

1.1.17 A SEARCH FOR FORWARD SCATTERING OF SUNLIGHT FROM THE LUNAR
LIBRATION CLOUDS

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Observations to determine the radiance of forward scattered sunlight from particles in lunar libration regions have been attempted with the white light coronagraph on Skylab. The libration regions could not be distinguished against the solar K + F coronal background; the upper limit to the libration cloud radiance is determined to be $2.5 \times 10^{-11} B_{\odot}$, where B_{\odot} is the radiance of the mean solar disk. Employing models of the particle type and size distribution in the libration clouds, density enhancements have been calculated on the basis of the upper limit of the forward scattered radiance presented herein, and on the basis of earlier observations of the libration region backscattered radiance. The cases where the power law particle size distribution exponent K and complex index of refraction m are 2.5, 1.33-0.05i and 2.5, 1.50-0.05i, respectively, are inconsistent with the forward and backscatter observations. Finally, the brightness contrast of remaining possible models of the libration clouds with respect to the K- and F-coronal background is calculated, and is shown to be a maximum in the vicinity of elongation angle $\sim 30^{\circ}$.