

H-Star Differential Correction

September 26, 2007

Introduction

This note describes how to set up a base provider group in the Differential Correction Wizard in order to do H-Star differential correction. H-Star technology is explained in more detail in Trimble's White Paper entitled 'H-Star Technology Explained,' available online at http://trl.trimble.com/dscgi/ds.py/Get/File-224437/022501-071_H-Star%20technology%20explained_0805.pdf.

H-star technology provides sub-foot accuracy, or sub-8" accuracy when collecting with the external Zephyr antenna. Trimble's ProXH or GeoXH receiver running TerraSync field software, or GPScorrect Extension for ESRI ArcPad software, can record H-Star data provided carrier lock can be maintained for at least 2 minutes at a time. Maintaining carrier lock requires a relatively low multipath environment and relatively open view of the sky. While this may be possible in medium to light tree canopy for example, it will likely not be possible in heavy tree canopy.

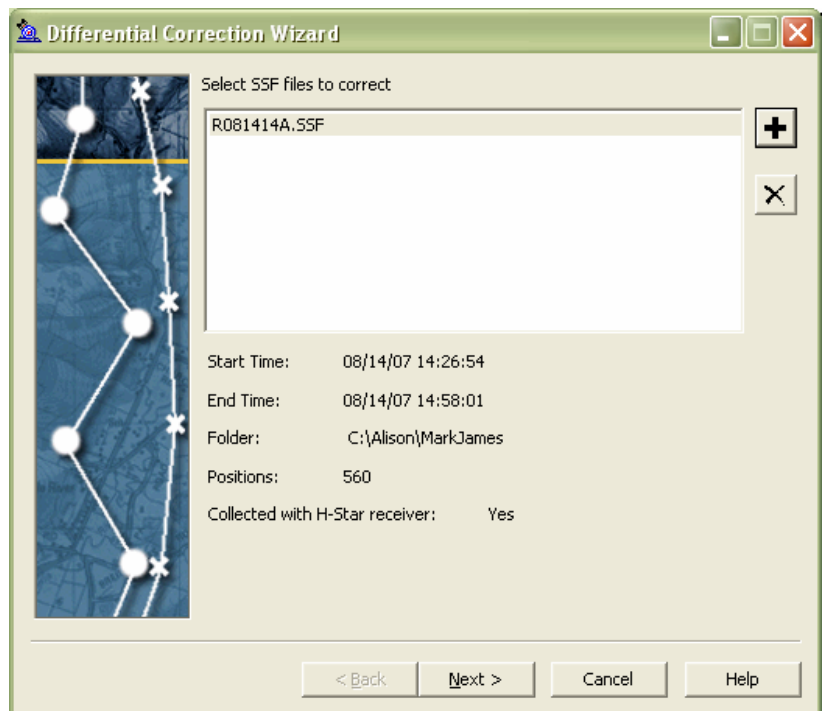
If good H-Star data is collected in the field, it must be corrected using dual-frequency survey-grade base stations. A base provider group can be either one stations within 80 km (50 mi), or 3 base stations within 200 km (125 mil). If a single base is available within 80 km, it is recommended that it be used. If not, multiple stations may be used. The following instructions explain how to set up a base provider group for H-Star correction.

Setting up a Base Provider Group

Open the Differential Correction Wizard in Pathfinder Office or GPS Analyst. Pathfinder Office v3.1 or newer, or GPS Analyst v1.10 or newer must be used for H-Star processing. The Differential Correction Wizard must be used, not Differential Correction Classic. To verify compatibility with your specific hardware or software version, please see http://trl.trimble.com/dscgi/ds.py/Get/File-160913/MGIS_SprtNote_PFOffice_Compatibility.pdf for more details.

Add the file you would like to differentially correct by clicking the + button. Select only files from the same location.

If the file was collected with an H-Star receiver, it should say "Yes" next to "Collected with H-Star Receiver". Click Next.



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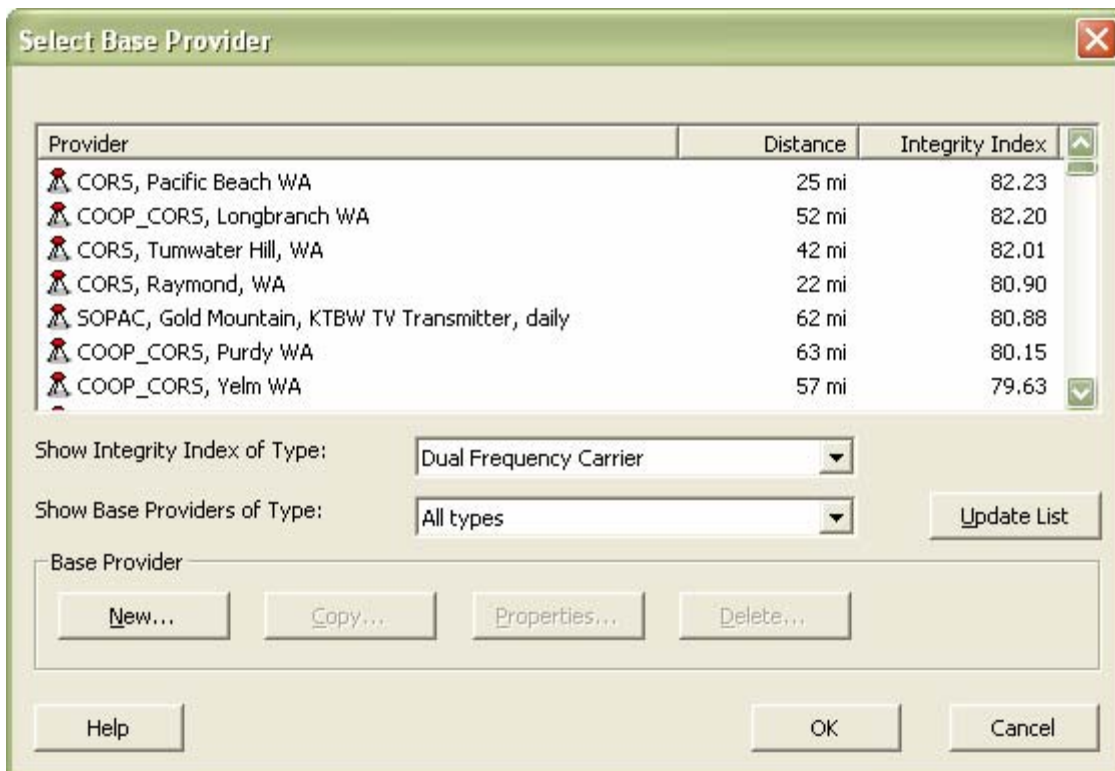
Ph: (208) 324-8006 Fax: (208) 324-8015 www.elecdata.com support@elecdata.com

