

Climatic Change Implications for Hydrologic Systems in the Sierra Nevada

Section V

How to Use the Calculator

The Calculator is written in Microsoft “.NetFramework” Available free from Microsoft:

<http://www.microsoft.com/downloads/details.aspx?familyid=a8f5654f-088e-40b2-bbdb-a83353618b38&displaylang=en>

Right click on the hyperlink above and open hyperlink. The MS .NET Framework page will appear from the Microsoft site. Follow instructions to download and install on your computer.

- **Microsoft .NET Framework 1.1 Service Pack 1**

- Quick Info
- **File Name:**
NDP1.1sp1-KB867460-X86.exe
- **Version:**
1.0
- **Date Published:**
5/31/2005
- **Language:**
English
- **Download Size:**
10453 KB
- **Estimated Download Time:**
25 min @ 56K
- **Change Language**
-

- **Overview**

- The primary focus of Microsoft .NET Framework 1.1 Service Pack 1 (SP1) is improved security. In addition, the service pack includes roll-ups of all reported customer issues found after the release of the Microsoft .NET Framework 1.1. Of particular note, SP1 provides better support for consuming WSDL documents, Data Execution prevention and protection from security issues such as buffer overruns.

- **Quick Description**

- Download the latest .NET Framework 1.1 Service Pack from Microsoft.

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- **System Requirements**

- **Supported Operating Systems:** TabletPC; Windows 2000; Windows 2000 Advanced Server; Windows 2000 Professional Edition ; Windows 2000 Server; Windows 2000 Service Pack 2; Windows 2000 Service Pack 3; Windows 2000 Service Pack 4; Windows 98; Windows 98 Second Edition; Windows ME; Windows NT; Windows Server 2003 Service Pack 1 for Itanium-bas; Windows Server 2003, Datacenter Edition for 64-Bit; Windows Server 2003, Datacenter x64 Edition; Windows Server 2003, Enterprise Edition for Itanium; Windows Server 2003, Enterprise x64 Edition; Windows Server 2003, Standard x64 Edition; Windows XP; Windows XP 64-bit; Windows XP for Itanium-based Systems Version 2003; Windows XP Home Edition ; Windows XP Media Center Edition; Windows XP Professional 64-Bit Edition (Itanium) ; Windows XP Professional 64-Bit Edition (Itanium) 2; Windows XP Professional Edition ; Windows XP Service Pack 1; Windows XP Service Pack 2

- **Software Requirements:**

- Microsoft Internet Explorer 5.01 or later ([install Internet Explorer 6.0](#)).

Climate Change Yield Calculator Screen (above 3000 ft)

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 3000-3500

Precipitation: Base

Temperature: Base

Winter Acre/Feet

Spring Acre/Feet

Annual Acre/Feet

Snow (wc4-1) Inches

Elevation	Vegetation	Aspect	Area
Feet			Acres
3000-3500	Bare	South	0
3000-3500	Forest	South	0
3000-3500	Shrub	South	0
3000-3500	Bare	North	0
3000-3500	Forest	North	0
3000-3500	Shrub	North	0
3000-3500	Bare	E/W/Flat	0
3000-3500	Forest	E/W/Flat	0
3000-3500	Shrub	E/W/Flat	0
Total Area Entered:			0

Base Condition

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

Climate Change Yield Calculator Screen (below 3000 ft)

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 2500-3000

Precipitation: Base

Temperature: Base

Winter: Acre/Feet

Spring: Acre/Feet

Annual: Acre/Feet

Snow (wc4-1): Inches

Elevation	Vegetation	Aspect	Area
Feet			Acres
2500-3000	Bare	NA	0
2500-3000	Forest	NA	0
2500-3000	Shrub	NA	0

Below 3000 ft, Hru's are simplified to vegetation options only.

