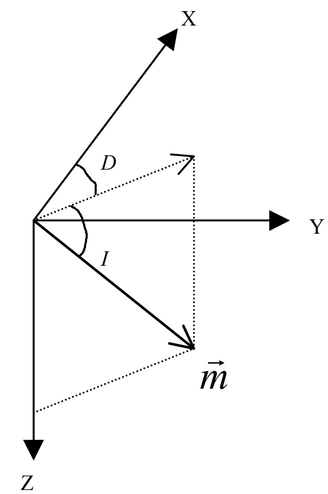
Magnetic dipole modelling applet equations:

$$\vec{B} = \frac{\mu_0}{4\pi} \cdot \vec{m} \cdot \nabla\nabla(1/r), \qquad \mu_0 = 4\pi \times 10^{-7}$$

$$\mathbf{T} = \nabla\nabla\left(\frac{1}{r}\right) = \begin{pmatrix} \frac{3x^2}{r^5} - \frac{1}{r^3} & \frac{3xy}{r^5} & \frac{3xz}{r^5} \\ \frac{3xy}{r^5} & \frac{3y^2}{r^5} - \frac{1}{r^3} & \frac{3yz}{r^5} \\ \frac{3xz}{r^5} & \frac{3yz}{r^5} & \frac{3z^2}{r^5} - \frac{1}{r^3} \end{pmatrix}, \quad r = \sqrt{x^2 + y^2 + z^2}$$



$$\hat{m} = \begin{pmatrix} \cos(I)\cos(D) \\ \cos(I)\sin(D) \\ \sin(I) \end{pmatrix}, \quad \vec{m} = |m| \times \hat{m}$$

$$\vec{B} = \begin{pmatrix} B_x \\ B_y \\ B_z \end{pmatrix} = 10^{-7} \vec{m}\mathbf{T}$$

$$B_{total} = \vec{B} \bullet \hat{m}$$