Building the watershed DEM files for IUH analysis.

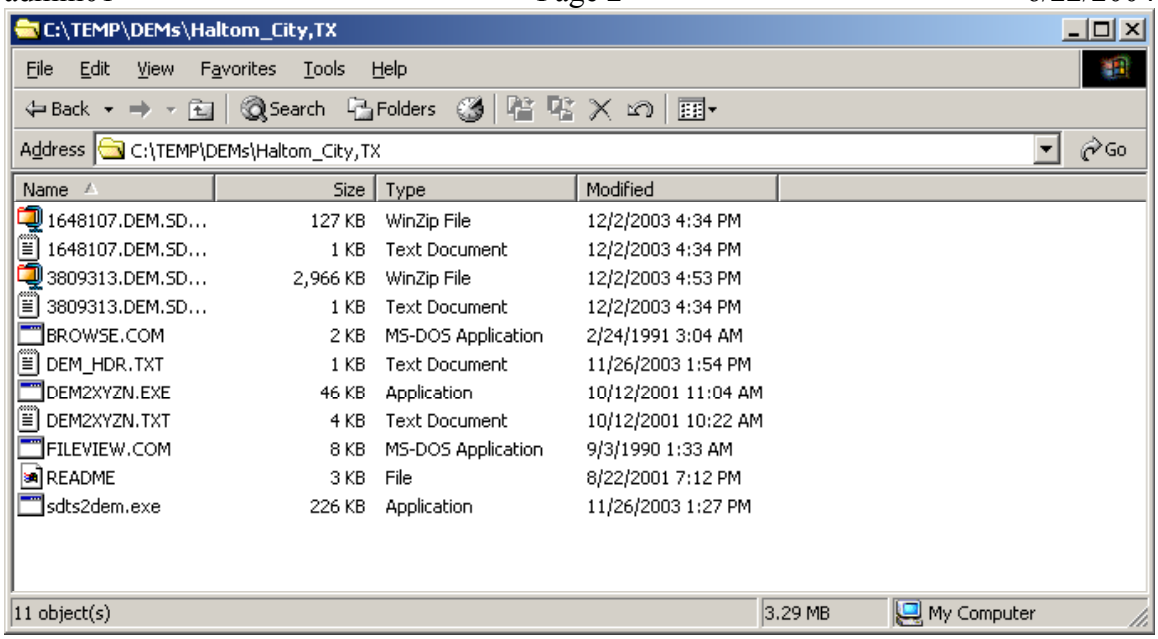
Step 1: Locate the watershed outlet and determine the USGS map/maps that cover the watershed.

Step 2: Determine the county specific to each quad map.

				DMS-coords.		UH-library		USGS_Quad_Names				UTM-coordinates			
Module	Watershed	Subshed	station_id	Latitude	Longitude	Map_Index	Map_Number	Map_Name	Map_Reference			County	Section	Northing	Easting
Austin	BartonCreek	none	sta08155200_d	30()17'46"	97()55'31"	3097	232	BEE CAVE,TX	3097-232			travis			
Austin	BartonCreek	none	sta08155200_d	30()17'46"	97()55'31"	3097	141	FEDOR,TEX	3097-141			lee			
Austin	BartonCreek	none	sta08155300_d	30()14'40"	97()48'07"	3097	224	OAK HILL,TEX	3097-224			travis			

Step 3: Download USGS 30-meter or 10-meter DEM files. The vendor in the screen capture project provides the USGS files for a small fee.

Step 4: Now the files are located in the destination directory. Move copies of the translators into the directory.

