



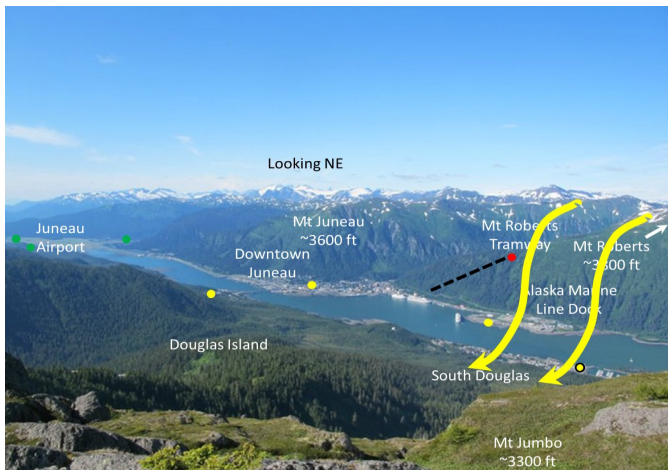
# Taku Winds



Juneau

**What are Taku Winds?** Taku Winds are mountain wave phenomenon generated over Gastineau Channel in the vicinity of Downtown Juneau and Douglas. Wind speeds vary in magnitude based on the strength of the mountain wave. Weak mountain waves produce gusts from 35 to 50 mph, while strong mountain waves yield gusts from 60 to 100 mph. Hazards associated with Taku

Winds range from the nuisance variety, such as overblown garbage cans, to dangerous, such as flying debris and overturned marine vessels.

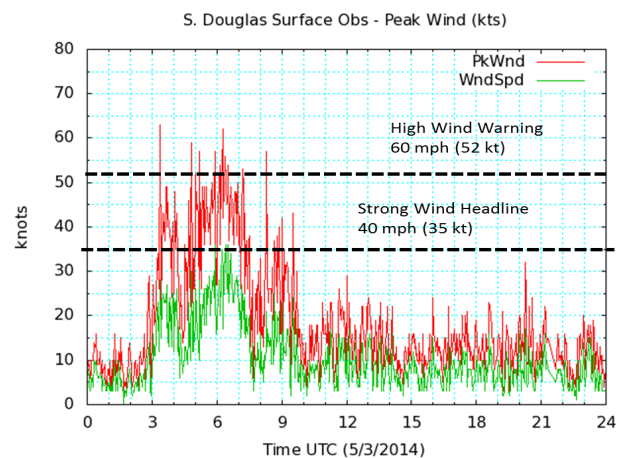
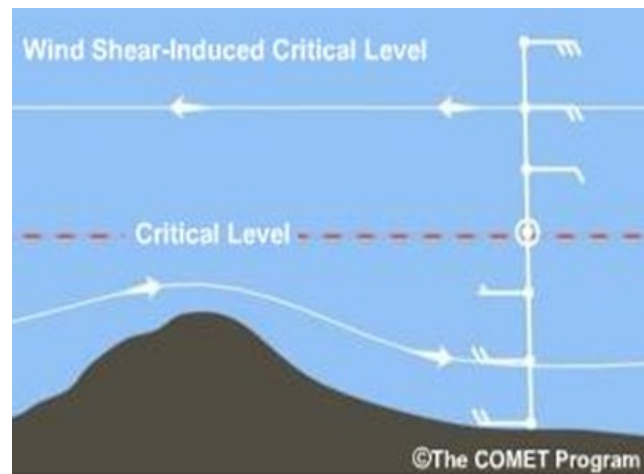


The image on the left illustrates how northeasterly winds flow from the Juneau Ice Field across the ridge tops surrounding Downtown Juneau. When meteorological conditions are favorable, a mountain wave will develop over Gastineau Channel, causing strong turbulent flow to descend to the surface over Downtown Juneau and Douglas.

## How Do Taku Winds Occur?

Several ingredients need to be in place for Taku Winds to occur. First, a tight offshore oriented pressure gradient is necessary for strong winds (>40 mph) to develop over the Juneau Ice Field and ridgetops surrounding Downtown Juneau. Second, the winds must be strongest near ridgetop level and decrease in speed in the midlevels of the atmosphere. The image to the right shows that winds are strongest near the mountain barrier, become light above the mountain (which is called a critical level), and then reverse direction above the critical level. Third, the airmass below the ridges surrounding Gastineau Channel must be stable, which aids in amplifying the winds as they flow across the mountains east of Juneau.

When the above ingredients are in place, mountain wave development is likely. In Juneau, these mountain waves are called Taku Winds. Weather sensors scattered across Downtown Juneau and Douglas alert NWS forecasters to their occurrence, such as the South Douglas weather sensor data displayed to the right.





# NWS Juneau Strong Wind Advisory, and High Wind Warning Criteria



**Monitor NOAA weather radio, NWS websites, or other media outlets for evolving hazardous wind events.**

**Strong Wind Advisory:**

- Sustained winds or frequent gusts from 40 to 59 mph lasting one hour or more.

**High Wind Watch:**

- Sustained winds (or frequent gusts of 60 mph or higher are *possible* during the next two days.

**High Wind Warning:**

- Sustained winds (or frequent gusts) of 60 mph or higher lasting one hour or more are occurring or imminent.

### Notable Taku Wind Events Since 2007

Date	Peak Wind Speed Downtown Juneau/Douglas	Impacts
January 31, 2015	80 mph	15,000 lb gangway in Douglas harbor parking lot moved, windows busted out, bleachers overturned
January 2-4, 2015	70 mph	Car windows damaged, power outages, rare wind damage on house siding in the valley
May 2, 2014	72 mph	Minor damage in Douglas boat harbor. First cruise ship of the season
October 21, 2012	67 mph	Tree blown into power line cutting off power to 2,000 people in Douglas and West Juneau
January 11-17, 2011	Multiple 80+ mph gusts	Winds shields broken, boats on trailers overturned, infrastructure damaged
December 2-3, 2007	74 mph	Freezing spray in Douglas harbor