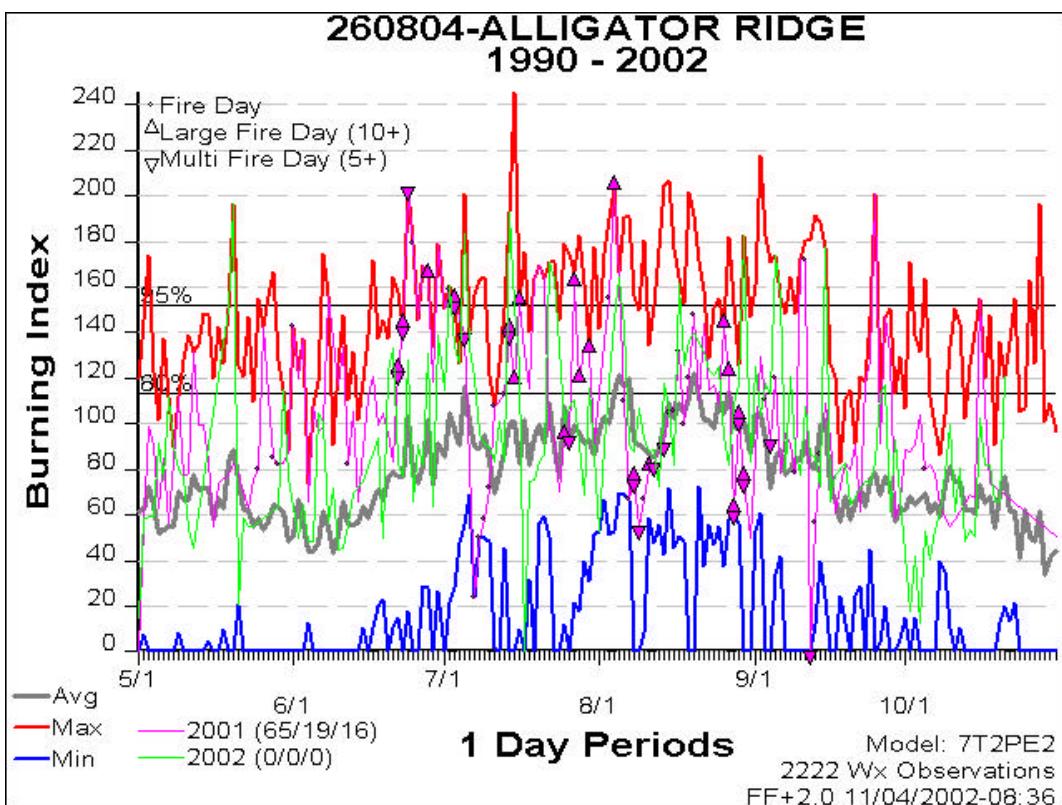


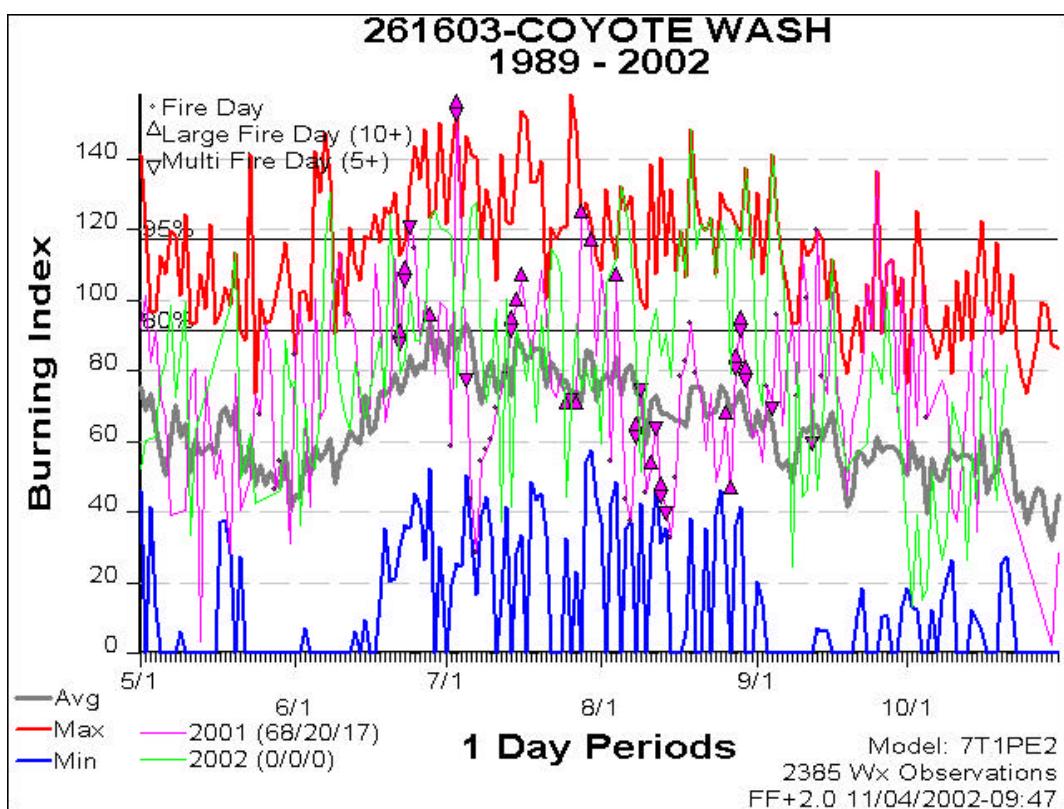
