COMET P/2004 V5 = P/2003 YM$_{159}$ (LINEAR-HILL)

While the initial report inferred that the discovery of comet P/2003 YM$_{159}$ at Catalina was a team discovery (thus the name 'LINEAR-Catalina' given on *IAUC* 8433), it has since been determined that observer Rik Hill was alone in discovering, measuring, and reporting the comet — thereby allowing his name to be used in place of the survey name (as also approved by the Catalina team). Consultation with the IAU Committee on Small-Body Nomenclature has yielded the decision to introduce for this comet the new principal designation P/2004 V5 and to replace the name 'LINEAR-Catalina' with 'LINEAR-Hill'. The components A and B are defined as before. The following improved orbital elements from *MPEC* 2004-V79 are for component A, with the preliminary elements for component B being well satisfied with the same elements but with $\Delta T = +0.23$ day.

Epoch = 2005 Mar. 11.0 TT

$$T = \text{2005 Feb. 28.6935 TT} \qquad \omega = 87°\!.6836$$
$$e = 0.445237 \qquad\qquad \Omega = 47.8590 \left.\right\} 2000.0$$
$$q = 4.410971 \text{ AU} \qquad\quad i = 19.3582$$
$$a = 7.951091 \text{ AU} \qquad n° = 0.0439606 \qquad P = 22.42 \text{ years}$$

COMET P/2004 V3 (SIDING SPRING)

Improved elliptical orbital elements from *MPEC* 2004-V77:

$$T = \text{2004 Nov. 13.938 TT} \qquad \omega = 322°\!.759$$
$$e = 0.45163 \qquad\qquad \Omega = 356.082 \left.\right\} 2000.0$$
$$q = 3.94084 \text{ AU} \qquad\quad i = 50.454$$
$$a = 7.18647 \text{ AU} \qquad n° = 0.051160 \qquad P = 19.3 \text{ years}$$

COMET P/2004 V4 (NEAT)

Improved elliptical orbital elements from *MPEC* 2004-V78:

$$T = \text{2005 Jan. 31.1328 TT} \qquad \omega = 347°\!.0816$$
$$e = 0.475536 \qquad\qquad \Omega = 103.7625 \left.\right\} 2000.0$$
$$q = 1.920247 \text{ AU} \qquad\quad i = 12.4600$$
$$a = 3.661350 \text{ AU} \qquad n° = 0.1406832 \qquad P = 7.01 \text{ years}$$