Spectral fields with triangular truncation to degree and order M are produced as follows:

$$f(\lambda,\phi) = (2-\delta_{0m})\sum_{m=0}^{M}\sum_{n=m}^{M}(a_n^m \cos m\lambda - b_n^m \sin m\lambda) P_n^m(\mu) \qquad (1)$$

where δ_{0m} is the Kronecker delta function, $\mu = \sin\phi$, and the Legendre functions are defined as:

$$P_n^m(\mu) = \frac{1}{2^n n!}\left[\frac{(2n+1)(n-m)!}{2(n+m)!}\right]^{\frac{1}{2}} (1-\mu^2)^{m/2} \frac{d^{m+n}}{d\mu^{n+m}}(\mu^2-1)^n \qquad (2)$$

and are orthonormal:

$$\int_{-1}^{1} P_n^m P_{n'}^{m'} d\mu = \delta_{nn'}\delta_{mm'} \qquad (3)$$