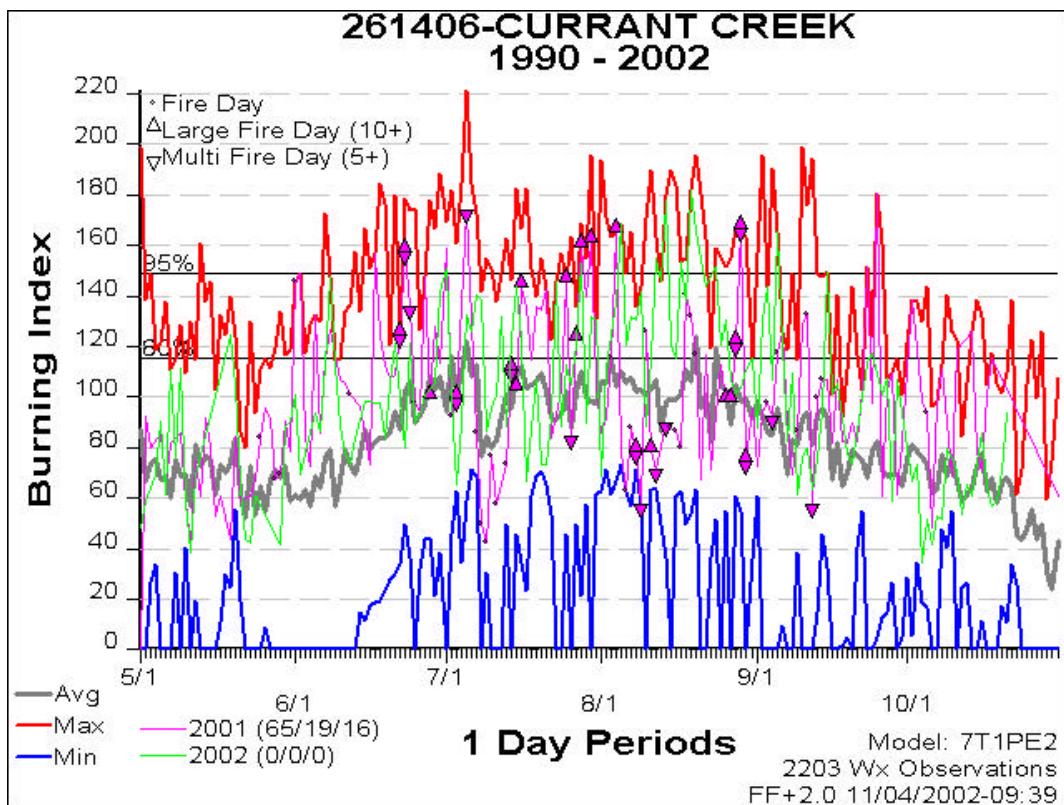
## ELKO

