Why are coastal and mountainous regions often much more windy than other location...

Science, Physics

Weather Characteristics in Coastal Regions and Mountainous Regions

Weather Characteristics in Coastal Regions and Mountainous Regions\nOccurrence of wind is due to the difference in pressure between two regions. This pressure gradient is created by the existence of temperature differences in the between two regions. Considering the coast regions, during day time, the ground surface gets heated from the solar insolation faster than the water surface. This is due to the high specific heat of water. As a result, the pressure on the ground surface becomes less as compared to the pressure over the sea. This results in movement of the wind from the mainland to the sea regions due to the pressure difference that has been created by the alternate heating of the main land and sea. At night, the rate of cooling of the mainland is higher than the rate of cooling of the sea. Consequently, the pressure on the sea is higher than the pressure on the mainland; this causes movement of wind from the sea to the land. The above two connoted situations makes the coastal regions to be windy as compared to other regions of the same latitude.\nIn the atmosphere, as the altitude increases by 300m, there is a reduction in temperature. Therefore, since mountains tops are located in high altitude areas, they are cooler as compared to other low altitude areas. Hot air rises up while cold air moves down a process known as orographic lift. Wind results from this process whereby hot air ascends while cool air descends. This explains why mountainous regions are windy as compared to other regions.\nMountainous regions are characterized by relief rainfall while the coastal regions are characterized by convectional rainfall. Also, Coastal regions are characterized by high temperature at night.\n

Works Cited

\nSchwartz, M. (2006). Encyclopedia of Coastal Science. New York: Springer.