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Author: Ms. Melissa Mirino  
Universita Roma 3, Italy, mela\_90@hotmail.it

ANALYSIS OF SPECTRAL DATA VIR-DAWN ON ASTEROID (4)VESTA: FROM LABORATORY TO  
REMOTE SENSING.**Abstract**

This paper deals with a study of remote sensing for the quadrangle Numisia of the asteroid 4 Vesta. The asteroid was studied during the mission Dawn. The mission is still active on a second asteroid body 1Cerere, for study two different bodies formed at the dawn of the solar system and try to unravel the mysteries of the first stages of solidification of a rocky planetoid.

A correlation was conducted between the official geological map of Numisia, produced by the team of geologists of the NASA DAWN mission, with spectral maps of the quadrangle obtained by the spectral data of VIR (the spectrometer aboard the Dawn spacecraft). This comparison made it possible to improve understanding of surface processes in remote sensing studies, combining the interpretative analysis, to define the geological units of Numisia, with the information found in the spectral maps that allow to trace the composition of Vesta's surface. The spectral maps expressing the variability of spectral parameters such as the center band and band depth, of the two main absorptions (called BI and BII), which are recorded in the characteristic spectra of Vesta.

To provide a correct interpretation of these maps in the analysis of Remote Sensing, samples of meteorites HED were analyzed, because their spectra are comparable with those obtained from VIR on the asteroid. By their spectra, the four parameters are derived, on which a spectral classification model, which was subsequently adopted to characterize the surface lithologies of Numisia with HED-like composition, and then define the composition of the geological units. By studying the dependence and the changes in spectral parameters based on the characteristics of the samples, was possible understood the causes of changes in these parameters deduced by the spectral maps, in remote sensing work.

The samples analyzed came from the collection of the Vatican Observatory and the collections of IAPS-INAF laboratories (Rome), where the spectral measurements through the Fieldspec spectrometer, which works in the range of near infrared were made, spectral range on which are found the two main absorptions of HED. The analysis in remote sensing was performed with the use of QGIS software and ENVI.