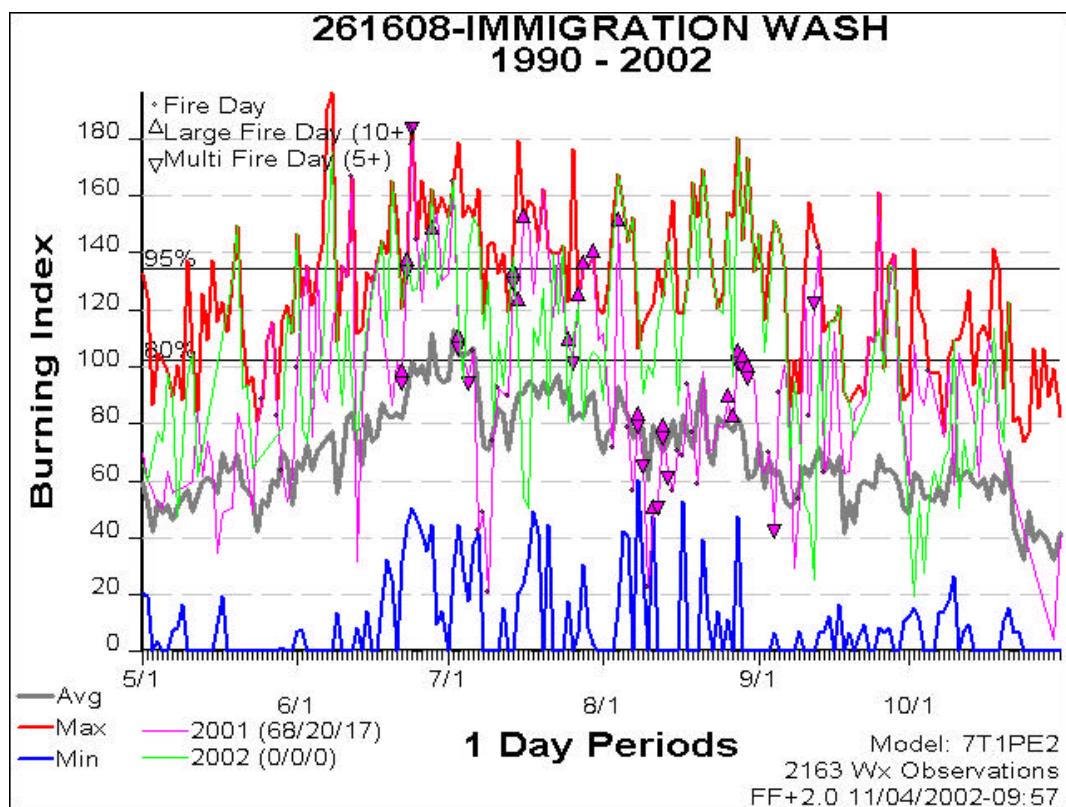
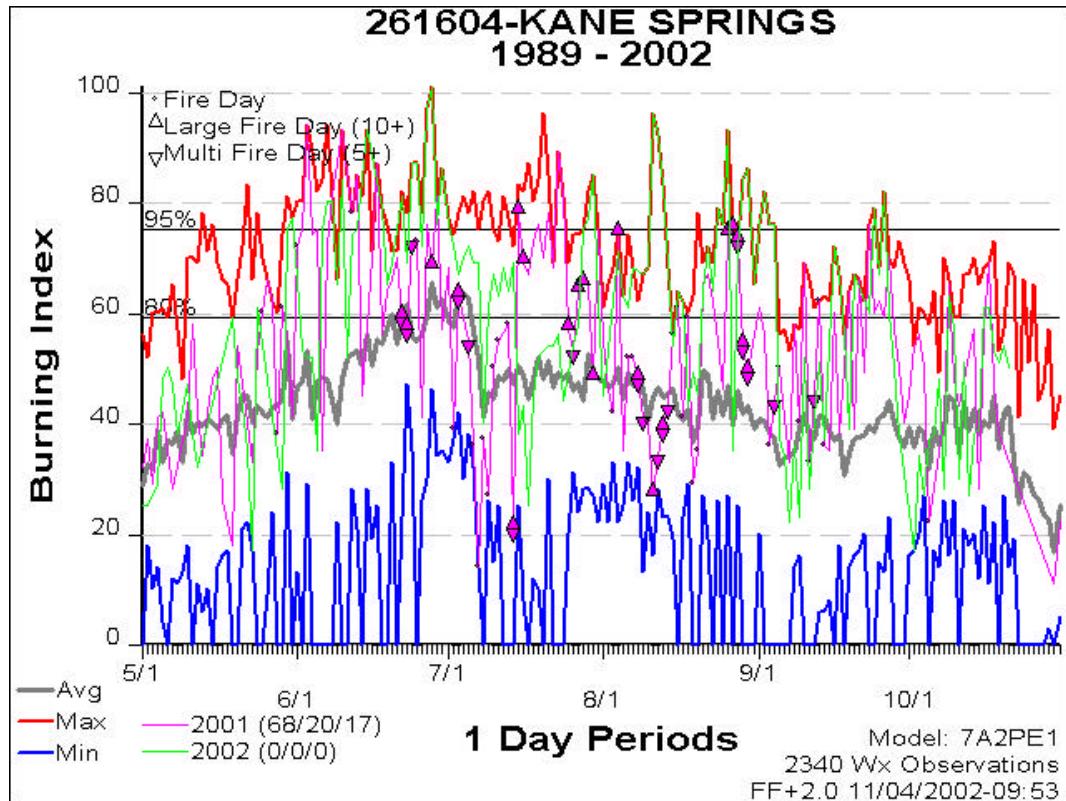




