**这几个纬度之间的转换关系可参考http://en.wikipedia.org/wiki/Latitude**

**Geodetic latitude**

大地纬度，椭球表面上一点的法线方向与赤道面间的夹角

**geocentric latitude**

地心纬度，椭球表面上一点与地心连线与赤道面间的夹角

**Authalic latitude**

等积纬度，与椭球体积相同的球上的纬度，在等积投影上使用到

The **authalic** (Greek for [same area](http://en.wiktionary.org/wiki/authalic)) latitude, ξ, gives an area-preserving transformation to a sphere.

\xi(\phi)=\sin^{-1}\left(\frac{q(\phi)}{q_p}\right)\,\!

where


\begin{align}
q(\phi)&= \frac{(1 - e^2)\sin\phi}{1 - e^2 \sin^2 \phi}
-\frac{1-e^2}{2e}\ln \left(\frac{1-e\sin\phi}{1+e\sin\phi}\right),\\
 &= \frac{(1 - e^2)\sin\phi}{1 - e^2 \sin^2 \phi}
+\frac{1-e^2}{e}\tanh^{-1}(e\sin\phi),
\end{align}


and


q_p = q(\pi/2)
=1-\frac{1-e^2}{2e}\ln \left(\frac{1-e}{1+e}\right)
=1+\frac{1-e^2}{e}\tanh^{-1}e,
\,

and the radius of the sphere is taken as

R_q=a\sqrt{q_p/2}.\,

An example of the use of the authalic latitude is the [Albers equal-area conic projection](http://en.wikipedia.org/wiki/Albers_projection). (Snyder,[[11]](http://en.wikipedia.org/wiki/Authalic_latitude#cite_note-snyder-11) Section 14).

**MeridionalDistance：子午线距离：给出椭球下某个纬度，该纬线上任意一点沿过该点的经线方向到赤道的表面距离**

相关计算方法可参考：<http://en.wikipedia.org/wiki/Meridian_arc>

注：该方法似乎与Dotspatial.Projection里的计算方法不相同