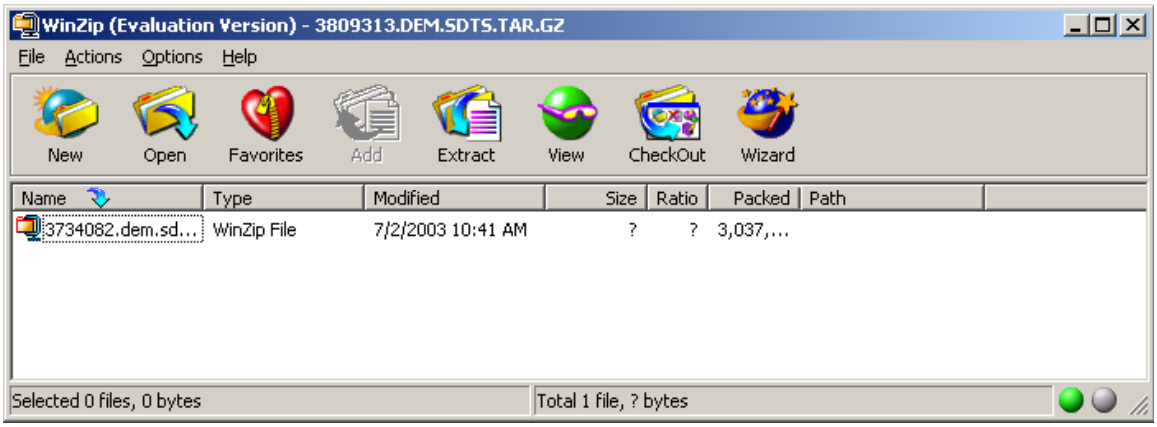


Step 5: Extract the DEM files. The 10-meter files are quite large, 30-meter are smaller.

For this example we will use the 10-meter file: 3809313.DME.SDTS.TAR.GZ

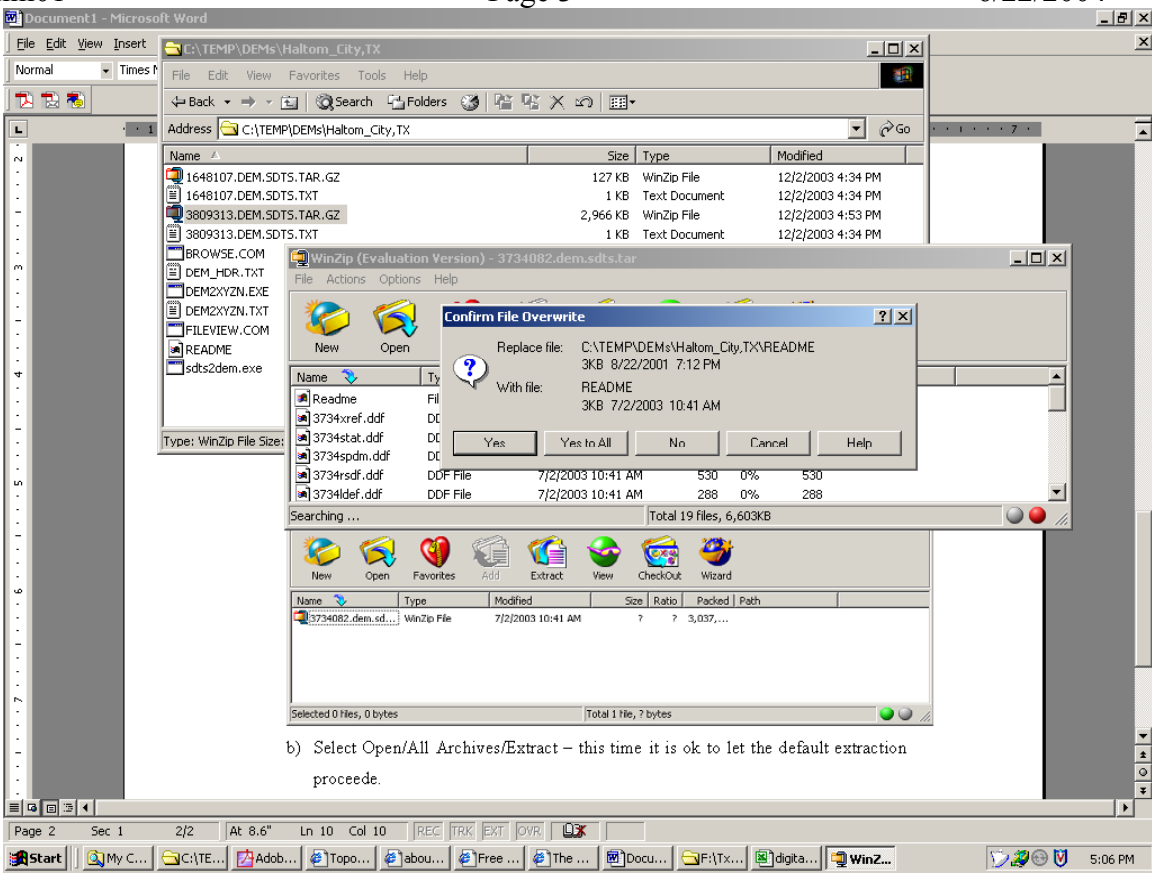
Extracting:

