* WMM(world magnetic model) is the standard model used in the military and civilian navigation systems both in US and UK. The IGRF(international geomagnetic reference model) is the model preferred by the academic community
* revised at least every five years and are usually valid for a period of five more years after these model have been released.

Equations

* The assumption is usually made that the geomagnetic field is irrotational in the area of interest so that we can write the vector field as the gradient of a potential function
* the potential V satisfies the Laplace equation since the divergence of B is null





* inputs- (r, λ, θ) represent respectively the radius, the longitude and the co-latitude in a spherical geocentric reference frame; t is time from reference date
* It is common on many nanosatellites (where the processing capacities are greatly limited) to truncate the model to the degree 6; however, the satellites can still meet the attitude measurement requirements of the mission.
* This level of accuracy is usually satisfying for most of the nanosatellite missions as the magnetometer sensor itself is subject to disturbance fields due to magnetic materials, electric currents and temperature variation that are also in this order of magnitude. For example a 10 mA current (typical intensity in a nanosatellite) in a straight wire generates a field of 200 nT at a distance of 10 cm.
* Considering that satellite external temperature can drop by more than 50o C from sunlight to eclipse phase, it is crucial to compensate for its variation to get accurate measurements. If we choose a model of lesser degree the error increases.