



28 February 2012

## GPS Pathfinder Office Software: Postprocessed Height Errors Caused by Incorrectly Referenced Base Station Antenna Heights

When postprocessing a rover file in the Trimble® GPS Pathfinder Office® software, a 5 to 15 cm error in height may be introduced if the base station antenna height is not correctly accounted for.

### Problem

When postprocessing a rover file in the GPS Pathfinder Office software, you can choose whether to use the reference position from the base station provider list available in the Differential Correction utility, or the reference position in the base file itself.

- If you use the reference position in the base station provider list, the Differential Correction utility expects the height in the list to be the height of the antenna phase center of the GPS antenna for the base station, shown as point A on Figure 1 below (not the height of the point that the antenna is mounted on, shown as the point B). If the height is not the antenna phase center height, this can introduce heighting errors in the magnitude of 5 to 15 cm, depending on the GPS antenna type at the base.
- If you use the reference position from the base file, the Differential Correction utility expects the height in the file to be the height of the point the antenna is mounted on, shown as point B on Figure 1 below (not the antenna phase center, shown as point A). For RINEX files this is part of the RINEX standard.

The antenna type also needs to be defined in the base file so that the Differential Correction utility can apply the correct antenna phase center offset for the antenna type at the base station. If the height is not correctly defined in the base file then errors in heighting will occur after postprocessing.

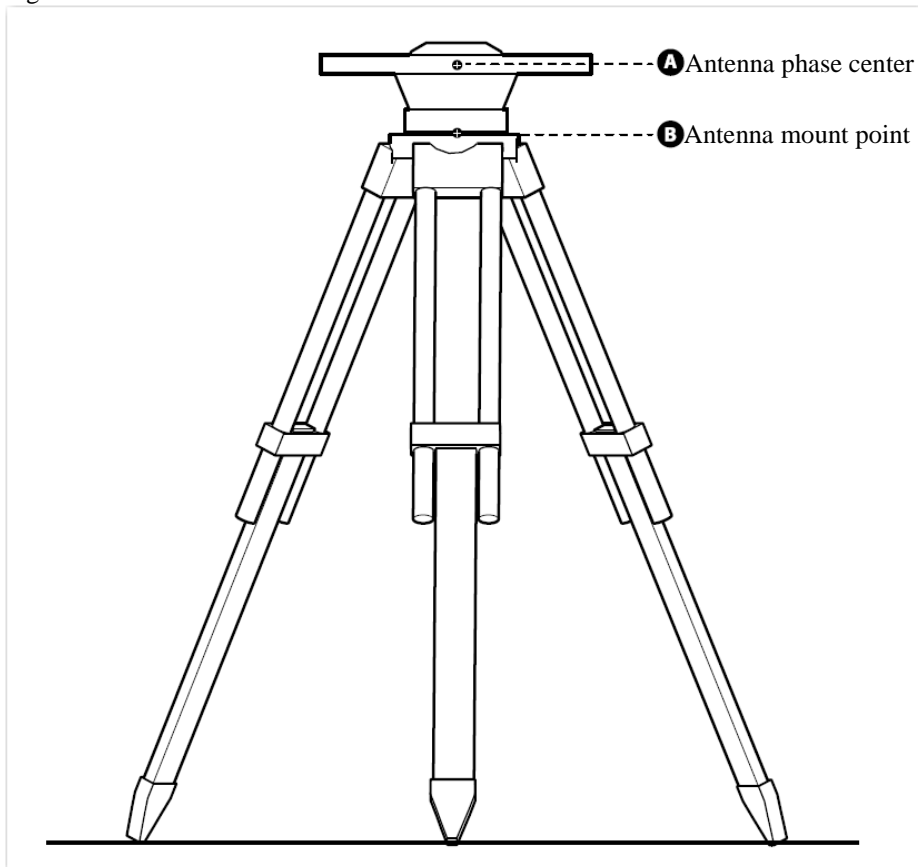
**This document is for informational purposes only and is not a legally binding agreement or offer. Trimble makes no warranties and assumes no obligations or liabilities hereunder.**

Trimble Navigation Limited, 10355 Westmoor Drive, Suite #100, Westminster, CO 80021, USA

© 2012, Trimble Navigation Limited. All rights reserved. Trimble, the Globe & Triangle logo, and GPS Pathfinder are trademarks of Trimble Navigation Limited, registered in the United States Patent and Trademark Office and in other countries. All other trademarks are the property of their respective owners.



Figure 1:



## Solution

If you are using the reference position from the base station provider list and the published height is not the antenna phase center height, there are two options:

- Option 1: Edit the base station provider list:
  1. Select the required base station.
  2. Click **Copy**.
  3. Enter a new station name into the *Organization* field.
  4. Click the *Base Station* tab.
  5. In the *Altitude* field, enter the antenna phase center height provided by the base station provider.
  6. Click **OK** to save the base station.
  7. Use this base station for postprocessing.
- Option 2: Use the height from the base file. This assumes this height is set correctly (to the antenna mount point) and the antenna type is correctly defined in the base file as explained above.

If you are using the reference position from the base file, to avoid errors, or if you are seeing errors, check with the base station provider to ensure that the reference position height is the height of the point the antenna is mounted on and the antenna type is correctly defined in the base file.