

WHERE DO METEORITES ULTIMATELY COME FROM? A. Morbidelli¹ ¹OCA, Dep. Cassiopee E-mail: morby@oca.eu

There are little doubts that meteorites come from the main asteroid belt, mostly from asteroids located in the vicinity of the powerful resonances ν_6 and 3:1 [1]. But where do these asteroids come from? It is generally considered that main belt asteroids formed approximately where they are now. Thus, they are supposed to be the relic of the planetesimal population that accreted between 2 and 4 AU. This may still be true for many of them. But there is growing evidence that several of the asteroids that we see today in the main belt did not form there. The parent bodies of iron meteorites might have formed in the terrestrial planets region [2]. C-type asteroids might have formed in the Jupiter zone [3] and D-P type asteroids might come from the trans-Neptunian region [4,5]. All these bodies could have been captured into the asteroid belt during the violent events that characterized giant planet formation, terrestrial planet formation and the LHB. Therefore, the view that emerges from these recent dynamical studies is that the asteroid belt is the repository of rogue planetesimals coming from much wider regions of the Solar System. This may explain the diversity among asteroids, the lack of transition objects between S- and C-type bodies, the confusing similarity between some asteroids and comets. Moreover it has profound implications for the use of meteorite compositions to reconstruct the thermal and chemical properties of the protoplanetary disk.

References:

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