

1.2.3 SCATTERING IN THE EARTH'S ATMOSPHERE: CALCULATIONS FOR
MILKY WAY AND ZODIACAL LIGHT AS EXTENDED SOURCES

H.J. Staude
Max-Planck-Institut für Astronomie

D-6900 Heidelberg-Königstuhl

Abstract:

The results of detailed calculations on first order Rayleigh- and Mie-scattering in the Earth's atmosphere illuminated by the Milky Way and the Zodiacal Light are presented. The influence of various independent parameters, as optical depth of the Rayleigh- and Mie-component and position of Milky Way and Zodiacal Light, is discussed. Linear and circular polarization of the scattered light are considered. The results are compared with the procedures commonly applied in reducing photometric observations of extended sources of the night sky. It is shown that a substantial part of the discrepancies between the brightness distributions of Zodiacal Light resp. Milky Way given by different authors is due to an inaccurate treatment of the atmospheric scattered light.

A comprehensive account of the assumptions made in the present calculations and a qualitative discussion of the results are given in *Astron. & Astrophys.* 39, 325 - 333 (1975).

Since these computations may be useful for future reductions of observational work, they are available on request in tabulated form.