a) Open using winzip. Do not permit the winzip to extract until you verify correct configuration. Choose Options/Configuration/Miscellaneous/ and **DISABLE** the "TAR file smart CR/LF translation"



b) Select Open/All Archives/Extract – this time it is ok to let the default extraction proceede.

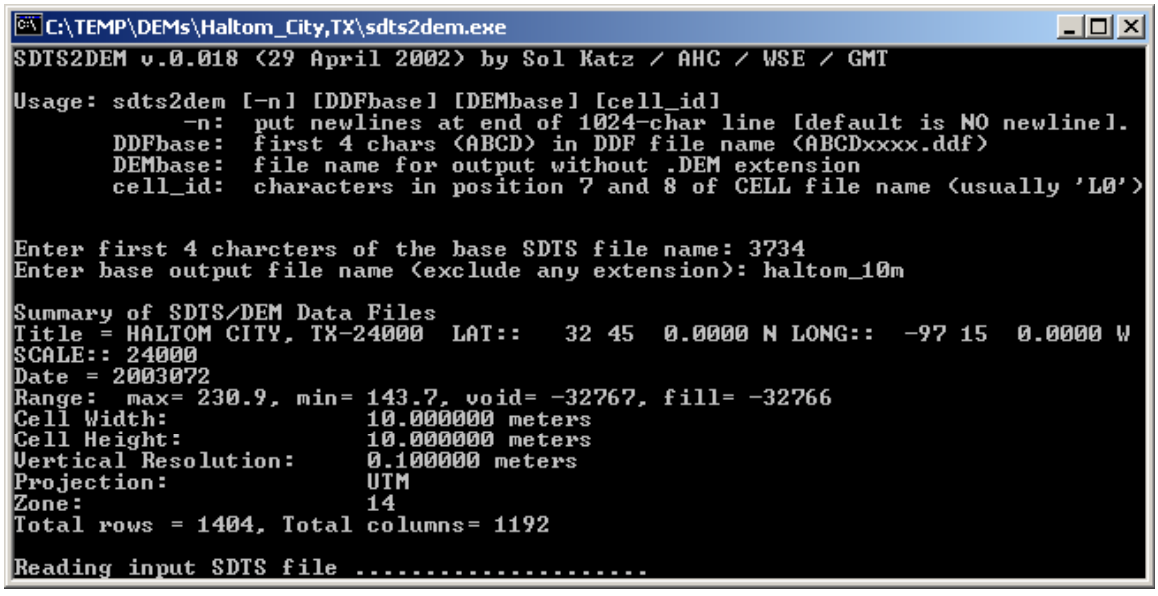
c) Now extract to the destination directory.



