



Contribution ID: 135 Contribution code: ACI-9

Type: Oral Presentation

Beryllium-10 enhancement over the Laschamp excursion recorded in a deep-sea sediment core from the Indian sector of the Southern Ocean

Wednesday, 23 October 2024 13:50 (20 minutes)

The Laschamp geomagnetic dipole low, associated with a pronounced geomagnetic excursion that occurred at about 41.5 ka, has been studied in several authigenic beryllium isotope records from deep-sea sediments. However, such records from the Southern Hemisphere were scarce. In this study, we analyzed the authigenic beryllium isotope (the $^{10}\text{Be}/^{9}\text{Be}$ ratio) from 48 to 29 ka in a sediment core (the DCR-1PC core) from the Del Canˆo Rise (46°01'S, 44°15'E), the Indian sector of the Southern Ocean. The $^{10}\text{Be}/^{9}\text{Be}$ ratio showed a sharp increase to a maximum at 40.3 ka, followed by a gradual decrease. Given the behavior of the $^{10}\text{Be}/^{9}\text{Be}$ ratio and the uncertainty in the age model of the core, we conclude that this increase faithfully reflects the ^{10}Be enhancement caused by the Laschamp geomagnetic dipole low. However, comparisons with authigenic beryllium isotope records from northeastern Atlantic and equatorial Pacific sediments showed a lower rate of the Laschamp peak enhancement in the Southern Hemisphere record. This suggests either the existence of a hemispheric difference in ^{10}Be production /fallout or the influence of pre-/post- depositional smoothing, or both.

Student Submission

No

Primary author: Mr AWANO, Masayoshi (Graduate School of Science and Technology, Hirosaki University)

Co-authors: Dr HORIUCHI, Kazuho; Dr MATSUI, Hiroki (Graduate School of International Resource Sciences, Akita University); Prof. SUGANUMA, Yusuke (National Institute of Polar Research); Prof. KAWAMURA, Kenji (National Institute of Polar Research); Prof. IKEHARA, Minoru (Center for Advanced Marine Core Research, Kochi University); Mr YAMAGATA, Takeyasu (The University Museum, The University of Tokyo); Prof. MATSUZAKI, Hiroyuki (The University Museum, The University of Tokyo)

Presenter: Dr HORIUCHI, Kazuho

Session Classification: Applications of Cosmogenic Isotopes

Track Classification: Applications of Cosmogenic Isotopes