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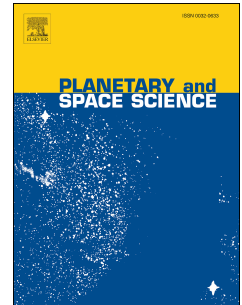
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# The activity and dynamical evolution of quasi-hilda asteroid (457175) 2008 GO98<sup>☆</sup>

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## Abstract

The quasi-Hilda asteroid (457175) 2008 GO98 was found in a previous study as a good candidate to show cometary activity since it seems to come from the Centaurs region. The object was observed in the post-perihelion arc of its orbit during several runs between September 2016 and June 2017 with the 2.15 m telescope at Complejo Astronómico El Leoncito (CASLEO) in San Juan, Argentina. The images obtained were analyzed and the object was observed active with a small coma that grew in size and brightness as the object moved away from the perihelion of the orbit, while in June 2017 it also showed a small tail. In order to get an estimation of the diameter of the nucleus the coma contribution has been calculated and subtracted to find values of  $15.5 \pm 4.0$  km and  $20.1 \pm 5.4$  km for albedos of  $p_R = 0.13$  and  $p_R = 0.069$ , respectively. To understand the recent dynamical evolution of (457175) 2008 GO98, the orbit of the object and those of 100 clones were numerically integrated backward and forward in time for 30000 yr. The dynamical evolution confirms that this object is a recent incomer from the outer region of the solar system but it will return to this region in a short period of time indicating that its present dynamical state is rather transient.

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