

Repair Nikon Raw Survey Data

CHaMP 2015

This document describes the process for repairing a CHaMP survey that has errors in Z values due to a processing bug in versions of the CHaMP Processing Toolbar (5.09 and older). Surveys with only a few points (20 or fewer) should use these instructions to modify an already processed survey. Surveys with a greater number of points should be reprocessed completely.

Getting Started

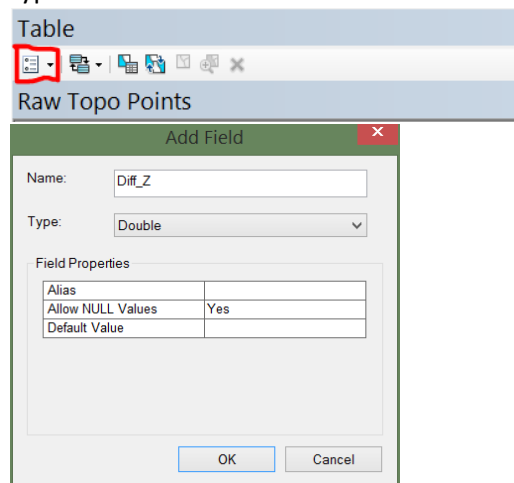
- Make sure you have downloaded and installed toolbar version 5.10 or higher
- Download survey GDB, tin, wsetin, and converted shapefiles (DXF file) from cm.org and raw instrument files
- You should be provided with a text file for each affected visit. This text file will list the points with issues, and the correct z value for each point.
- If a visit has more than about 20 points with incorrect Z values, then reprocess the survey completely. If the visit has less than 20 points, then follow the instructions in this document to repair individual points.

Prepare Visit for Repair

1. Open arc map and open the survey GDB using the CHaMP Topo Toolbar.
2. If QaQcRaw_Points ,QaQcUncertainty, QaQcBacksights exists, delete them.
3. Rerun the Process total station Instrument Files tool from the CHaMP Topo Toolbar.

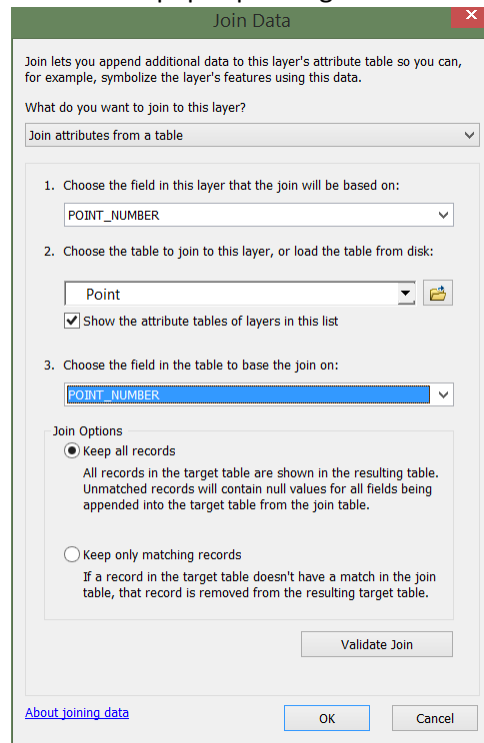
Optional: Check the Results against DXF

1. In ArcToolbox, run “Data Management/Features/AddXY Coordinates”.
 - a. Use the QaQc_RawPoints as the input.
2. Open the Attribute Table for QaQcRaw_Points.
 - a. Under the Properties button: Use “Add Field...” to add a new Field named “Diff_Z” of type “Double”.



- b. Click OK.


3. Under the Properties button again, select “Joins and Relates”, then “Join...”
 - a. Inputs:
 - i. “Join attributes from a table” (default)
 - ii. Field to Join: “POINT_NUMBER”
 - iii. Table to Join: use the folder button to browse to the dxf file and select the “Points” layer inside.
 - iv. Field to Join: “POINT_NUMBER”
 - v. Join Options: Keep all Records
 - vi. You can Validate the Join, if you like.
 - vii. Click OK. The attributes will be joined to the table
 - viii. If a window pops up asking about indexing, click Yes.



