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FTIR airborne measurements for volcanological applications - preliminary results

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During July 2003 a new airborne system named FASA was tested on Italian volcanoes. FASA (Fire Airborne Spectral Analyzer) is system devoted to high temperature events study. The payload on the airborne consists of an imager (ABAS) and high resolution (0.12 cm-1) Michelson interferometer with rotating retroreflector (MIROR) operating in the infrared spectral range. Such system results similar to TES (Thermal Emission Spectrometer), a Fourier transform spectrometer launched aboard AURA satellite on 15 July 2004. By using two black body sources at different temperature it is possible to calibrate the data computing the instrumental response function and the instrumental offset. In this work the in-flight calibration, the preliminary surface temperature and emissivity results, in the Etna volcano area, will be shown. Also a feasibility study for the volcanic plume sulfur dioxide detection will be presented. The atmospheric corrections terms, needed for the retrieval procedures, has been computed using MODTRAN radiative transfer model considering the atmospheric profiles measured in situ during the field campaign. In the near future the algorithms developed will be applied to TES measurements.