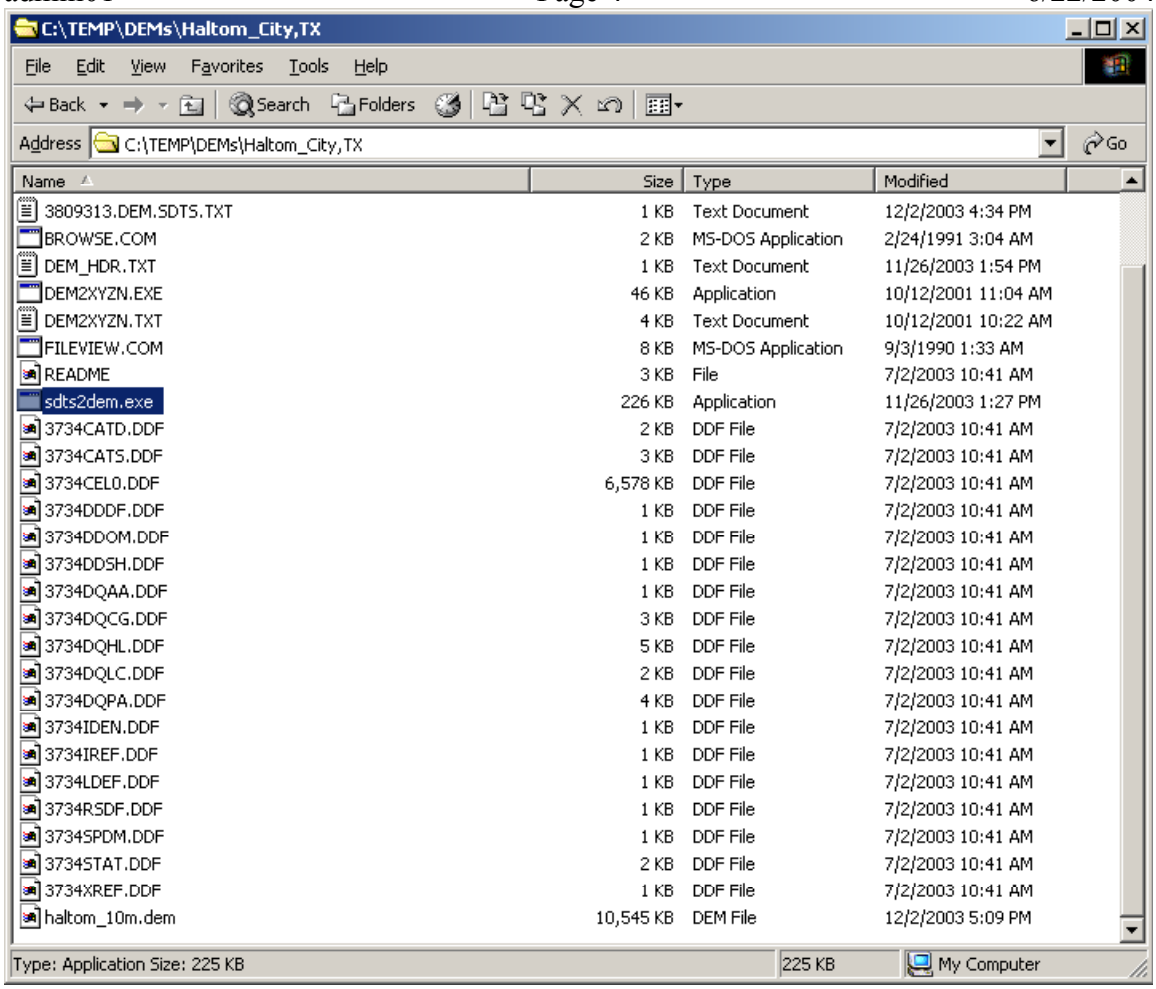
b) Select Open/All Archives/Extract – this time it is ok to let the default extraction proceede.

