ADJUST Package Sample
Dataset Files

The sample files included in this package may be used to practice or test the Adjustment processing software. The software we recommend you download from our web site is:

ADJUST
ADJUST UTILITIES
COMPGB
CR8BB
CR8SER
GEOID (current model)

There are numerous other useful programs available, but these are the packages which you will need for this tutorial. After you've inflated the ADJUST package, you can follow these optional instructions to "clean up" your directory:

1. If you won't be processing classical survey data, remove:
   Newmodbb.exe Newmodbb (WP doc)

   All other WP documentation can be left in the directory, or printed and deleted, or moved to a sub-directory

2. Back on internet, download **ADJUST UTILITIES**:
   Click on each file
   Save in the ADJUST directory created in step 1

3. Download **CR8BB**
   Instructions for using this software are not provided here, but are included in the CR8BB documentation

4. Download **COMPGB** (compgb.exe, compgb.doc)
   Download **CR8SER** (cr8ser.exe, cr8ser.doc)
   You don't need to download the .for files unless you want the fortran source code

5. Download current GEOID model software:
   Click on INTG.EXE, DOSXMSF.EXE
   Click and save the various grid files that you need:

G1999u01.bin	Conterminous U.S.	40-58N, 111-130W
G1999u02.bin	Conterminous U.S.	40-58N, 94-113W
G1999u03.bin	Conterminous U.S.	40-58N, 77- 96W
G1999u04.bin	Conterminous U.S.	40-58N, 60- 79W
G1999u05.bin	Conterminous U.S.	24-42N, 111-130W
G1999u06.bin	Conterminous U.S.	24-42N, 94-113W
G1999u07.bin	Conterminous U.S.	24-42N, 77- 96W
G1999u08.bin	Conterminous U.S.	24-42N, 60- 79W
G1999a01.bin	Alaska	60-72N, 156-188W
G1999a02.bin	Alaska	60-72N, 126-158W
G1999a03.bin	Alaska	49-61N, 156-188W
G1999a04.bin	Alaska	49-61N, 126-158W
G1999h01.bin	Hawaiian Islands	18-24N, 154-161W
G1999p01.bin	Puerto Rico/VI	15-21N, 64- 69W

Adjustment Processing Tutorial

Vendor Software:
Follow vendor instructions for creating blue book and gfiles

Preliminary Processing:

1. Save original *bbook (bfile)* and *gfile* in a separate directory. Make a copy of the files in the ADJUST directory
2. Edit *gfile*, put in correct "Solution Coordinate Reference System Code." (Constrained Adjustment Guidelines, Page 3)
3. Run **CR8SER**
   Input: *bbook*
   Output: *serfil*
4. Run **COMPGB**
   Input: *serfil*, *gfile*, *bbook*
   Output: *compgb.out*
   Check for errors

Note: If you used CR8BB to create your blue book file, you may already have *86* records. Ignore errors for these records in these first runs of the checking programs. These errors will be resolved in the course of adjustment processing.

5. Run **NEWCHKOB** (Checking Programs, Guidelines, Page 3)
   Input: *bbook*
   Output: *chkobs.out*
   Check for errors

6. Run **OBSCHK** (Checking Programs, Guidelines, Page 3)
   Input: *bbook, gfile*
   Output: *obschks.out, obschkl.out*
   Check for errors

7. If you don't already have *86* records in your bbook file, run **MAKE86**:
   Input: *bbook*
   Output: *bbk.86* (new bbook)

Horizontal Free Adjustment (Guidelines, Page 8):

1. Create *afilef* (edit existing afile) - fix 1 position, 1 ellipsoid height

2. Run **ADJUS**T
   Input: *bbk.86, afilef, gfile, NODFILE*
   Prompt for adjustment output filename and output blue book filename: *adjf1.out*, *bbkf1*

View *adjf1.out*, check for blunders

Once you are satisfied that there are no blunders or outlyers,

3. If lower than B-order, run **MODGEE** to scale standard errors of vectors (Guidelines, Page 8). Otherwise, skip step 4.
   Input: *gfile*, scale factor (= sqrt variance of unit wt, a.k.a. std dev of unit weight)
   Output: *gfile.mod*

4. Run **ADJUST**
   Input: *bbk.86, afilef2, gfile.mod, NODFILE*
   Prompt for output filenames: *adjf2.out*, *bbkf2*
   verify variance of unit weight is approx. 1.0 for scaled vectors

Horizontal Constrained Adjustment (Guidelines, Page 9)
1. Create *afilec*, fix all previously published positions, all previously published ellipsoid heights (minimum, 2)

2. Run **ADJUST**
   Input: *bbkf2, afilec, gfile* or *gfile.mod, NODFILE*
   Prompt for output filenames: *adjc1.out, bbkc1*
   Check position shifts and residuals in *adjc1.out*, decide whether to readjust any stations, wait and check borderline
   cases in *adjqq.out*

Vertical Free Adjustment (Guidelines, Page 10)
1. Run **GEOID**
   Input: *bbkf1 (or bbkf2)*
   Output: *bbk.ght*

2. Create *afilevf*, fix 1 position, one published orthometric height

3. Run **ADJUST**
   Input: *bbk.ght, afilevf, gfile* or *gfile.mod, NODFILE*
   Prompt for output filenames: *adjvf1.out, bbkvf1*
   Check *adjvf1.out* for blunders

Vertical Constrained Adjustment (Guidelines, Page 10)
1. Create *afilevc*, fix 1 position, all published orthometric heights (minimum of 3 heights)

2. Run **ADJUST**
   Input: *bbkvf1, afilevc, gfile* or *gfile.mod, NODFILE*
   Prompt for output filenames: *adjvc1.out, bbkvc1*
   Check shifts and residuals to see if any heights should be readjusted

Final Free Adjustment with Accuracies (Guidelines, Page 12)
1. Copy *afilef* to *afileqq*, edit MM record in afileqq to:

a. not save output bbook (cc5 = "N")
b. For A- or B-order projects, scale standard deviations with a-posteriori standard deviation of unit weight (cc4 = "Y")
Run **QQRECORD**
Input: *gfile* or *gfile.mod*, *afileqq*

2. Run **ADJUST**
Input: *bbkc1, afileqq, gfile* or *gfile.mod, NODFILE*
Prompt for output filenames: *adjqq.out*
Note: although ADJUST prompts for an output blue bbook filename, it will not save the file if you followed step 1 above, MM record cc5="N"
View *adjqq.out*, check lines of observation which fall below required accuracy, determine if readjustment is warranted

3. Run **ELEVUP** to create final *bbook*
Input: *bbkvc1* (final vertical constrained output), *bbkc1* (final constrained output)
Output: *final.bbk*

4. Run **BBACCUR**
Input: *adjqq.out*
Output: *bbaccur.out*

5. Run **ELLACC**
Input: *adjqq.out*
Output: *ellacc.out*
Edit *final.bbk*, add ellipsoid height accuracy (value resulting from step 5 which shows the greatest # of stations) to cc 54/55 of *86* record

NOTE: Whenever the blue book or gfile is changed because of errors or blunders, or an afile is changed to reflect a change in the constraints or options, rerun **ADJUST**.

Post-Processing (Guidelines, Page 13)
1. Write report
2. Double check all outputs
3. Rerun checking programs on final files
4. Process Descriptions