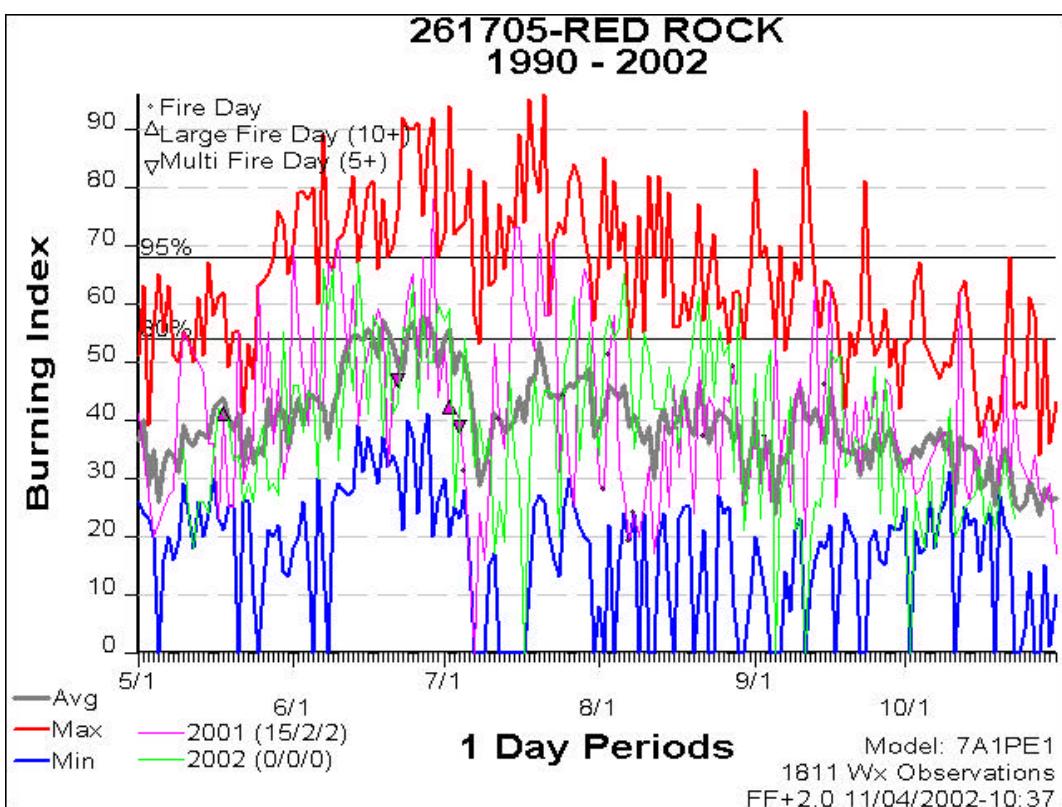
