A Two-Dimensional Brightness Distribution of the Visible Zodiacal Light

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By adopting a semi-empirical methodology of correcting the atmospheric diffuse light (Hong *etal.* 1998) and an improved technique of individual star subtraction, we have newly reduced the distribution of the visible zodiacal light(ZL) brightness from almucantar scan observations of the night sky brightness at Mt. Haleakala, Hawaii. A two-dimensional distribution of the ZL will be presented over the sky extending $30° \leq \lambda - \lambda_\odot \leq 330°$ and $-40 \leq \beta \leq 40°$. The newly reduced distribution of the ZL covers such a wide range of the sky that should be a strong observational criterion for testing three-dimensional models of the zodiacal dust cloud. Its angular resolution is $2° \times 2°$, which is fine enough to reveal the optical counterparts of the various structures found first from IR space observations. Advantages of our reduction methodology over the previous schemes will be pointed out, and the present result will be critically compared with the previous ones of many other authors. Implications of the difference between the present and the previous studies will be briefly discussed for the nature of the zodiacal dust cloud.