Evidence of protosun corona activity recorded in meteorite components

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Recently Shu et al. (1977) theoretically proposed that a violent proto-sun controlled chemical composition of solid in a protoplanetary disk. Yurimoto & Kuramoto (2004) proposed that two different oxygen isotope reservoirs in the early solar system are assigned to protosolar nebula gas for O-18-rich component and protosun and interstellar dusts for O-16-rich component as a logical consequence of astrophysical setting of solar system formation. If we combine these two idea, oxygen isotopic compositions of planet-building blocks have been changed from O-16-rich to O-17, 18-rich ones by multiple thermal pulses at inner disk edge from protosun. The trend of oxygen isotopic change is not monotonic but also fluctuated because the position of disk inner edge is fluctuated depending on a variation of protosun activity. Itoh & Yurimoto (2003) found the direct evidence of the fluctuation from a meteorite. Here we propose such oxygen isotopic fluctuation has been continued for several million years based on a micro-distribution of oxygen isotopic compositions and the correlating chronology in a component from meteorite. This indicates that the two oxygen isotopic reservoirs existed for at least several million years. Yurimoto & Kuramoto (2004) show that the O-17, 18-rich reservoir presents in the protoplanetary disk except for the first million years from the collapse of the parent molecular cloud. Itoh & Yurimoto (2003) estimate that the source of O-16-rirh gas reservoir is evaporated pristine planet-building blocks without oxygen isotopic exchanges. However, it is difficult to preserve such pristine solid at the inner disk edge free from oxygen isotopic exchanges with disk gas. The time scale of several million years corresponds to a lifetime of protostar. Therefore, violent corona ejected from protosun is a plausible for the source of O-16-rich gas reservoir. This scheme is also theoretically supported by an active interaction between protosun corona and protoplanetary disk at the inner edge region (Nakamura et al., this meeting).