

## Remote Sensing of Geophysical Parameters with a Ground-based Fabry-Perot Interferometer

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The Fabry-Perot interferometer has been used widely as a passive remote sensing optical device, spectrally monitoring natural atmospheric emissions. The instrument makes use of interference phenomena due to waves successively reflected between two parallel, flat, semi-transparent mirrors called "etalon". The Fabry-Perot etalon performs a wavelength analysis on the light observed from atmospheric emissions (Airglows) by scanning the interference fringe pattern with a detector. This analysis characterizes the Doppler line profile of the emitting species. A Fabry-Perot spectogram is produced by convolving a Gaussian source function (i.e. the atmospheric emission) with the measured instrument transfer function. Analysis of the spectograms can produce line-of-sight temperatures, brightness, continuum brightness and velocity of emitting species. The basic principle of the instrument and the method of determining the geophysical parameters from the spectograms will be described.