

THE SPECTRUM OF URANUS IN THE REGION 4800–7500 Å

L. S. GALKIN

Crimean Astrophysical Observatory, Academy of Sciences, U.S.S.R., p/o Nauchny, Crimea, U.S.S.R.

and

L. A. BUGAENKO, O. I. BUGAENKO, A. V. MOROZHENKO

Main Astronomical Observatory, Academy of Sciences, Ukraine, S.S.R., Kiev, U.S.S.R.

Spectra of Uranus were obtained with the 122 cm reflector of the Crimean Astrophysical Observatory using the spectrometer of the Main Astronomical Observatory of the Ukrainian Academy of Sciences (Kiev), in March 1969. A photomultiplier (Soviet type 79) was used in a pulse counting mode, and the dispersion of the spectrometer at the camera focal plane was 15 Å/mm.

The spectrum was scanned in discrete increments of width 11 Å which corresponds to the width of the exit slit. Four scans of the spectrum were made in three nights. Six scans were made of the solar spectrum so that the effects of the Fraunhofer lines could be subtracted. The mean of the four Uranus spectra with the solar spectrum removed is given in Figure 1. The method we used did not permit a precise elimination of the solar spectrum, but the cumulative error does not exceed one-half of a scan increment (5.5 Å).

Apart from well-known absorption bands of methane, the spectrum in Figure 1 shows features at 5210 Å and 5571 Å, as well as a band at 6475 Å that was mentioned

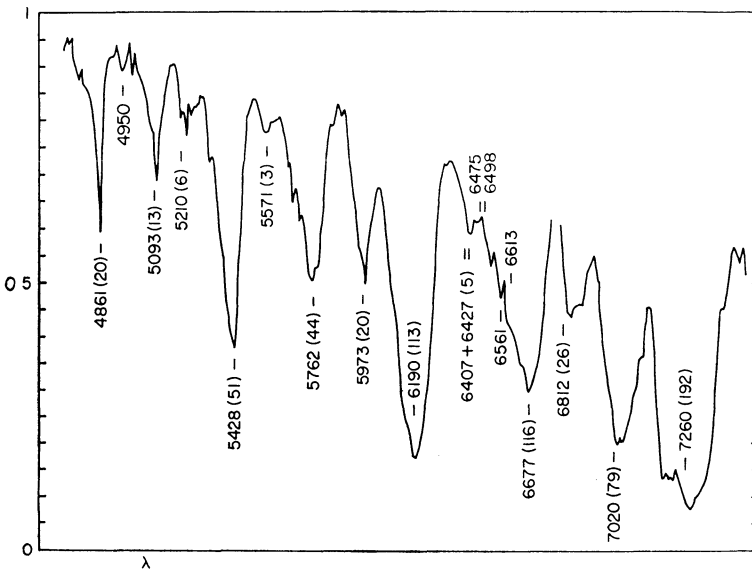


Fig. 1. Mean of four spectral scans of Uranus, 4800–7400 Å.

earlier by V. G. Teifel. Furthermore, near 4950 Å there is a small depression having a residual intensity of 96%, as well as several weak absorption bands lying on the wings of such strong bands as 5428 Å and 6677 Å.

Because of the overlapping of bands, the continuum is practically impossible to define precisely. Therefore the exact equivalent widths of the bands cannot be measured, but for the majority of important bands the lower limit of the equivalent width (in angstroms) is given in Figure 1 in brackets.

Reference

Moroz, V. I.: 1967, in *Physica Planet*, Nauka, Moscow. [English translation: *Physics of the Planets*, NASA TT F-515 (1968)].