4. In the attribute table, find the “Diff_Z” column. Right click the field name (top of the column) and select “Calculate Field”
 - a. Copy the following equation into the Field Calculator:
 $[QaQc_RawPoints.POINT_Z] - [Elevation]$
 - b. Click OK.
5. Check the records. They should all be “0” or very near zero (i.e. -0.00001), due to rounding differences. If the values are much higher, then please contact CHaMP Support for additional support.

Repair the Z Values

1. For each point in the text file, you will need to find it in one of the following feature classes (i.e. use attribute table):
 - a. Topo Points
 - b. Edge of Water Points

- c. Stream Features
 - d. Error Points
2. Search through the list of "POINT_NUMBER" (do not use object ID or other field) until you find the point ID (DXF_ID in the text file).
 - a. Start and Edit Session
 - b. Double click on the point in the Attribute Table
 - c. Open the Sketch Properties Window
 - d. Under the Z column in the Sketch Properties window, change the z value to the correct value ("Correct_Z" in the Text file).
 - e. Stop Editing and Save the edits
 - f. Repeat this for each point in the list.
 3. If you cannot find the point listed in any of those feature classes, it is likely that the crew member identified the bad point and deleted it during processing.
 - a. You can ignore this point, if the area is adequately represented in the survey.
 - b. If you want to include the point, then
 - i. Select the point in the QaQc_RawPoints feature class. **It is very important to make sure that only the point you want to include is selected, otherwise all points will be copied over.**
 - ii. In ArcToolbox/Data Management/General, double click the "Append" tool.
 - iii. Specify "QaQc_RawPoints" as the Input Feature class
 - iv. Specify the Target Point Feature class, depending on the description code of the point.
 - v. Set "Schema Type" to "No Test"
 - vi. Click OK. The point should be added to the feature class.
 4. When all of the points in the text file list have been modified, proceed with the next step
 5. Adjust Z Values of the Breaklines
 - a. Use the "Adjust Z Values in Breaklines" tool in the QA Menu on the CHaMP Topo Toolbar to update the z values of the Breaklines.
 6. EditTIN(s)
 - a. If you want to incorporate these z changes to an existing tin, you will need to manually adjust the nodes with the new z values (otherwise, you can create a new tin and make new edits).
 - i. Add the TIN to the map that you want to modify.
 - ii. Add QaQc_RawPoints to the map document, right click and select properties.
 - iii. Check the "Label Features" box, specify "Point Features" as the Label Field, and click OK.
 - iv. Use the point numbers labeled in QaQc_RawPoints to find the points in the text file list that need to be adjusted.
 - v. Make sure the TIN is specified in the 3D Analyst toolbar, then select "Start Editing" from the TIN Editing Toolbar.
 - vi. Use the Adjust TIN Node tool () to make changes to the appropriate TIN nodes.
 - vii. Stop Editing TIN and save edits (TIN Editing Toolbar) when you have finished.

- b. Check the TIN to make sure this edit does not create unexpected issues in the TINs, especially around changes made to Breaklines.
7. Recreate Raster and GISProducts
 - a. DEM
 - b. Detrended
 - c. If there is significant change in the topography that could affect the outline of the WaterExtent and/or Bankfull Extent (or their islands), then you will need to recreate these polygons.
 - d. Error Surfaces
 - e. Stream Surface Tool (to recreate WSETIN,WSEDEM, Water Depth)
 - f. Recreate the cross sections, if you have modified the edges of the water extent and/or bankfull polygons.

Finalize and Upload Data

8. Run the Validation Tool and check for any additional validation errors.
9. Run the 'Publish Final Geodatabase' tool checking the Republish box in top left of window.
10. Upload the repaired data to CM.Org.