



Non-methane hydrocarbon measurements for long-range transport studies at Pico mountain, Azores, Portugal

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During spring 2004, an automated gas chromatography system was installed for C₂-C₇ nonmethane hydrocarbon (NMHC) measurements at the PICO-NARE station on top of Pico mountain in the Azores Islands, Portugal. The instrument was tailored towards the measurement challenges at this remote and high altitude mountain site. Particular features include low power consumption, automated shut down and power up procedures, on-site preparation of consumable gases, fully automated and remotely controllable operation and calibration, ftp data transfer, and cryogen-free sample focusing and analysis procedures for ppt-level detection of hydrocarbon compounds. Intermittent measurements began in summer 2004, and measurements have been continuous since October 2004.

As a result of differences in their OH reaction rate constants, atmospheric mixing ratios of hydrocarbons diminish at different rates during their transport from emission regions to remote receptor sites. The monitoring of hydrocarbon concentrations and their ratios is used as a tool for analysis of atmospheric processing over long distances as well as for differentiating source regions of air that reaches Pico mountain. Furthermore, the NMHC data facilitate the assessment of influences of local island emissions on the air composition at the Pico observatory.