which are related by

$$e^2 = 2f - f^2 \quad . \tag{1–56}$$

After the second excentricity e' defined by

$$e'^2 = \frac{a^2 - b^2}{b^2} = \frac{e^2}{1 - e^2} \tag{1–57}$$

is used.

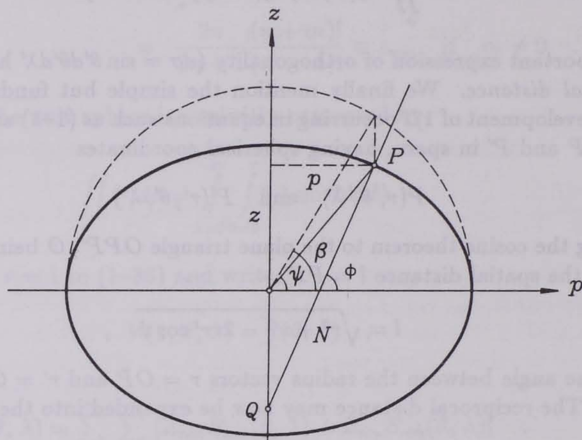

FIGURE 1.4: The meridian ellipse as parametrized by geographic latitude ϕ, geocentric latitude ψ or reduced latitude β

The meridian ellipse may be parametrized either by *geographic latitude* ϕ or by *reduced latitude* β or also by *geocentric latitude* ψ (Fig. 1.4). In coordinates p, z, we thus have

$$\begin{aligned} p &= a\cos\beta \quad , \\ z &= b\sin\beta \quad , \end{aligned} \tag{1–58}$$

or

$$\begin{aligned} p &= N\cos\phi \quad , \\ z &= \frac{b^2}{a^2}N\sin\phi \quad , \end{aligned} \tag{1–59}$$

or

$$\begin{aligned} p &= r\cos\psi \quad , \\ z &= r\sin\psi \quad , \end{aligned} \tag{1–60}$$