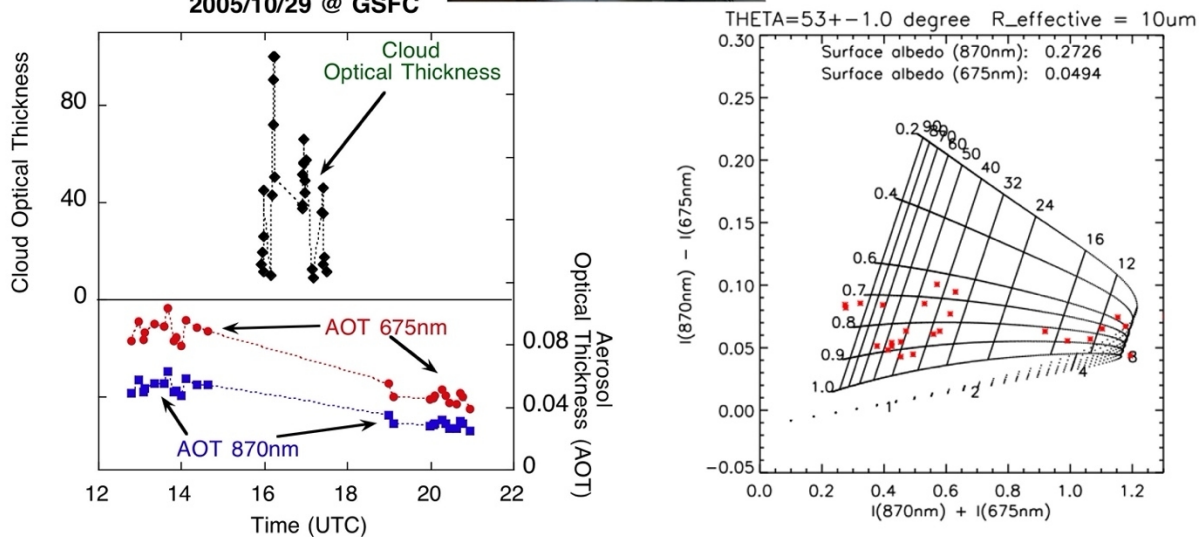


Measuring aerosol and cloud properties from the roof of Building 33



2005/10/29 @ GSFC



This image of the week is a continuation of the image that appeared on August 15, 2004. The top panel shows the multi-channel Cimel radiometer, located on the roof of Building 33 at Goddard Space Flight Center, looking straight up and measuring zenith radiance. This is a new feature of AERONET and it is called a "cloud mode." The cloud mode uses AERONET "idle time" inappropriate for aerosol study to monitor cloud optical properties. When the Sun is blocked by clouds (as seen at the top image) the radiometer looks straight up and takes 10 measurements of zenith radiance with a 9-second temporal resolution.

The left bottom panel illustrates a time series of both aerosol and cloud optical thicknesses observed from the roof of Building 33 on October 29, 2005. The sky was clear in the morning and late afternoon when the aerosol optical thickness retrieval was performed. At noon, the sky became overcast, clouds blocked the Sun, and the radiometer worked in the cloud mode retrieving cloud optical thickness. The cloud retrieval algorithm uses Cimel measurements at 675 and 870 nm; it is based on the assumption that cloud optical properties are similar at these wavelengths while vegetated surface reflectances vary significantly. In addition to cloud optical thickness, the algorithm also estimates the effective cloud fraction. Both cloud optical thickness and cloud fraction are vital for any cloud-radiation parameterization. The right bottom panel shows a look-up-table used for the retrievals of both cloud optical thickness and cloud fraction on October 29.

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