$$\frac{d\psi}{d\theta} = -1 - \frac{ms\sin\delta(1+\sin\delta)(\cot\theta\sin 2\psi + \cos 2\psi - 1) + \cos\theta - \sin\delta\cos(\theta + 2\psi) + s\cos^2\delta}{2s\sin\delta(\cos 2\psi - \sin\delta)}$$

$$\frac{ds}{d\theta} = \frac{s\sin 2\psi + \sin(\theta + 2\psi) + ms\sin\delta[\cot\theta(1+\cos 2\psi) - \sin 2\psi]}{\cos 2\psi - \sin\delta}$$

$$\psi(\theta') = \frac{1}{2}\left[\phi' + \sin^{-1}\left(\frac{\sin\phi'}{\sin\delta}\right)\right] + 90^\circ$$

$$\psi(90^\circ) = 90^\circ$$

$$\frac{V}{V_0} = \exp\left[-(2+m)\int_0^{\theta'} \tan(2\psi)\, d\theta\right]$$