Part VII

Parent Bodies of Micrometeorites and Early Solar System Processes

So far we have wandered in the post-lunar area while being protected by solid data that helped constrain speculations, such as the composition of the Earth’s atmosphere, the contents of S and Ir in rocks from the primitive upper mantle, iridium in lunar samples, and Ni, S and CO$_2$ concentrations measured on Mars. We were outside the boundary where science sometimes merges with science fiction. In this part we reach this dangerous boundary several times while moving to the pre-lunar area dealing with the obscure first $\sim$100 Myr history of the Earth. Here, good data become rare and bold speculations over-abundant. To guide us, we have only the most primitive meteorites and micrometeorites used as probes of early processes, observations of young Sun-like stars and computations of planetary dynamicists. However, camping on these boundaries is an exciting part of the scientific adventure, loaded with the “unexpected”. In these sections we question the nature and the provenance of the parent bodies of micrometeorites, which is still hotly debated. We next venture into the still obscure early history of comets, which begin in a cradle of dust and ices. In their early stage of formation, these ices were probably dusted by huge surges of dusty solar gases. The trip will (momentarily) stop at the dead end of the early configuration of solar system bodies and nearby stars, which is one of the most eluding but fascinating mysteries of our distant past.