

Observations of Far-Ultraviolet Diffuse Emission from the Small Magellanic Cloud

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● **Far-ultraviolet diffuse radiation** is primarily due to radiation from hot stars scattered from the interstellar dust grains.

● **Small magellanic Cloud (SMC)** is a nearby extragalactic object where dust is known to be different.

● **Data Analysis:** Used CalFUSE v3.2 and data analysis of [Murthy & Sahnow \(2004\)](#) and obtained 30 diffuse observations out of 220 Far-ultraviolet Spectroscopic Explorer (FUSE). We have also used Ultraviolet Imaging Telescope (UIT) data in order to estimate the FUV diffuse fraction.

Result & Discussion

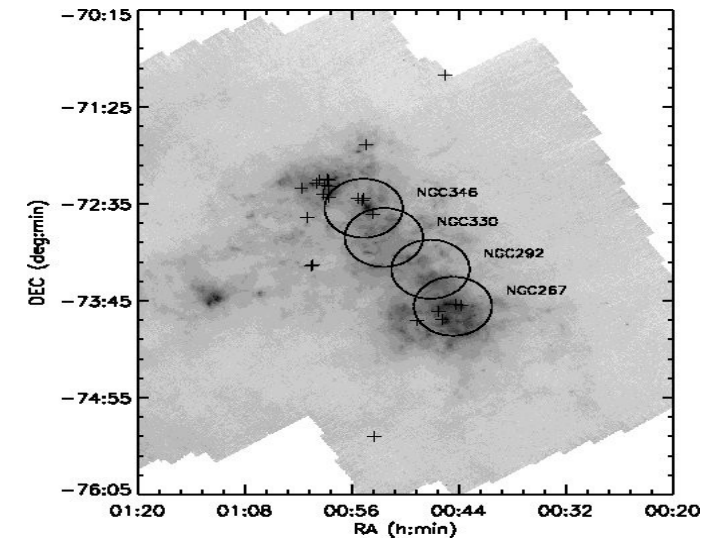
● We report the first observations of far-ultraviolet (FUV: 1000 – 1150 Å) diffuse radiation from the SMC.

● The strength of FUV diffuse surface brightness in the SMC ranges from 2000 to 3×10^5 photons $\text{cm}^{-2} \text{s}^{-1} \text{sr}^{-1} \text{Å}^{-1}$ at 1004 Å.

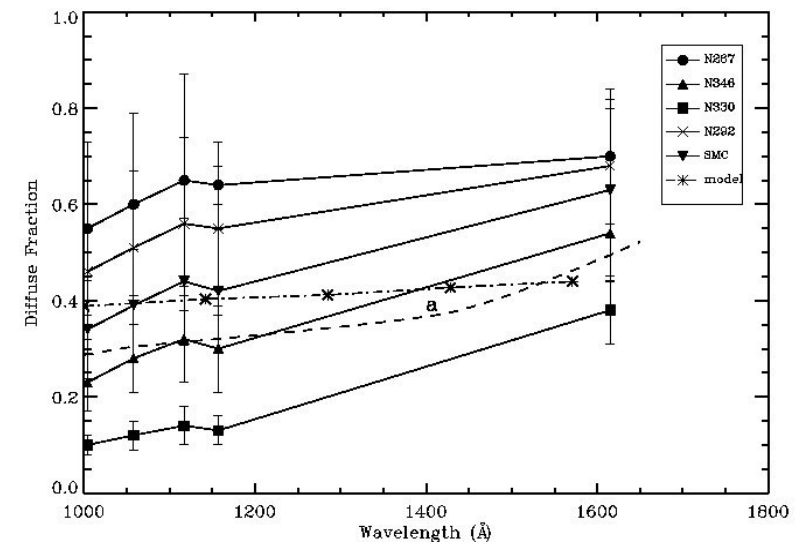
● The contribution of diffuse emission to the total radiation field was found to be 34% - 44% at FUSE bands increasing up to 63% at 1615 Å.

● The amount of light scattered increases towards the longer wavelengths showing that a large percent of the light at shorter wavelengths is absorbed by the dust.

● There is a difference between the FUV diffuse fraction from the SMC and the Large Magellanic Cloud (LMC) with the SMC fraction being higher probable because the higher dust albedo.



SMC Map with FUV Diffuse Observations



Variation of FUV diffuse fraction with Wavelengths