

New Trends in the Discovery of Comets by Amateurs

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Abstract

The ways in which amateurs may increase their chances of discovering comets were described. Amateurs discover a considerable proportion of comets, but their contribution is greater among long-period comets. The relative proportions of short-period comets is revealing: 1 in 2 for professional astronomers, 1 in 8 for amateurs. Professional discoveries are largely a by-product of searches for asteroids: the comets have low inclinations ($i < 30^\circ$) and are faint ($m_1 > 14$). Amateurs are most successful in areas close ($< 60^\circ$) to the Sun. Typical apertures are 150-mm, and most comets are brighter than magnitude 10.

Past results show that there is a strong correlation between number of observers and number of discoveries. Several amateurs have discovered comets at great elongations with larger telescopes (≥ 400 mm). The comets tend to be fainter ($10 < m_1 < 12$). Several comets have been discovered with simple equipment (200- or 300-mm telephoto lenses) down to magnitude 13.

Calculations of the distribution of discoverable comets show that an average of 14 comets ($9 < m_1 < 14$) are missed per year.

References

- Kresak, L., 1982: "Comet discoveries, statistics, and observational selection" in *Comets*, ed. Wilkening, L.L., 56–82
- Everhart, E., 1967: "Intrinsic Distribution of Cometary Parhelia and Magnitudes", *Astron. J.*, **72** (8), 1002–11
- [See also the invited paper by B. Marsden – Eds.]

Amateur Astronomers and the Recovery of Periodic Comets

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Abstract

Most periodic comets are recovered by professional astronomers at faint magnitudes (18–21). Only Tsutomu Seki, using a 60-cm telescope has been an exception to this rule. Amateurs having access to large telescopes (such as the T 60 at Pic du Midi) now stand a chance of success. For example, using the T 60, the author photographed P/Halley at mag. 19–20 on forming-gas hypered Kodak TP 2415 in a 1-hour exposure. Experiments by C. Buil suggest that the same telescope can reach magnitudes 21–22 with a CCD array cooled to -50°C and a 30-minute integration time.