Total Area Entered: 0

Base Condition

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

Main Pull Down Menu

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

- New
- Open
- Save
- Save As...
- Exit

Watershed Region: North

Elevation Range: 3000-3500

Precipitation: Base

Temperature: Base

Winter Spring Annual Snow (wc4-1)

Acre/Feet Acre/Feet Acre/Feet Inches

Elevation: Feet

Elevation	Vegetation	Watershed	Area	Unit
3000-3500	Bare	South	0	Acre/Feet
3000-3500	Forest	South	0	Acre/Feet
3000-3500	Shrub	South	0	Acre/Feet
3000-3500	Bare	North	0	Acre/Feet
3000-3500	Forest	North	0	Acre/Feet
3000-3500	Shrub	North	0	Acre/Feet
3000-3500	Bare	E/W/Flat	0	Acre/Feet
3000-3500	Forest	E/W/Flat	0	Acre/Feet
3000-3500	Shrub	E/W/Flat	0	Acre/Feet

Total Area Entered: 0

Base Condition

	Winter	Spring	Annual	Snow (wc4-1)
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

	Winter	Spring	Annual	Snow (wc4-1)
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

	Winter	Spring	Annual	Snow (wc4-1)
Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

The File Menu will:

- New** = clear the calculator
- Open** = open existing XML files
- Save** = save XML
- Save as** = XML with new name
- Exit**

First Select Region on WS Region pulldown menu (Click Sierra Nevada Map for Regions)

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: South, Central, North

Precipitation: Base

Temperature: Base

Winter Acre/Feet, Spring Acre/Feet, Annual Acre/Feet, Snow (wc4-1) Inches

Elevation	Vegetation	Aspect	Area
Feet			Acres
3000-3500	Bare	South	0
3000-3500	Forest	South	0
3000-3500	Shrub	South	0
3000-3500	Bare	North	0
3000-3500	Forest	North	0
3000-3500	Shrub	North	0
3000-3500	Bare	E/W/Flat	0
3000-3500	Forest	E/W/Flat	0
3000-3500	Shrub	E/W/Flat	0
Total Area Entered:			0

Base Condition

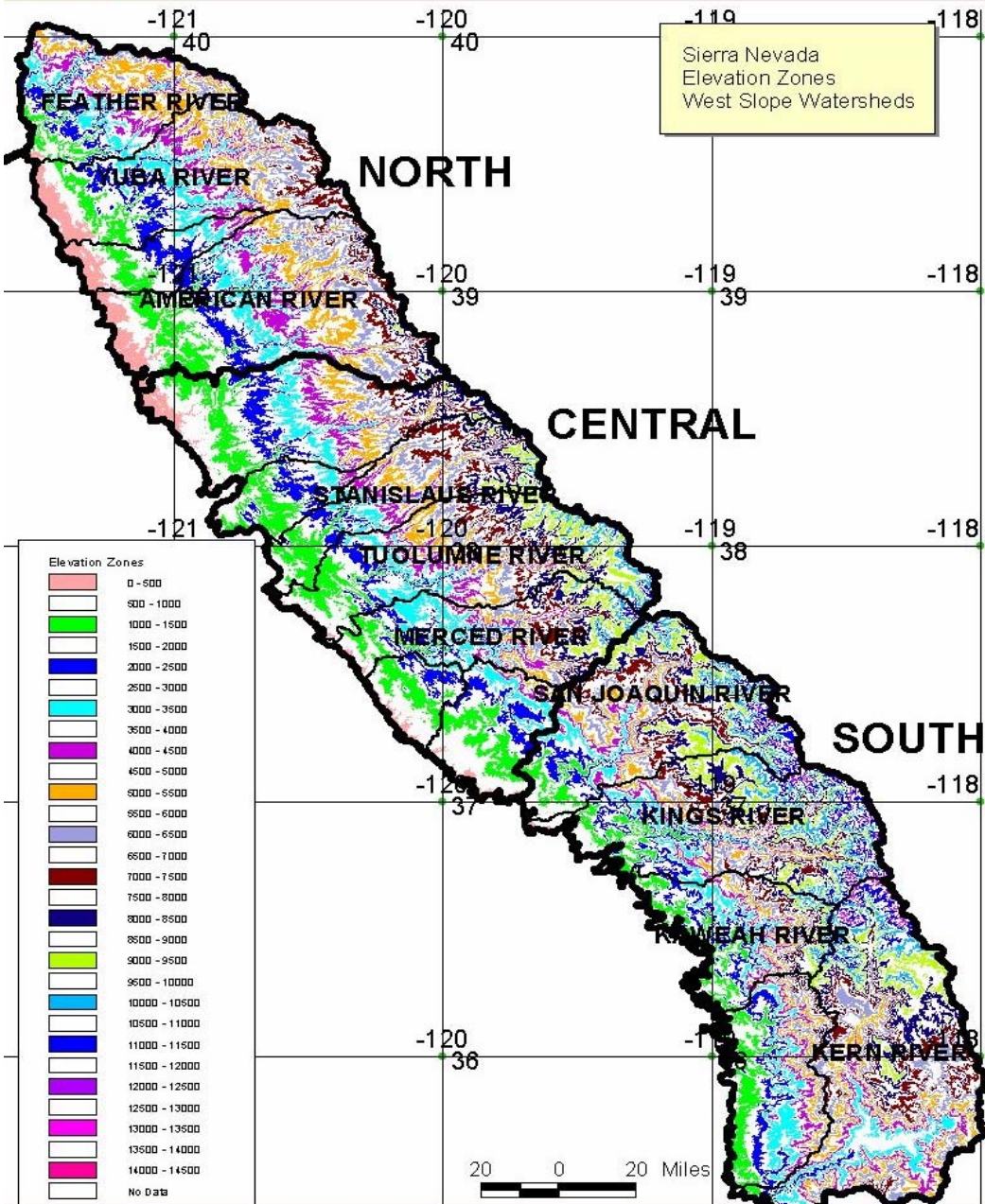
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%



