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Correlation between the concentrations of cosmogenic Be-7, Be-10 in atmosphere and solar activities.

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The concentrations of ^{7}Be and ^{10}Be were investigated at Dazaifu, Fukuoka (1998-2002), Hachijo-Island (2002-2005) and Tokyo (2002-2008) during 1998 to 2008. The seasonal variations were same each year; high concentrations and high isotopic ratios of ^{10}Be/^{7}Be that was caused by strong stratosphere-troposphere exchange (STE) were appeared in February to June, and various concentrations but constant ^{10}Be/^{7}Be by vertical convection in troposphere were appeared in July to December. The concentrations were reconstructed by the box model formula. The parameters of the mean residence time and STE intensities, and period, were constant. The amplitudes of production rate were higher than the amplitude of cosmic ray neutron flux observed at Moscow near earth's surface by a factor of 4. Since the neutron flux amplitude at polar region that was little influenced by geomagnetic field was only 10% higher than Moscow, the high amplitudes of production rate were assumed that caused by changing of energy spectrum of galactic cosmic ray.

Keywords: Accelerator mass spectrometry, Cosmogenic nuclide, atmosphere, aerosol

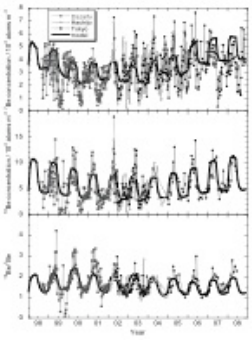

Fig. 1 The decadal variations of ^{7}Be, ^{10}Be concentration and ^{10}Be/^{7}Be in the atmosphere in Dazaifu, Hachijo-Island and Tokyo during 1998 to 2008.