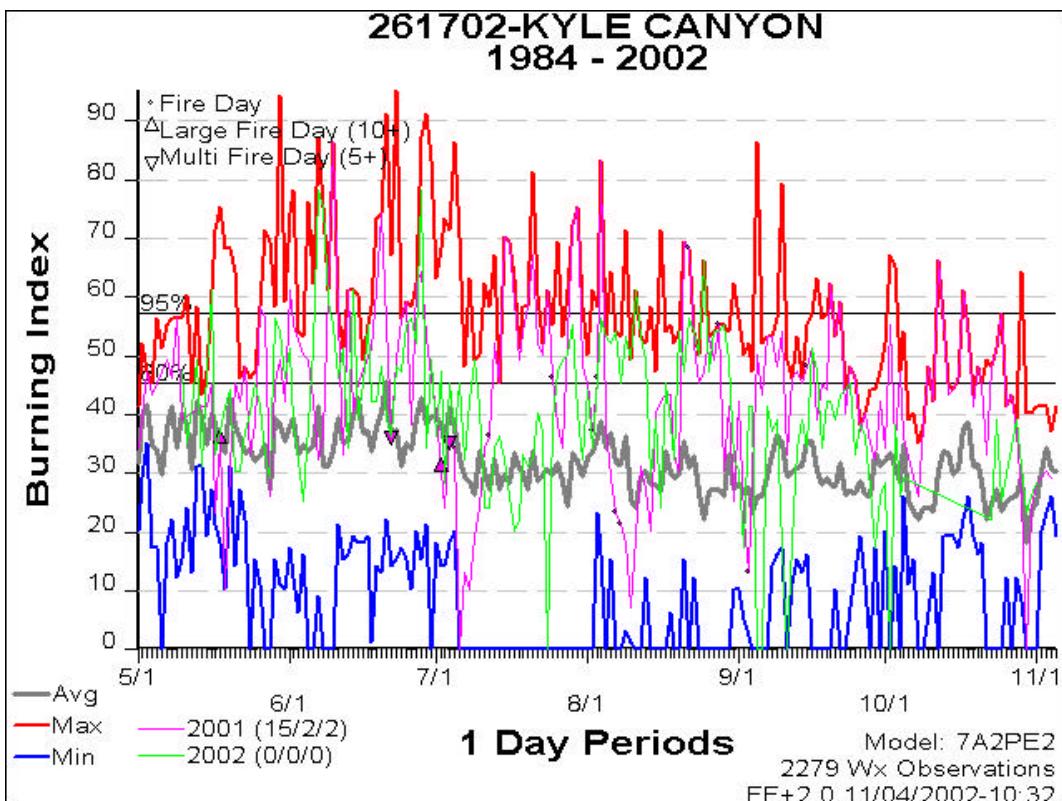
## ELY







## LAS VEGAS



## WINNEMUCCA

