Plate 7. The evolution of a representative particle originating in the Kuiper belt from the integrations of $LD97$. Locations of the particle’s orbit in the $q$–$Q$ (perihelion–aphelion) plane are joined by blue lines until the particle became “visible” ($q < 2.5$ AU) and are linked in red thereafter. By definition, comets cannot have orbits with $q > Q$, so they cannot lie in the upper left of the diagram. The sampling interval was every $10^4$ yr in the previsibility phase ($q > 2.5$ AU) and every $10^3$ yr thereafter. Also shown are three lines of constant eccentricity at $e = 0$, 0.2, and 0.3. In addition, we plot two dashed curves of constant semimajor axis, one at Jupiter’s orbit and the other at its 2:1 mean-motion resonance. From Levison and Duncan (1997).

Plate 8. A contour plot of the relative distribution of ecliptic comets in the solar system as a function of aphelion ($Q$) and perihelion ($q$). The units are the fraction of comets per square AU in $q$–$Q$. Also shown are three lines of constant eccentricity at $e = 0$, 0.2, and 0.3, and two dashed curves of constant semimajor axis, one at Jupiter’s orbit and one at its 2:1 mean-motion resonance. The gray dot labeled “E” shows the location of Comet 2P/Encke. The label “1:2” indicates the location of Neptune’s 1:2 mean-motion resonance. From Levison and Duncan (1997).