

# *Alaska's Climate*

THE COCORAHS 'STATE CLIMATES' SERIES

## **Alaska— So Much Variability and So Few Observers**

By Peter Olsson, Alaska State Climatologist

By almost any measure, Alaska is a vast state comprising roughly one sixth of the total area of the United States. The bulk of mainland Alaska, excluding its major appendages (the vast Aleutian chain to the west and the rugged southeast panhandle) fits in a sector of roughly 25 degrees of longitude by 11 degrees of latitude. Include the appendages and the dimensions jump to 56 degrees of longitude by 20 degrees of latitude. Alaska's elevations range from sea level to 6194 m at the summit of Mt. McKinley.

Given its size, Alaska can be roughly divided into three climatic segments. The southern third of the state—including the Aleutian chain and southern Bering Sea Coast— is of a generally maritime climate, with a good deal of cloudiness and relatively copious amounts of precipitation, in some places over a hundred inches a year. In fact, Alaska's Little Port Walter, on Alaska's panhandle, averages over 225" of rain a year, enough to keep any CoCoRaHS observer busy!

In stark contrast is the largest portion of the state, referred to as Interior Alaska. The arctic and sub-arctic interior is generally sheltered by mountains from the moderating temperature effects of the ocean. The interior tends to be much less cloudy than the maritime regions, and its climate is dominated by radiation for much of the year. It also experiences the greatest annual temperature variations, with lows less than -50 F in the depth of winter and highs over 90 F in the summer time. The interior also gets much less precipitation than its maritime counterpart, in the neighborhood of 10-20 inches a year.

The northern part of the state, roughly that north of the Brooks Range, is called Arctic Slope. The terrain here slopes gradually from the Brooks Range to Arctic Ocean. The Arctic Slope is fairly void of inhabitants (and observing CoCoRaHS stations), so much so that the spatial variability of the climate here is not known. Since there are no blocking mountain ranges, the prevailing NE arctic flow chills the Arctic Slope much of the year, giving a short warm season, and a very long and largely dark cold season. Permafrost underlies almost all the region and this results in standing water in the warm season in many places. Curiously, for a coastal region, the Arctic slope is fairly dry— coastal Prudhoe Bay only gets about 19" of precipitation a year, though it drizzles or snows there lightly much of the time.

In short, Alaska, despite a lack of hurricanes and a paucity of tornadoes, experiences much of the weather seen in the Lower-48 States. We are always looking for more CoCoRaHS observers, especially in regions off of the meager road system.

For more information on Alaska's Climate please visit the Alaska State Climate Center at: <http://climate.uaa.alaska.edu/>