abstract

On 30.14 March 1997 we observed the EUV spectrum of the bright comet C/1995 O1 (Hale-Bopp) at the time of its perihelion, using our EUVS sounding rocket telescope/spectrometer. The spectra reveal the presence H Lyβ, O+, and, most notably, Argon. Modelling of the retrieved Ar production rates indicates that comet Hale-Bopp is enriched in Ar relative to cosmogonic expectations. This in turn indicates that Hale-Bopp’s deep interior has never been exposed to the 35–40 K temperatures necessary to deplete the comet’s primordial argon supply.
MRES HALE-BOPP SPECTRUM

MRES & HRES COMPARISON

BRIGHTNESS (R)/Bin

ARBITRARY SCALE

WAVELENGTH (Å)

H/O

Ar

H/O

Ar