

DATABASES OF METEORITE BULK COMPOSITIONS AND THEIR CLUSTER ANALYSES.

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Introduction: Matching meteorite types to asteroids types as their parent bodies is inherently difficult due to various factors. Classification of asteroids is based mostly on information from reflectance spectroscopy, which is influenced by the surface conditions and weathering. Also, meteorites may not be considered as direct samples of asteroids because, in order to arrive on Earth, a meteoroid should be excavated and ejected from the gravitational field of its parent body. Furthermore, classification of meteorites is largely based on their mineralogical and petrographic characteristics, as well as their whole-rock chemical and isotopic compositions, but the groupings based on these data may not be best suited for the matching. For these reasons, we are investigating a more objective and statistical way to classify meteorites in order to match groups of meteorites to asteroids.

Meteorite databases: The bulk chemical composition of a meteorite is the only widely measured value for the greater numbers of meteorites. Thus, it is optimal if we can classify a meteorite based on bulk composition. Jarosewich compiled bulk chemical compositions of various types of meteorites (252 samples) [1], which is useful to understand the general trend of compositions for an individual class of meteorites. Scientists from the National Institute of Polar Research, Japan, have been collecting Antarctic meteorites since 1969. A database of meteorite bulk compositions representative of their Antarctic meteorite collection has been published in an Antarctic meteorite catalogue [2]. We are also compiling a new database based on published data. In this talk, we discuss our preliminary result of statistical analyses using these meteorite database.

References: [1] Jarosewich E., 1990. *Meteoritics* 25, 323, [2] Yanai K., Kojima H. And Haramura, H. 1995, *Catalog of the Antarctic Meteorites*, NIPR, Tokyo