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## Heavy Metal and Rock in Space: Cluster RAPID Observations

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Metallic and silicate ions carry essential information about the evolution of the Earth and near-Earth small bodies. Despite this, there has so far been very little focus on ions with atomic masses higher than oxygen in the terrestrial magnetosphere. In this presentation, we report on abundances and properties of energetic ions with masses corresponding to that of silicon (Si) and iron (Fe) in Earth's geospace. The results are based on a newly derived data product from the Research with Adaptive Particle Imaging Detectors (RAPID) on Cluster. We find traces of both Si and Fe in all of the regions covered by the spacecraft, with the highest occurrence rates and highest intensities in the inner magnetosphere. We also find that the Fe and Si abundances are modulated by solar activity. During solar maximum, the probability of observing Fe and Si in geospace increases significantly. On the other hand, we find little or no direct correlation between geomagnetic activity and Si and Fe abundance in the magnetosphere. Both Si and Fe in the Earth's magnetosphere are inferred to be primarily of solar wind origin, as indicated by correlations with heavy ion observations from the ACE spacecraft at L1. Sputtering off the Moon is another possible source of the observed heavy ions.