



Contribution ID : 811

Type : Oral

Charge and Mass Composition of heavy ions in the Earth's Radiation Belt

Tuesday, 10 July 2007 09:42 (0:12)

Abstract content

Energetic heavy ions with 20 – 200 MeV/n in the radiation belts have been observed by Heavy Ion Telescope (HIT) onboard TSUBASA satellite which stayed in the geostationary transfer orbit with the inclination of 28.5 deg. The observed data during quiet period in the outer region of radiation belt found out that the relative abundance for major elements, C, O, Ne, Mg, Si and Fe, were similar to that of galactic cosmic rays (GCRs) obtained by ACE/CRIS at Lagrangian points as L1, in particularly for the ratio of $^{22}\text{Ne}/^{20}\text{Ne}$, while the absolute intensities in the radiation belt were less than that obtained by ACE/CRIS beyond the radiation belt. On the other hand, in the inner region of radiation belt near the earth, the major elements except for helium nuclei could not observed and the ratio of $^3\text{He}/^4\text{He}$ was enhanced as compared with that of solar abundance or GCR abundance. Thus charge and mass composition of heavy ions obtained from these data available will give us the considerations of possible origin and behavior of energetic heavy ions in the radiation belt.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 1 (SH), pages 647-650

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Session Classification : SH 3.4, SH 3.5

Track Classification : SH.3.5