Select a processing type of “Automatic H-Star Carrier and Code Processing”, and click Next. Make sure your Correct Settings are appropriate for your data, and click Next.

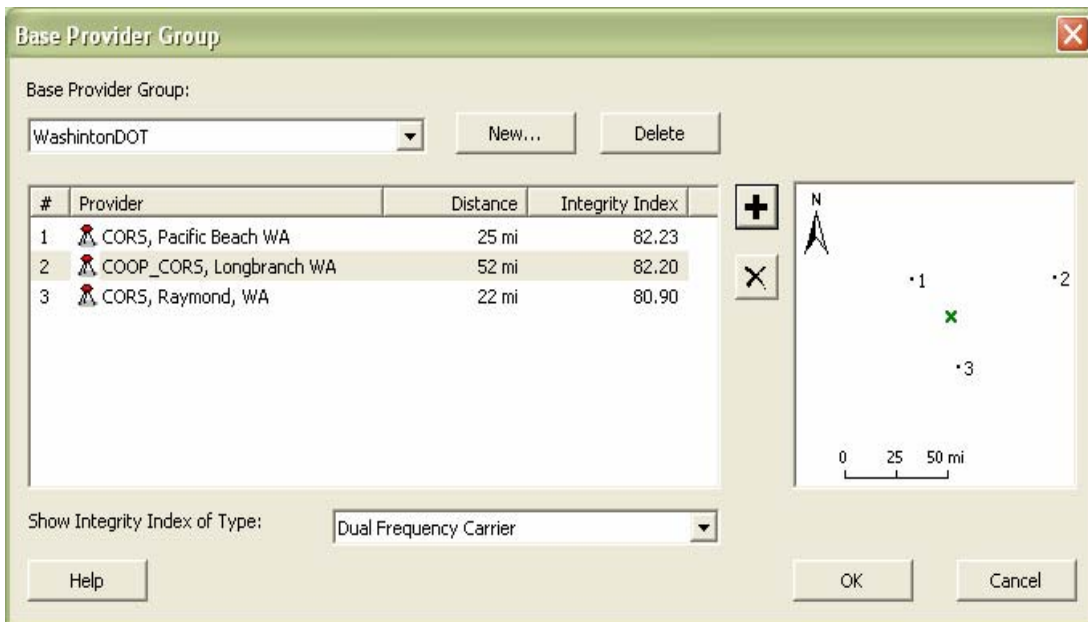
The first time you do H-Star correction, there will be nothing listed under Base Provider Group. Click Select to get to the Base Provider Group dialog. Click New to name your base provider group, and then click OK. Now you have a blank provider group to work with. Set the “Show Integrity Index of Type” to Dual Frequency Carrier. Then you can click the + to begin adding base providers to your group.



Click ‘Update List’ to download the latest base station list from Trimble. If you click the Integrity Index column name, the base stations will be ordered from highest integrity index to lowest.



If a single highly rated base is available within 80 km (50 mi), select it as your only base station in the base provider group. If not, select three base stations in your area with relatively high integrity indexes. As you select different providers, you will see the names of the base stations added to your base provider group. On the right of this page, you will see a simple map. The **x** is the location of your data collection, and the numbered points are the base station locations relative to your collection area. For the best results and highest accuracy, try to pick 3 base stations that are spread evenly around the area of data collection. You will not want to select more than three providers. Selecting additional base stations that are close to others in your group will result in longer processing times without a real gain in accuracy.



Selecting additional base stations that are not relatively equidistant or well triangulated around where your field data was collected will result in additional bias (error) being added into the solution.

When you are satisfied with your base provider group, click OK.

Set the Reference Position to “Use reference position from base providers”, and click Next. Set the Output Folder and Output Filename however you prefer, and click Start. The differential correction will begin.

Base files will be downloaded from all the base providers in your group, and then the data will be processed against all base stations in your base provider group. The Differential Correction Wizard will list the percentage of your data that falls within each estimated accuracy range.

