Estimation of surface composition of asteroids in combination with Bus-DeMeo taxonomy and other physical observations

*Sunao Hasegawa[1], Daisuke Kuroda[2], Kenshi YANAGISAWA[2], Fumihiko Usui[3]

1. Japan Aerospace Exploration Agency, 2. National Astronomical Observatory of Japan, 3. Kobe University

The classification of asteroid's surface was done using the wavelength of visible light (eg, Tholen 1984, PhD thesis, Univ. Arizona; Bus & Binzel 2002, Icarus 158, 146), but due to the development of infrared observation technology in recent years, a method which extended to near infrared in addition to visible light has been proposed (DeMeo et al. 2009, Icarus 202, 160). By expanding the range of adaptation up to near infrared, in particular, those that were feature-less with visible light became clearly classifiable. Physical observations of asteroids are carried out also other than visible/near infrared spectroscopic observation. By adding the Bus-DeMeo classification method and other physical observation result information, it is thought that physical information of the asteroid surface layer can be extracted. It is the purpose of this research to derive new constraints on the composition of asteroids in the asteroid zone by combination of information.

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