Our observed positions were compared with the theoretical ones calculated from a numerical integration by R.A. Jacobson from JPL (personal communication). The standard deviation of the (O-C) for Amalthea, referred to Jupiter is $0\farcs33$ and for Thebe referred to Amalthea is $0\farcs08$.

DUST IN THE TROJAN REGION: ORIGIN AND EVOLUTION

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It is believed today that the number of Trojan asteroids and the main belt asteroids are of the same order. One should thus expect that collisions among these asteroids originate a great number of dust particles. Due to the interactive action of the solar radiation, the Poynting-Robertson effect and the 1:1 resonance with Jupiter, dust grains are locked for some time in the Trojan region and after that they either spiral towards the Sun or are expelled from the Solar System by a close approach with Jupiter. In fact, numerical integrations (Gomes & Vieira Martins 1995, BAAS, 27(3), 1085) show that, due to a continual creation of particles, there must be a dust ring formed by grains coming from collisions among Trojan asteroids and another ring (Liou & Zook 1995, Icarus 403, 113) formed by small dust grains coming from the main belt. These rings show a denser accumulation of particles near the shifted Lagrangian points.

Assuming some magnitude distribution (Shoemaker et al. 1989, Asteroids II, 487) we find that the number of Trojan bodies with mass between m and $m + dm$ is proportional to $m^{1.722}\, dm$. When we consider the parameters related to the Trojan dynamics (Milani 1993, Celes. Mechan. Dynam. Astron., 57, 57), we can compute the rate of dust production for a given grain size (Williams & Wetherill 1994, Icarus 107, 117). It is determined, for instance, that for particles with 10 μm in radius, the total number of particles is stationary, which means that the number of particles created by collisions is equal to the number of particles escaped from the temporary lock in the 1:1 resonance with Jupiter. Moreover it can be shown that trapped grains are not removed by collisions because only one in ten thousand of these particles suffers any collision with a larger particle during an average 10^6 years of trapping time. These data and the results from the numerical integrations of the dynamical evolution in the 1:1 resonance, allow us to determine several characteristics of the formed dust cloud.

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TIME ANALYSIS OF THE CO$^+$ COMA OF COMET P/HALLEY BY IMAGE PROCESSING TECHNIQUES

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1439 images of comet P/Halley and 173 calibration objects were made as part of the "Large Scale Phenomena Network" (LSPN) from "International Halley Watch" (IHW) Program, conducted from 1982 October 16, to 1991 February 12.

These images obtained usually through telescopes with large angular field, show specially the tail morphology.

Initially, 56 images out of those 1439 digitized ones in FITS format and registered in 24 CD's (Niedner & Brandt 1991) have been chosen, because they show many structures along the cometary tail.

This work, that is just beginning, with the help of the image data system IRAF identifies morphological structures like knots, kinks and disconnection events (Niedner & Brandt 1978, 1979; Alfvén 1957). Such structures will be classified and interpreted from the magnetohydrodynamic (MHD) point of view to analyse the role of Kelvin-Helmholtz instability in the cometary plasma acceleration (Laing 1976; Golant et al. 1980).

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