

Modeling cometary outbursts: the effect of nucleus properties on outburst characteristics

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Cometary activity is driven – directly or indirectly - by solar radiation, but its source lies in the interior of the nucleus. Models invoke gas expelled from sub-surface layers – often deep - as the main triggering mechanism for outbursts. The source may be gas release from amorphous water ice as a result of crystallization, or sublimation of ices lying at different depths below the nucleus surface. Models show that outbursts may occur both near perihelion and also at large heliocentric distances, either pre- and post-perihelion and almost at all latitudes, and outburst durations may widely vary. The aim of the present study is to identify which property of the nucleus has the greatest influence on each of the outburst characteristics – timing, duration, frequency, intensity. This may shed light on the large variety of outburst properties found by *Rosetta* and on their relation to properties of the nucleus.