Sierra Nevada
Elevation Zones
West Slope Watersheds

The map shows which watersheds are included in each region.

Elevation Range menu offers 25 separate bands from 0 to 12,500 feet.

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 3000-3500

8500-9000
9000-9500
9500-10000
10000-10500
10500-11000
11000-11500
11500-12000
12000-12500

Precipitation: Base

Temperature: Base

Winter Spring Annual Snow (wc4-1)

Acre/Feet Acre/Feet Acre/Feet Inches

Elevation Vegetation Area

Feet

3000-3500	Bare	South	0
3000-3500	Forest	South	0
3000-3500	Shrub	South	0
3000-3500	Bare	North	0
3000-3500	Forest	North	0
3000-3500	Shrub	North	0
3000-3500	Bare	E/W/Flat	0
3000-3500	Forest	E/W/Flat	0
3000-3500	Shrub	E/W/Flat	0
Total Area Entered:			0

Base Condition

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

Elevation can be entered in feet or in meters.

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 914-1067

Precipitation: Base

Temperature: Base

Winter: Acre/Feet

Spring: Acre/Feet

Annual: Acre/Feet

Snow (wc4-1): Inches

Elevation	Vegetation	Aspect	Area
Meters			Acres
Feet	Bare	South	0
Meters	Forest	South	0
914-1067	Shrub	South	0
914-1067	Bare	North	0
914-1067	Forest	North	0
914-1067	Shrub	North	0
914-1067	Bare	E/W/Flat	0
914-1067	Forest	E/W/Flat	0
914-1067	Shrub	E/W/Flat	0
Total Area Entered:			0

Base Condition

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

Area can be entered in acres, square miles, or square kilometers.

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 3000-3500

Precipitation: Base

Temperature: Base

Winter: Acre/Feet

Spring: Acre/Feet

Annual: Acre/Feet

Snow (wc4-1): Inches

Elevation	Vegetation	Aspect	Area
Feet			Sq. Km.
3000-3500	Bare	South	Acre/Feet
3000-3500	Forest	South	Sq. Mi.
3000-3500	Shrub	South	Sq. Km.
3000-3500	Bare	North	0.00
3000-3500	Forest	North	0.00
3000-3500	Shrub	North	0.00
3000-3500	Bare	E/W/Flat	0.00
3000-3500	Forest	E/W/Flat	0.00
3000-3500	Shrub	E/W/Flat	0.00
Total Area Entered:			0.00

	Winter	Spring	Annual	Snow (wc4-1)
Base Condition				
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0
Climatic Change Alternative				
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0
Comparison to Base				
Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

Watershed Yield is measured in Acre-Feet, Inches of runoff, or cubic meters.

