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APE031-P20

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## Variation in East Asian summer monsoon over the past 140 kyr inferred from biogenic silica record from Lake Biwa

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Climate in East Asia is strongly controlled by the East Asian summer monsoon (EASM) which yields significant influence on global climate (An, 2000). Previous studies have demonstrated millennial-scale changes in the EASM and its correspondence with the Dansgaard-Oeschger cycles (e.g., Fang et al., 1999; Wang et al., 2001, 2008; Sun et al., 2010). A continuous biogenic silica content (BSC) record at high-resolution from Takashima-oki Drilling Core in Lake Biwa (Yoshikawa & Inouchi, 1991) during the past 140 kyr shows strong similarities with speleothem records from Hulu Cave and Sanbao Cave in central China displaying millennial-scale variation in EASM intensity identified Chinese interstadials (CISs) controlled by summer precipitation changes (Wang et al., 2001; Wang et al., 2008), which indicates that Takashima-oki BSC record illustrates changes in EASM intensity around central Japan. The result, which shows BSC-peak intervals are well corresponded with Greenland interstadials (GIS) 1-25 (Dansgaard et al., 1993; Grootes et al., 1993; NGRIP members, 2004) and CIS A1-A25 (Wang et al., 2008), allows propose Japanese interstadial (JIS) events refer to relatively strong EASM events in terms of summer temperature changes (Nakanishi et al., 2010) around central Japan. It must be noted that the ages of JISs almost coincide with GISs and CISs.

It is considered that dominant long-term variation in summer monsoon intensity is driven by direct summer insolation (Kutzbach, 1981) which oscillates predominantly regulated by the precession cycle mainly at the periodicity of 23 kyr. Orbital changes in EASM intensity in central China (Wang et al., 2008) and South American summer monsoon (SASM) in southeastern Brazil (Cruz Jr et al., 2005) actually respond approximately linearly to insolation changes in mid-July and in mid-February, respectively. Similarly to these observations, long-term change in Takashima-oki BSC is dominated by climatic precession cycle. Further investigations into the both millennial- and orbital-scale climatic responses in central Japan will be the subject of forthcoming work.

Keywords: East Asian summer monsoon, Summer Insolation, D-O cycle, Biogenic silica, Lake Biwa