

Projections & Local Ellipsoids:

Both Grand Cayman Geodetic Datum 1959 (GCGD59) and the Sister Islands Geodetic Datum 1961 (SIGD61) use the same projection and type of local ellipsoid.

The datums differ because the local ellipsoids are fitted to local origins by separate astronomical observations and have separate orientations:

Grand Cayman – origin: survey control GC1
- orientation GC34 to GC10

Sister Islands – origin: survey control LC5
- orientation Little Cayman LC5 to LC6
- orientation Cayman Brac CB2 to CB1

The difference in the position of the two datums equates to approximately 100ft in a north west direction. i.e. if GPS data for the Sister Islands is transformed as for GCGD59 (using CIGD11-GCGD59) and not SIGD61 (using SI7P) then the resultant easting and northing will be 100ft to the north west of their correct SING61 value.

The datums differ from the WGS84 datum by the equivalent of approximately 215ft in a south west direction in the case of SIGD61 and 280ft in a similar direction for GCGD59. Therefore, if GPS Lat Long Hts are projected using UTM Zone 17N and no transformation has been applied, these will be the resulting discrepancies in easting, northing grid position.

Transformation details are listed in CaymanIslandsTransformationParameters.pdf

Ellipsoid Type:

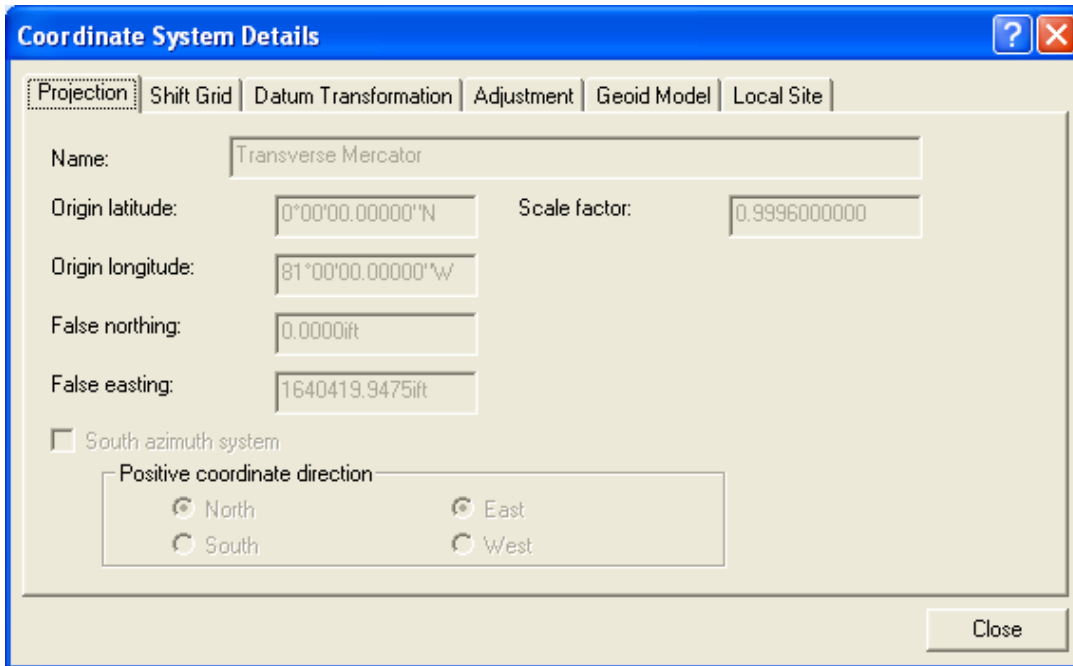
The image shows a software dialog box titled "Ellipsoid Properties" with a "[Read Only]" label. The dialog contains several text input fields, each with a label and a value:

Property	Value
Name :	Clarke 1866
Export Name :	Clarke 1866
Semi major axis (m) :	6378206.4
Semi minor axis (m) :	6356583.8
Flattening (1/f) :	294.9787
Eccentricity :	0.082271854223004

At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Help".

Projection Parameters:

Once transformed to either GCGD59 or SIGD61 local ellipsoids, the following Transverse Mercator parameters are used to project onto either the Grand Cayman or the Sister Islands easting northing grids (GCNG59 or SING61) which are both based on the UTM coordinate system Zone 17North but with linear units expressed in international feet rather than the metric equivalent.



The screenshot shows a software dialog box titled "Coordinate System Details". It has a blue title bar with a question mark icon and a close button. The dialog contains several tabs: "Projection", "Shift Grid", "Datum Transformation", "Adjustment", "Geoid Model", and "Local Site". The "Projection" tab is selected. The parameters are as follows:

Parameter	Value
Name:	Transverse Mercator
Origin latitude:	0°00'00.00000"N
Origin longitude:	81°00'00.00000"W
False northing:	0.0000ft
False easting:	1640419.9475ft
Scale factor:	0.9996000000

Below the input fields, there is a checkbox for "South azimuth system" which is unchecked. Underneath, there is a section for "Positive coordinate direction" with four radio buttons: "North" (selected), "South", "East", and "West". A "Close" button is located at the bottom right of the dialog.