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 4000-4500

Precipitation: Base

Temperature: Base

Winter Spring Annual Snow (wc4-1)

Acre/Feet Acre/Feet Acre/Feet Inches

Base Condition

	Winter	Spring	Annual	Snow (wc4-1)
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

	Winter	Spring	Annual	Snow (wc4-1)
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

	Winter	Spring	Annual	Snow (wc4-1)
Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

Elevation	Vegetation	Aspect	Area
4000-4500	Bare	South	0
4000-4500	Forest	South	0
4000-4500	Shrub	South	0
4000-4500	Bare	North	0
4000-4500	Forest	North	0
4000-4500	Shrub	North	0
4000-4500	Bare	E/W/Flat	0
4000-4500	Forest	E/W/Flat	0
4000-4500	Shrub	E/W/Flat	0
Total Area Entered:			0

Climate Change Scenarios: French Meadows change selecting +4 degree C

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 9000-9500

Precipitation: Base

Temperature: Base +4°C

Winter Acre/Feet

Spring Acre/Feet

Snow (wc4-1) Inches

Elevation	Vegetation	Aspect	Area
Feet			Acres
9000-9500	Bare	South	0
9000-9500	Forest	South	0
9000-9500	Shrub	South	0
9000-9500	Bare	North	0
9000-9500	Forest	North	0
9000-9500	Shrub	North	0
9000-9500	Bare	E/W/Flat	0
9000-9500	Forest	E/W/Flat	0
9000-9500	Shrub	E/W/Flat	0
Total Area Entered:			28,631

	Winter	Spring	Snow (wc4-1)
Avg:	11,165	59,437	70,602
Wet:	11,809	123,199	135,007
Dry:	19,302	30,879	50,181

Climatic Change Alternative

	Winter	Spring	Snow (wc4-1)
Avg:	37,920	19,012	56,932
Wet:	54,157	57,604	111,761
Dry:	38,076	7,831	45,908

Comparison to Base

	Winter	Spring	Snow (wc4-1)
Avg:	+240%	-68%	-19%
Wet:	+359%	-53%	-17%
Dry:	+97%	-75%	-9%

D:\AnEPA\Calculator\FRENCH.xml

Precipitation change is entered from +25% to -25% in 5% increments

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 4000-4500

Elevation: Feet
 Vegetation: Bare, Forest, Shrub
 Aspect: South, North, E/W/Flat
 Area: Acres

Precipitation: Base -25%
 Temperature: Base -25%
 Winter: Acre/Feet
 Spring: Acre/Feet
 Snow (wc4-1): Inches

	Winter	Spring	Summer	Fall
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Climatic Change Alternative

	Winter	Spring	Summer	Fall
Avg:	0	0	0	0.0
Wet:	0	0	0	0.0
Dry:	0	0	0	0.0

Comparison to Base

	Winter	Spring	Summer	Fall
Avg:	+0%	+0%	+0%	+0%
Wet:	+0%	+0%	+0%	+0%
Dry:	+0%	+0%	+0%	+0%

Total Area Entered: 0

Example Scenario for French Meadows with +4 degree C and -25% precipitation

Sierra Nevada West Slope Watersheds Climatic Change Alternatives

File

Sierra Nevada Map

Watershed Region: North

Elevation Range: 8500-9000

Precipitation: Base -25%

Temperature: Base +4°C

Winter Spring Annual Snow (wc4-1)

Acre/Feet Acre/Feet Acre/Feet Inches

Elevation	Vegetation	Aspect	Area
Feet			Acres
8500-9000	Bare	South	8
8500-9000	Forest	South	41
8500-9000	Shrub	South	111
8500-9000	Bare	North	1
8500-9000	Forest	North	1
8500-9000	Shrub	North	1
8500-9000	Bare	E/W/Flat	3
8500-9000	Forest	E/W/Flat	4
8500-9000	Shrub	E/W/Flat	16
Total Area Entered:			28,631

	Winter	Spring	Annual	Snow (wc4-1)
Base Condition				
Avg:	11,165	59,437	70,602	27.3
Wet:	11,809	123,199	135,007	43.6
Dry:	19,302	30,879	50,181	14.3
Climatic Change Alternative				
Avg:	19,930	10,411	30,341	1.3
Wet:	29,145	34,386	63,531	4.1
Dry:	19,780	4,198	23,978	0.1
Comparison to Base				
Avg:	+79%	-82%	-57%	-95%
Wet:	+147%	-72%	-53%	-91%
Dry:	+2%	-86%	-52%	-100%

D:\AnEPA\Calculator\FRENCH.xml