Comet and Asteroid Ephemerides for Spacecraft Encounters

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To a significant degree, the success of spacecraft missions to comets and asteroids depends upon the amount, time span and accuracy of the astrometric data set used to generate the target body ephemerides. For each target body of a spacecraft mission, observing campaigns are organized to reduce the ephemeris errors at the spacecraft encounter time. Experienced observers often use special reference star catalogs, some reduce their observations with respect to the radio reference frame, while others make radar time delay and Doppler measurements. The benefits of these observational techniques are discussed in connection with the comets and asteroids that have been, or soon will be, spacecraft mission targets.