

## Co-ordinate Systems in SKI-Pro (continued)

This newsletter continues describing the use of co-ordinate systems inside SKI-Pro. In Newsletter No. 22, it was explained that always one co-ordinate system is attached to a SKI-Pro project. If only the WGS84 co-ordinate system is attached, local points can still exist in the project, but no conversion between WGS84 and local co-ordinates is possible.

### An example...

Getting familiar with the co-ordinate system concept is fairly easy. Consider the following example. Create a project with just the WGS84 co-ordinate system attached. Manually enter a new WGS84 point of class Control:



Note, that it is still possible to enter new Control points in either WGS84 or Local coordinates, even though there is only the WGS84 co-ordinate system attached. Enter the point with the following co-ordinates.

Lat = 48 ° N  
 Long = 10 ° E  
 Ell. Height = 500 m

Now enter a point with local grid co-ordinates (note that only after switching the radio button to Local can you then change the Co-ordinate type box to Grid).



Enter the point with the following co-ordinates:

Easting = 575 000 m  
 Northing = 5 300 000 m  
 Ell.Height = 600 m

Currently, there is no co-ordinate system other than the default WGS84 attached. This is why the point entered as WGS84 cannot be converted to Local, and the point entered as Local Grid cannot be converted to WGS84.

This can be shown in the Points tab view of the project, where the columns show a mixture of Geodetic WGS84 co-ordinates and Local Grid co-ordinates. The column heading [X], [Y], [Z] can be interpreted as 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Co-ordinate.

Point Id	[X]	[Y]	[Z]
WGS84	48° 00' 00.000000" N	10° 00' 00.000000" E	500.0000
LOCAL	575000.0000	5300000.0000	600.0000

To be able to convert between WGS84 and Local co-ordinates, we need to create a Co-ordinate System and attach it to the Project.

Create the following Co-ordinate System (note the map projection also has to be defined as UTM, Zone 32 and Northern Hemisphere):

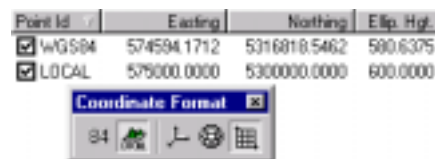
Transformation = None  
 Ellipsoid = Clarke1880  
 Map Projection = UTM32  
 Geoid Model = None

Attach this Co-ordinate System to the project, either on the Co-ordinate page of the Project properties, or using inline editing in the Project Management. Remember that the project does not have to be closed to do this.



Now press the Toolbar Buttons for Local and Grid. This will show the originally entered grid co-ordinates and the now converted grid co-

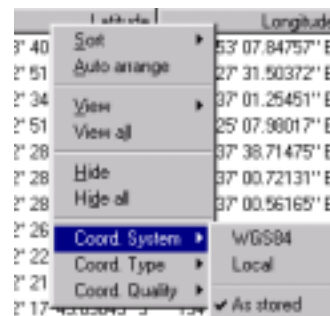
ordinates for the point originally entered as WGS84.



Now click on the toolbar buttons for WGS84 and Geodetic, which will in turn convert the originally entered grid point to WGS84.

If you detach the co-ordinate system again (remember: that means switching it back to WGS84), clicking on the WGS84 or Local toolbar buttons will always make one point disappear from the view. This will happen in both the Points and the View/Edit tab view. Try it! The point disappears from the view because it cannot be converted.

However, it is possible to see both the points together by right clicking on the column heading in the Points tab view and choosing the Coord System and the Coord Type options to be "As stored". This displays all points in the System as they are currently stored.



### Remember...

- SKI-Pro stores the status of whether a point was entered as WGS84 or Local.
- If a co-ordinate system is attached, the conversion between WGS84 and local co-ordinates will always be done.