PECULIAR FEATURES OF α MONOCEROTID TV SPECTRA. R. Stork[1,2], J. Borovicka[1], J. Bocek[1], and M. Solc[2], [1]Astronomical Institute, Academy of Sciences of the Czech Republic, Fricova 1, CZ–25165 Ondrejov, Czech Republic (stork@asu.cas.cz), [2]Institute of Astronomy, Charles University Prague, V Holesovickach 2, CZ–18000 Prague 8, Czech Republic (solc@mbox.troja.mff.cuni.cz).

An outburst of α Monocerotid meteors was widely observed on November 22, 1995. Jenniskens et al. found that α Monocerotids penetrate deeper into the atmosphere than meteoroids of the Orionid stream or Perseid stream (meteoroids with similar velocity) and that their light curves do not show flares [2]. The Jenniskens' results imply that α Monocerotids are more compact than meteoroids in other showers and can therefore contain lower amount of volatile elements. We obtained four α Monocerotid spectra with our television system on the Ondrejov observatory [1,3]. The spectra allowed us to test the above mentioned hypothesis. We found that the sodium line Na I (589 nm) is very faint in all α Monocerotid spectra. The velocity of the meteoroids is 64 km/s but the spectra have a specific appearance different from both Perseids (61 km/s) and Orionids (67 km/s). The hypothesis concerning low amount of volatile elements could be confirmed, at least for sodium. The α Monocerotid TV spectra will be presented together with a comparative statistical analysis of all observed showers. The dependence of meteor spectra on velocity will be also discussed.

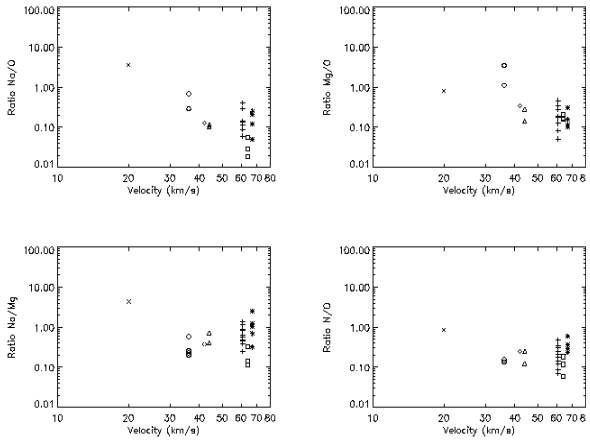

Fig. 1.

Figure 1 shows the ratio of the line intensities versus the meteor velocity. The measured spectral lines are Mg I-2 (517.8 nm), Na I-1 (589.2 nm), N I-1 (746.8 nm), O I-1 (777.4 nm). The plotted symbols correspond to the following meteor showers: asterisk — Orionids (67 km/s), square — α Monocerotids (64 km/s), plus sign — Perseids (61 km/s), triangle — δ Aquarids (44 km/s), diamond — Quadrantids (42 km/s), circle—Geminids (36 km/s) and x—very slow meteor (about 20 km/s).

The Na/O ratio decreases with increasing velocity. All showers agree with this dependence except of α Monocerotids. Their points lie significantly lower (please, note the logarithmic scale) and it indicates differences in meteoroids composition. The Na/Mg ratio also confirm low amount of sodium in the α Monocerotid spectra. The N and O lines are both atmospheric and their ratio should be constant, independent on velocity, as it has been approximately found.

Acknowledgments: Two of authors (R. Stork, M. Solc) acknowledge the support by Grant Agency of the Czech Republic (grant 96/205/0213)

References: [1] Borovicka J. and Bocek J. (1995) *Television spectra of meteors, Earth, Moon, and Planets, 71,* 237–244. [2] Jenniskens P. et al. (1997) *Ap. J., 479,* 441–447. [3] Stork R. (1998) *Optical and infrared observation of solid state interplanetary matter,* PhD Thesis, Charles University Prague.