Important Winds for Interpreting Forecasts

Critical Winds

Thunderstorm and Pyrocumulus induced outflows and downdrafts	25-35 mph, can exceed 60 mph	Gusty and erratic in nature, winds radiate from center of storm, strongest push in direction of storm movement
Frontal Winds	20-30 mph, can exceed 50 mph	Note timing and significance of shifting wind direction with frontal passage, usually in a clockwise direction
Foehn Winds (Chinook, Santa Ana, Mono, Wasatch, East, and North Winds)	20-60 mph, can exceed 90 mph	Warming and drying winds blowing from high elevation downslope, often toward values at risk
Surfacing or Low Level Jets	25-45 mph	Generally occur hundreds of feet above ground, can enhance fire plume
Whirlwinds	50 mph and higher	Mature dust devils and fire whirls, inflow winds from around the whirl can be significant, strong winds in outer portion of whirl can lift large embers
Glacier Winds	30-50 mph	Occur as downslope winds from glaciers and can extend well down from snow and ice cover

Local Winds

Upslope	3-8 mph	Follows sun on slopes
Upvalley	10-15 mph	Peaks in the afternoon, tied to upslope winds
Downslope	2-5 mph	Follows evening end of upslope winds
Downvalley	5-10 mph	Peaks late night, tied to downslope winds
Sea (Onshore) Breeze	10-20 mph, can be 30+ mph	Onshore wind direction, strongest on sunny days
Land (Offshore) Breeze	3-10 mph	Offshore wind direction at night, consistent seasonally

Interpreting the winds you measure: Winds you measure on the fireline may differ significantly from what is in your forecast. Use Important Winds for Interpreting Forecasts (page 41) to consider when significant changes might happen and to determine if a new forecast is needed for your location.

Surface Wind at Your Location	Weak Forecast Winds	Strong Forecast Winds
Flat or gently rolling terrain	Typically feel weak surface (20') winds	Typically feel strong surface (20') winds
Hilly or mountainous terrain	Surface (20') winds dominated by local winds (slope/valley winds or land/sea breezes)	Surface (20') winds will be a complex and changing combination of general and local windspeeds and directions