



***HITRAN* beyond the terrestrial atmosphere**

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The *HITRAN* molecular spectroscopic database [1] has traditionally served researchers involved with terrestrial atmospheric problems, such as remote-sensing of constituents in the atmosphere, pollution monitoring at the surface, identification of sources seen through the atmosphere, and numerous environmental issues. It has been driven by the prominence of certain absorbers, the ease of distinguishing features in different spectral regions, and the capability of instrumentation and detectors throughout the electromagnetic spectrum. Deficiencies in the database have corresponded to limitations in theoretical techniques that attempt to calculate the required spectral parameters for adequate simulations, and to experimental limitations in controlled laboratory observations of gases and the subsequent analysis of the spectra.

In this presentation, we show some of the new molecular species and isotopologues, bands, and parameters that are becoming available in future editions of *HITRAN*. The database has already been used to account for terrestrial transitions that interfere with ground-based observations of planets. Although still driven by terrestrial atmospheric needs, new theoretical and experimental advances have meant significant extensions to *HITRAN*, and many of these have profound impact on the ability to probe extraterrestrial atmospheres. New methods of handling the data, such as related databases, also come into play.

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[1] L.S. Rothman et al, *JQSRT* **96**, 139-204 (2005).