[구IM-07] Dust Scattering Simulation in Taurus-Auriga-Perseus(TPA) Complex

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We present the FIMS/SPEAR FUV continuum map of The Taurus - Auriga - Perseus (TPA) complex, which is one of the largest local association of dark clouds located in (l,b)~([152,180],[-28,0]).

We also present the result of FUV dust scattering simulation, which is based on Monte Carlo Radiative Transfer(MCRT) technique. Before the simulation we generate the model cloud using Hipparcos 77834 stars and the calculation of their E(B-V). From the density-integrated image and the cross section image of the modeled cloud we confirmed that the Taurus cloud is located in ~130pc.

The cloud north of the California nebula is known for its two layered structure and we confirm that using the cross section image of the modeled cloud. In our modeled cloud, that two clouds are located at ~130pc and at ~300pc, respectively. Over the whole region the result image of simulation is well correlated with the diffuse FUV observed with FIMS/SPEAR. The dense core of the Taurus cloud, however, is not revealed completely in the map.

[구IM-08] FUV spectral images of the Orion-Eridanus Superbubble region

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The far-ultraviolet (FUV) continuum and spectral images of C IV and H2 emission lines for the region of Orion-Eridanus Superbubble (OES) are hereby presented and compared with the maps obtained in other wavelengths. While the region shows complex structures, consisting of hot gases and cold dust, a close examination reveals that the FUV emission in this region can be understood reasonably as the result of their interactions. We confirm the origin of most diffuse FUV continuum to be starlight scattered by dust, but we also find that the ionized gas also contributes 50-70% of the total FUV intensity in the regions of H_alpha arcs. We note the bright diffuse FUV continuum in the eastern part of the northern dust-rich region, and attribute it to the bright early-type stars more abundant in this region than in the west as the amount of dust itself does not seem to be much different across 'arc A' that separates the two regions. In addition, two P Cygni-type stars are identified in this eastern region and their peculiar spectral profiles around the C IV emission line are anifested in the scattered diffuse spectrum. Besides this, the C IV emission is generally enhanced at the boundaries of the hot X-ray cavities where thin dust regions are located, confirming the thermal interface nature of the origin of this cooling emission line. The morphology of the H2 emission shows a general correlation with dust extinction features but its intensity peaks are rather located in thin dust areas, off the peak dust regions. Furthermore, H2 emission is seen to be weak in the arc A region though the arc passes through the center of the dust-rich area. Hence, the H2 emission and dust features, together with those of X-ray and ion lines emissions, show stratified structure of arc A quite well, again confirming its thermal interface nature.