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Are comets the so called Main Belt comets?

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Main Belt Comets (MBCs) are objects of the main belt with observed sporadic cometary-like activity (Hsieh and Jewitt 2006, Science, 312, 561). The study of asteroids that present sporadic cometary activity is of fundamental importance to address several astronomical problems including the end states of comet nuclei, the abundance of water in main belt asteroids, and its role as a possible source of terrestial water. Up to now three MBCs are known: (7968) Elst-Pizarro, 118401 (1999 RE70) and P/2005 U1 (Read). All of them are members of the Themis family of asteroids.

In this work we present new spectroscopic and photometric observations of the three MBCs, compare them with other activated asteroids of the NEO population, other Themis family asteroids, comet nuclei and asteroids in cometary orbits, and discuss their cometary or asteroidal nature.