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## Progress of the Climate and Atmospheric Composition Exploring Satellites Mission (CACES) in China

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As a potential way to measure atmospheric variables with high vertical resolution and improved accuracy, the technique of Microwave and Infrared Occultation was studied. To monitor the atmospheric thermodynamic state variables (e.g., pressure, temperature, and humidity) and greenhouse gases (e.g., H<sub>2</sub>O, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, O<sub>3</sub>), a concept mission named Climate and Atmospheric Composition Exploring Satellites (CACES) that is based on the occultation technique of the Low Earth Orbit (LEO) satellites, was proposed to the Strategic Priority Research Program of Chinese Academy of Sciences (SPRPCAS). The mission has been approved in 2018 as a primary study to prove the possibility of observing the benchmark climate data. Designs of the constellation for the scientific objectives in climate and weather forecasts were simulated. The spatiotemporal distribution of simulated measurements was analyzed and evaluated for ensuring the desired performance. And the retrieval methods with bending angle and transmission amplitude of microwave and infrared-laser signals were studied.