

# Olympic



Olympic National Park

## Weather and Climate

### Sun? What Sun?

The Pacific Northwest corner of the United States sees its share of rainy days. In fact, many people seem to think the rain never stops. They would be shocked to visit the Quinault Rain Forest on a summer day when it has not rained for three weeks and the mosses have shriveled into dormancy. Then again, a wet February day in the same spot would reveal just why a rain forest exists in this part of the world in the first place.

Weather on the Olympic Peninsula can be merciless, impossible to predict, and above all, intensely powerful. From the profusion of mushrooms in autumn forests to the glittering blue glaciers that top our mountains, every bit of Olympic National Park owes its existence to the workings of water and air in our atmosphere.



### Where it Comes From

The Olympic Peninsula's location greatly affects its weather. Though not connected to the nearby Cascade Mountains, we depend on them for protection from masses of cold Arctic air that come down from Canada. Most of that air stays on the east side of the Cascades, leaving us with mild temperatures moderated by the ocean. Winter days rarely get below freezing at sea level and summer daytime temperatures are usually 60-70° F (15-21° C). Even winter low temperatures in the mountains are seldom below 0° F (-18° C).



The ocean is also the source of most of the Peninsula's weather systems. Great storm clouds brimming with moisture move inland and run into the foothills of the Olympic Mountains. The mountains force clouds upward. As the air gets colder and air pressure decreases, these storm clouds cannot hold as much moisture and the water falls as rain in the lowlands and snow in the high country. The west side valleys in Olympic National Park are the wettest spots in the continental United States. The Hoh Rain Forest records an average of almost 12 feet (3.6 meters) of rain every year! Mount Olympus, the Peninsula's highest point at 7,980 feet (2,432 meters), is estimated to get over 50 feet (18 meters) of snow!



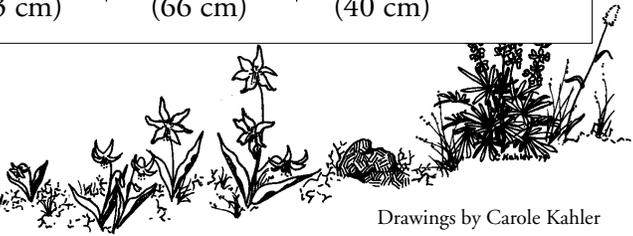
## Where it Goes

On the other side of the mountains, storms continue their eastward journey. Though much of their precipitation has already fallen, more moisture is wrung out of the clouds as they move inland, blanketing Hurricane Ridge in an average of 30-35 feet (10 m) of snow annually. The northeastern parts of the Olympic Peninsula lie in a dry rainshadow. The town of Sequim gets only 16 inches (41 cm) of rain a year. Farmers irrigate their fields and a few prickly pear cactus grow there, less than 35 miles (56 km) from lush temperate rain forests!



Average monthly rainfall (inches), west to east across the Olympic Peninsula.

	Kalaloch (coast)	Hoh (rain forest valley)	Port Angeles (northeast rainshadow)	Sequim
Winter	17.12	18.33	3.04	1.61
Spring	8.94	10.33	1.05	.94
Summer	3.13	3.33	.81	.79
Autumn	11.17	13.00	3.72	1.91
Yearly Average	103.00 (262 cm)	135.0 (343 cm)	25.9 (66 cm)	15.80 (40 cm)



Drawings by Carole Kahler

## What it All Means

The drastic contrast in precipitation and elevation nurtures diversity across the park and from coast to summits. Mild temperatures and abundant rain nurture record-sized conifers in westside forests. While fire-adapted species like manzanita grow the northeastern Olympics. Upslope, winter snowpack feeds streams and determines water supply throughout the year.

### Climate Change At Olympic

Like ecosystems around the world, the park is feeling the impact of human-driven climate change. Warmer winters mean some precipitation that used to fall as snow—feeding our glaciers—is now falling as rain. So Olympic's glaciers are retreating. Blue Glacier on Mount Olympus lost three football fields in length and 74 feet (23m) of thickness between 1987 and 2010. Decreasing snowpack also means less water for salmon and other wildlife, plants and humans living downstream. Forest fires and mortality from forest pests are likely to increase in a warmer world.

Is Olympic National Park large enough to give its resident species places to survive in a changing world? The diversity of landscapes and rainfall patterns here may provide a small buffer for the natural world as the human community makes decisions about addressing climate change. Choices we all make today may help species cope, so that our grandchildren can still experience the diverse wonder of Olympic.

### In a Fog

The rain forest experiences summer drought—weeks can go by with no rain. Many of its plants, like the giant Sitka spruce, cannot live in a dry climate. How do they survive?

A night on the west side offers clues. Fog often rolls in after sunset and lingers until late morning. Heavy fog can add over 30 inches (76 cm) of moisture to the forest yearly, nearly as much as Seattle receives in a year of rain.

Plants can take that water right from the air through their leaves. It also condenses, dribbles down tree trunks and drips off the ends of needles—so the forest sees rain even when none is falling!

