

**L13a Spectroscopic Study of Meteors**

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During the 1999 Leonids, an intensified High-Definition TV(HDTV) camera<sup>1 2</sup> was used for slitless meteor spectroscopy at 370 - 850 nm wavelengths in the Leonid Multi-instrument Aircraft Campaign.<sup>3</sup> The HDTV system provided a high dynamic range (digital 10-bit) and a wide field of view of 37 x 21 degrees. The maximum spectral sensitivity is at 405 nm, while the resolving power of the spectrograph was  $\lambda/\Delta\lambda \sim 250$ . Here, we report elements abundances on the results for Leonid(from Comet 55P/Tempel-Tuttle), Taurid(from 2P/Comet Encke) and sporadic(IDP?) meteors. Numerous atomic emission lines of magnesium and iron were detected, with an excitation temperature of  $T = 4,500 \pm 300K$  for Leonid in LTE assumption. Rovibrational band of  $N_2$  first positive band( $B^3\Pi_g \rightarrow A^3\Sigma_u^+$ ) dominate the spectrum in the visible (600 - 800 nm) which are matched by  $T_{e,v} = 4500K$ ,  $T_r = 2500K$ .

It was submitted that organic carbon compounds survive meteoric ablation in the form of large molecular compounds, in which case meteors are an efficient vehicle for delivery of organic carbon. We also searched for CN violet( $B^2\Sigma^+ \rightarrow X^2\Sigma^+$ ) at 389 nm related with comets and source of life in the Earth.

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<sup>2</sup> We appreciate cooperation with Keisoku Giken Co., Ltd. for digitization of the HDTV images.

<sup>3</sup> The detail of the NASA's airborne mission has been obtained via the Internet at <http://leonid.arc.nasa.gov/>