

# Albedo in urban and rural temperature settings

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Albedo can be defined as the ratio of the amount of light that a certain body reflects and the amount that it absorbs (Encarta, 2008). For example, a body that rates an albedo of 0.3 can be construed to reflect back 30 percent of the light that falls on it while absorbing the other 70 percent of the light (Encarta, 2008). The term albedo is derived from the Latin term "albus", or simply "white" (Dagmar Budikova, 2008). When the object hit with the sun reflects back most of the sunlight, it is said to have a high albedo ratio (NationalScienceFoundation, 2006). If the surface that is hit by the sunlight absorbs or takes in most of the light, it is said to have a low albedo (Science, 2006). Urban settings usually have low albedo since most of the light is absorbed by the alterations made by a man of the natural landscape (Christopher Small). In rural settings, the presence of abundant vegetation (Small).

The plant life absorbs most of the sun's light to start the process of photosynthesis necessary for the propagation of plants (Small). This cannot be wholly said for the urban setting, as the plant cover in the urban areas is small compared to the rural environment (Small). But the presence of plant life in the urban setting does have an impact on the air quality and the health of those living in the urban areas (Christopher Small & Roberta Balstad Miller). It is assumed therefore that a host of physical characteristics determine the albedo of a certain body (Encarta, 2008). The moon, for example, has a low albedo rating because of its rough terrain, taking in most of the sunlight that hit it (Encarta, 2008). Venus, on the other hand, reflects back a high degree of the sunlight that it takes in, this could be said to possess a high albedo rating (Encarta, 2008). As stated earlier, the presence

of plant life in an urban setting does affect the albedo rating of the area (Small & Miller).

In the New York City area, for example, there is a mix of low and albedo ratings (Small & Miller). This is due to the presence of trees in the area that is conducive to the build-up of dust and ozone in the specific location (Small & Miller). Research at the National Aeronautics and Space Administration (NASA) found out the asphalt used in smoothing out parking lots and roads, and dark-colored shingles and concrete had a high absorption capacity of sunlight than the rural areas surrounding the urban areas (Krishna Ramanujan, 2007). This would result in a higher temperature in the cities (Ramanujan, 2007).

## References

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