

Report: Cloud-I

Tianzhu Fan

Flow Visualization: The Physics and Art of Fluid Flow



First cloud assignment. The objective is to take image of cumulus and give a brief statement and explanation. The above photograph is taken on October 4 about 10am on CU campus near Center for community. The camera was facing the South with an angle of elevation about 45 degrees. Unstable atmosphere.

Beginning with cumulus. Cumulus are low, detached, puffy clouds that develop vertically in rising mounds, domes or towers, and have generally flat bases. Their upper parts often resemble cauliflowers and they appear brilliant white when reflecting high sunlight, but can look dark when the Sun is behind them [1]. Cumulus cloud form through atmosphere warm as air warmed by the surface begin to rise, they tend to be randomly scattered across the sky [2]. The typical altitudes of cumulus formed is about 2,000-3,000 ft. Cumulus can be seen worldwide except in Antarctica, because the ground is too cold for thermals there. There are four typical species of cumulus, that is, humilis, mediocris, congestus and fractus. The differences between them in about vertical extent. Generally, humilis has minimal vertical while congestus has maximum vertical extent. The clouds shown in the above photograph are probably humilis. They look flattened and appear wider than they are tall. The humilis do not cause precipitation.

Canon Rebel T5 is applied for taking the image. To get more detail of cumulus humilis, the EF 75-300mm telephoto lens is used. The focus length is 125mm, shutter speed is at 1/500 sec and the ISO is 640. Landscape mode. The image processing includes contrast adjustment and brightness upgrade. Also, an artificial sun light is added to the image to improve aesthetic feeling and value. When mention some improvements of photographic technique that need to be done, the focusing process should be cared about next time to obtain more clear image.

[1] The Cloud-spotter's Guide: "The Science, History, and culture of clouds", Gavin Pretor-Pinney, Foundation of The Cloud Appreciation Society.

[2] "Cloud Classification and Characteristic", Nation Oceanic and Atmosphere Administration. Retrieved 18, October 2012.