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【13】 Monitoring and tracking carbon dioxide emissions from satellites

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Achieving the goals of the Paris Agreement to limit global warming to no more than 2°C above pre-industrial levels requires drastic cuts to CO₂ emissions from fossil fuel use. The Enhanced Transparency Framework of the Paris Agreement requires all countries to provide transparent information on the implementation and achievement of their national objectives. The atmospheric science community supports this process by providing independent emission estimates based on atmospheric concentration measurements from ground-based networks and from space. Current and future satellites such as the European CO₂ Monitoring mission CO₂M provide a wealth of observations to estimate emissions from large point sources such as power plants and from cities and countries. In this presentation, I will provide an overview of existing and new satellites, explain how they retrieve trace gas concentrations from measurements in the SWIR range of the solar spectrum, and show examples of their capabilities and limitations to quantify emissions.

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