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Characterisation of the Atmosphere for Imaging Atmospheric Cherenkov Telescopes

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Ground-based observations of Very-High-Energy (VHE) gamma rays from extreme astrophysical sources are significantly influenced by atmospheric conditions. This is due to the atmosphere being an integral part of the detector when utilizing Imaging Atmospheric Cherenkov Telescopes (IACTs). Clouds and dust particles diminish atmospheric transmission of Cherenkov light, thereby impacting the reconstruction of the air showers and consequently the reconstructed gamma-ray spectra.
Precise measurements of atmospheric transmission above Cherenkov observatories play a pivotal role in the accuracy of the analysed data, corrections of the reconstructed energies and fluxes of incoming gamma rays, establishing observation strategies for different types of gamma-ray emitting sources, and provide valuable data for studies of climate changes.

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