
[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS10]Paleoclimatology and paleoceanography

convener:Yusuke Okazaki(Department of Earth and Planetary Sciences, Graduate School of Science, Kyushu University), Atsuhiko Isobe(Research Institute for Applied Mechanics, Kyushu University), Akihisa Kitamura(静岡大学理学部地球科学教室, 共同), Masaki Sano(Faculty of Human Sciences, Waseda University)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Past environmental changes and events at multi-decadal to tectonic timescale toward an understanding of Earth climate system by an integration of terrestrial and marine proxy studies and numerical modeling will be discussed. We welcome a variety of paleo-environmental studies from a wide range of background. In particular, a series of presentations relating to the Anthropocene will be planned. This is a merged session of A-OS31 "Linkage between oceanography and paleoceanography in marginal, shelf and coastal oceans" and M-IS23 "Paleoclimatology and paleoceanography" sessions at JPGU 2017. We hope that this session will provide an opportunity to promote communication between participants from multidisciplinary field.

[MIS10-P31]Elemental carbon flux changes in sinking particles in the western North Pacific during 1997-2000

Koichi Hirono¹, Takuma Miyakawa², Kana Nagashima², *Yusuke Okazaki¹ (1.Kyushu University, 2.JAMSTEC)

Elemental carbon (EC) is one of aerosols and is generated by incomplete combustion of organic matter. Compared to organic carbon (OC), EC has high vaporization temperature and is inactive, so it tends to remain in sediment for a long time. In this study, we aimed to clarify seasonal flux changes in elemental carbon transported through the atmosphere to North Pacific Ocean using sediment trap samples. Sinking particle samples were collected by time-series sediment traps deployed at two stations in the northwest Pacific Ocean: Station 50N (50 degree N, 165 degree E; 5546 m bottom water depth; 3000 m mooring water depth; mooring period from 1 December 1997 to 18 May 2000) and station 40 N (40 degree N, 165 degree E; 5476 m bottom water depth; 3000 m mooring water depth; mooring period from 1 December 1997 to 30 January 2000). EC contents were measured by thermal separation method using semi-continuous OC-EC Field Analyzer (Sunset Laboratory Inc.). Thermal separation method is one of the carbon component analyses, which distinguish between EC and OC based on volatility. EC flux at Station 40N showed large seasonal fluctuation and the maximum EC flux ($374 \mu\text{g m}^{-2} \text{day}^{-1}$) was observed in August 1998. On the other hand, seasonal fluctuation of EC flux at 50N was very small in 1998 at Station 50N and the maximum EC flux ($205 \mu\text{g m}^{-2} \text{d}^{-1}$) was observed in July 1999. Patterns of EC fluxes at stations 40N and 50N were correlated with the pattern of biogenic opal fluxes. This indicates a close relationship of sinking process between EC and biogenic opal. Because single EC particle is too small to sink by itself, biogenic opal particles such as diatom frustules play a substantial role in the sinking process of EC adsorbed to marine snow.