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A study of minor species in the Martian atmosphere using ground-based and Mars Express observations

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New results have been obtained over the past two years on the composition of the martian atmosphere, using ground-based and Mars Express data. The detection of two minor species, H_2O_2 and CH_4, has been reported from high-resolution groundbased spectroscopy in the near-infrared (CH_4 ; Krasnopolsky et al., Icarus, 2004; Mumma et al., BAAS, 2003, 2004), and in the mid-infrared and submm range (H_2O_2; Clancy et al., Icarus 2004; Encrenaz et al., Icarus 2004). The detection of CH_4 has been also reported from observations of the Planetary Fourier Spectrometer aboard Mars Express (Formisano et al., Science 2004). In addition, new informations have been obtained since the beginning of the Mars Express mission (January 2004) on CO and H_2O abundances, using the OMEGA/MEx and PFS/MEx instruments; these data will allow a complete monitoring of these species over a full martian year. These new results will be intercompared and their possible implications will be discussed.