[구SS-09] 2007 Outburst of 17P/Holmes: the Albedo and the Temperature of the Dust Grains

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Based on optical and infrared observations, we study the albedo and the temperature of the dust grains associated with spectacular outburst of Jupiter-family comet 17P/Holmes in 2007. We found that the albedo at the solar phase angle ~16 degree was 0.03-0.1. While the color temperature around 3-4 micron was 360 (Yang et al. 2009), the color temperature we derived around 10-20 micron was 182 K, which is consistent with or slightly higher than that of the blackbody. We consider this big difference in the temperature was caused by the heterogeneity in particle size. It is likely that the albedo and the temperature could slightly decreased over three days. However, we could not find any evidence of pure icy particles suggested by Deep Impact experiment (Sunshine et al. 2007). We estimated the total mass injected into coma by the outburst on the basis of the albedo, and found that at least a few meter surface layer was removed by the initial event (in about two days after 2008 October 23.7 UT). We conclude that large fraction of inert dust mantle as well as a portion of internal pristine materials would be torn off by the initial outburst.

[구SS-10] 3-D Monte Carlo Simulations for Lunar Sodium Exosphere

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We have conducted 3-D Monte Carlo simulations for the lunar sodium exosphere, which are mainly produced by the sputtering of solar radiations and bombardments of micro-meteorites on the surface of the Moon.rehe produced sodium odims are effectively reflecting sunlight, and their distributions can be traced from ground-basium odims aories bym odimsing sodium D lines at 5890 A.rehese sodium odims are blown away bymsolar radiation pressure, and an away ame timimimiy are ed luenced by s cvitational forces of the Moon, the Earth, and the Sun.reaking into account all of these effecteffecthave devel.roun t computesolrogramve devel.rophplicable to any kinds of neutral particle's exospheres at any lunar lar rs. We w tl present preliminary results of the simulations of morphologhe pr variations and the estimated vel.cts odistributions of the exospheric sodium os seen from the Earth ameen they are being exposiumto solar ult cviolet radiations, they start undergoing ionizations, and the sodium ions are emmidced ly piofiumudiby the magnetic fields of the Earth and/or micro-magnetic fields produced by the l.cally magnetizium ter can of the Moon.rWe w tl discussium iorphping process of the sodium ions, and subsequent orbital motions of the ions.