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Investigation of Atmospheric Aerosol properties by Atomic Force Microscopy[1] BARRY SEVALIA, KELLI JOSEPH, MOREWELL GASSELLER, Xavier University of Louisiana — The effects of aerosols on the atmosphere, climate, and public health are among the central topics in current environmental research. Aerosol particles scatter and absorb solar and terrestrial radiation, they are involved in the formation of clouds and precipitation as cloud condensation and ice nuclei, and they affect the abundance and distribution of atmospheric trace gases by chemical reactions and other multiphase processes. Moreover, airborne particles play an important role in the spreading of biological organisms, reproductive materials, and pathogens and they can cause or enhance respiratory, cardiovascular, infectious, and allergic diseases. In this study we use two distinct methods to characterize atmospheric aerosol particles. With the AFM, we use analytical and interpretative techniques to deduce fundamental physical properties of the aerosol particles such as particle sizes and morphology. The microscopy techniques are then compared and complemented with optical techniques that employ hand held sun photometers to measure aerosol optical thickness (AOT) of the atmosphere. The chemical nature of the aerosols is investigated by exposing the samples to a stream of ozone gas and then reimage them. Using this approach, we are only able to classify particles as organic, gr

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