

Evidence for asteroidal satellites from 30 years of occultation observations

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Ground based observations of occultations of stars by asteroids using portable and fixed conventional telescopes have been conducted by the International Occultation Timing Association since the 1970's. This has resulted in 42 observations which have suggested the detection of possible satellites of minor planets between 1977 and 2006. Except for last November's occultation by the known satellite Linus of (22) Kalliope in Japan, none of these have been unambiguously confirmed either by adjacent ground observers or by larger ground based instruments or space-borne telescopes. But such observations can be used to help characterize the environment around minor planets and to improve shape and size data on asteroids themselves. This can be important for future space missions such as one proposed for an inspection by the spacecraft "Orion" to a near earth asteroid. Efforts continue to intercept occultation paths involving stars by minor planets using video, image intensification devices, and visual methods principally by teams in the US, Europe, Japan, and Australia. Approaches are described to tactically specify the problem of ground intercepts and interpretation of observations.