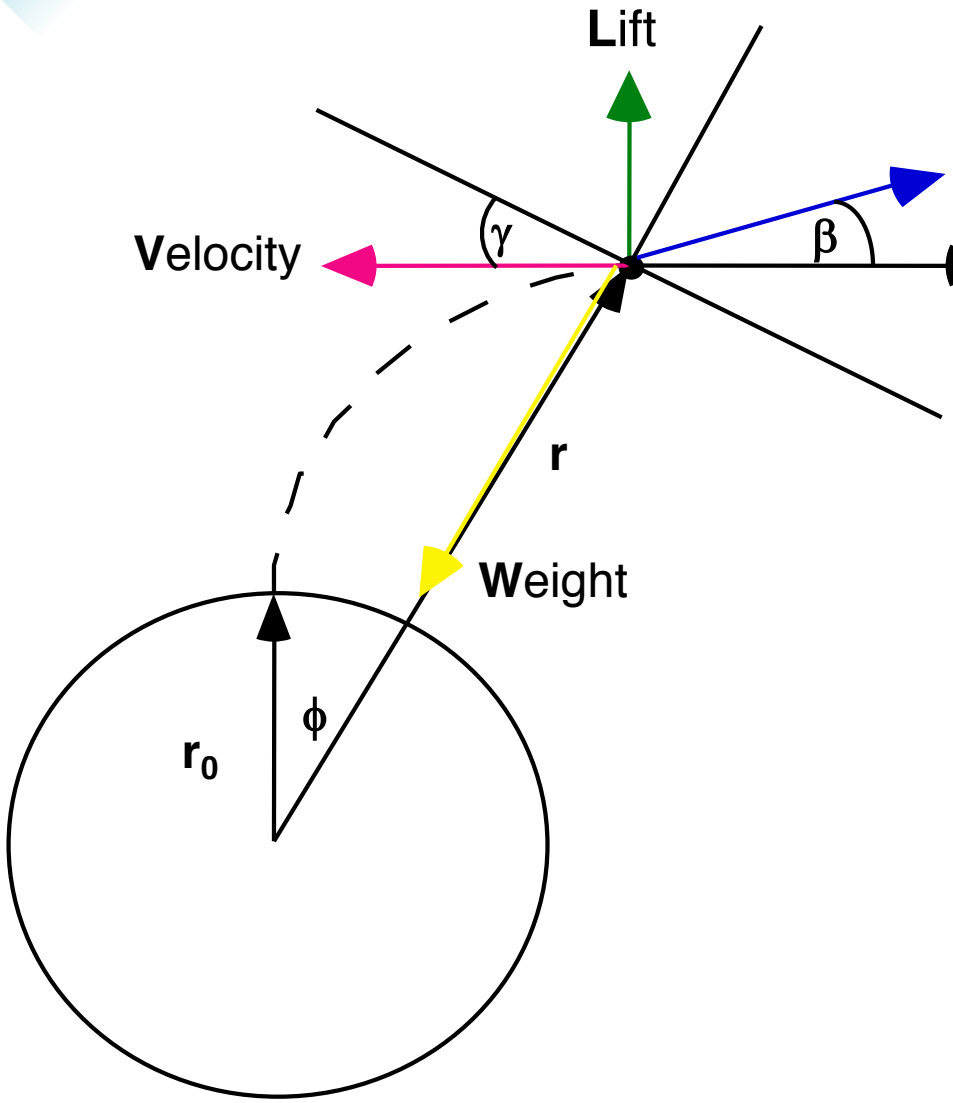
Simplified two-dimensional re-entry trajectory



$$\frac{dV}{dt} = \frac{-T \cdot \cos(\beta) - D}{m} + \frac{\mu}{r^2} \cdot \sin(\gamma)$$

$$\frac{d\gamma}{dt} = \frac{-T \cdot \sin(\beta) - L}{m \cdot V} + \left(\frac{\mu}{r^2 \cdot V} - \frac{V}{r} \right) \cdot \cos(\gamma)$$

$$\frac{dr}{dt} = -V \cdot \sin(\gamma)$$

$$\frac{d\phi}{dt} = \frac{V}{r} \cdot \cos(\gamma)$$

$$\frac{dm}{dt} = -\dot{m}$$