1106-86-749　　　　　**W Van Snyder\*** (`van.snyder@jpl.nasa.gov`), Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 183-701, Pasadena, CA 91109-8099. *Complications in atmospheric remotes sensing.*

When one thinks of atmospheric remote sensing using passive measurements of microwave radiation, one usually thinks of inverting the radiative-transfer equation.

One normally attacks such problems by starting with an hypothetical atmosphere, perhaps from climatological averages, then integrating the radiative-transfer equation through the current estimate of the atmosphere, along with derivatives of it with respect to the quantities of interest at places of interest, and iterating using a Newton method.

Aside from the mathematical difficulty of solving an ill-posed problem, complications arise: scattering, locations of the retrieved quantities, refraction, modeling the instrument, and surface albedo if the ray reflects from the surface.

We address some methods to resolve these difficulties. (Received September 05, 2014)