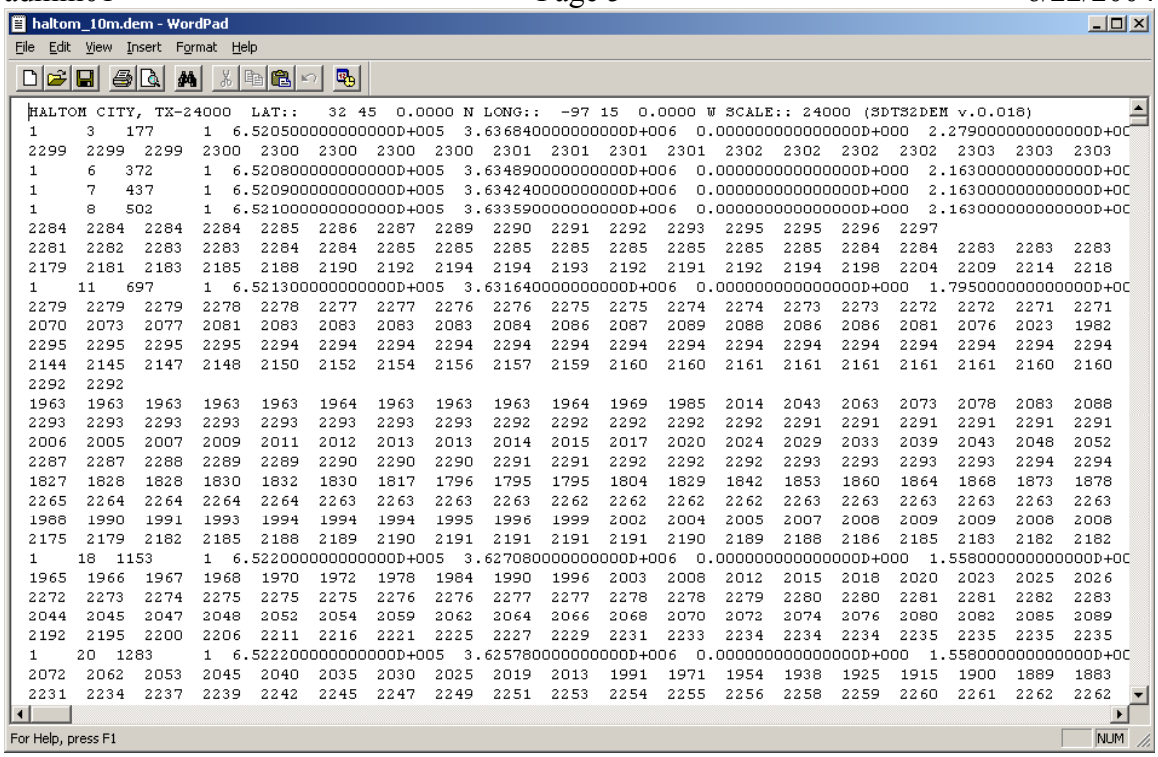
d) Done.

Step 6: Translate the DEM files into DSAA (ASCII files) for gridding. Use the sdts2dem.exe utility.

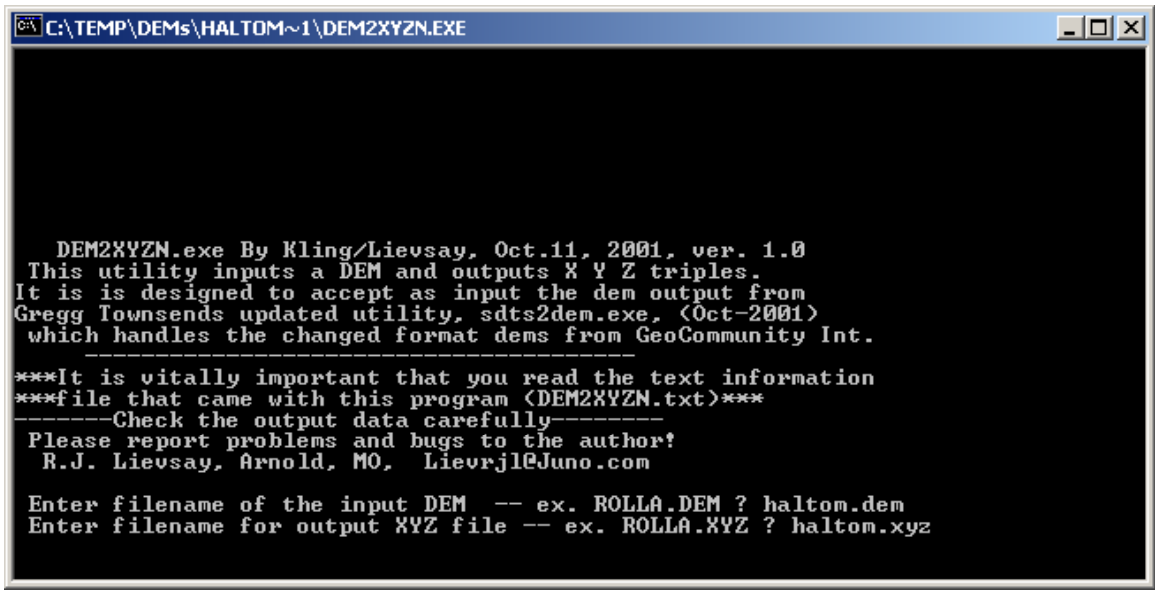


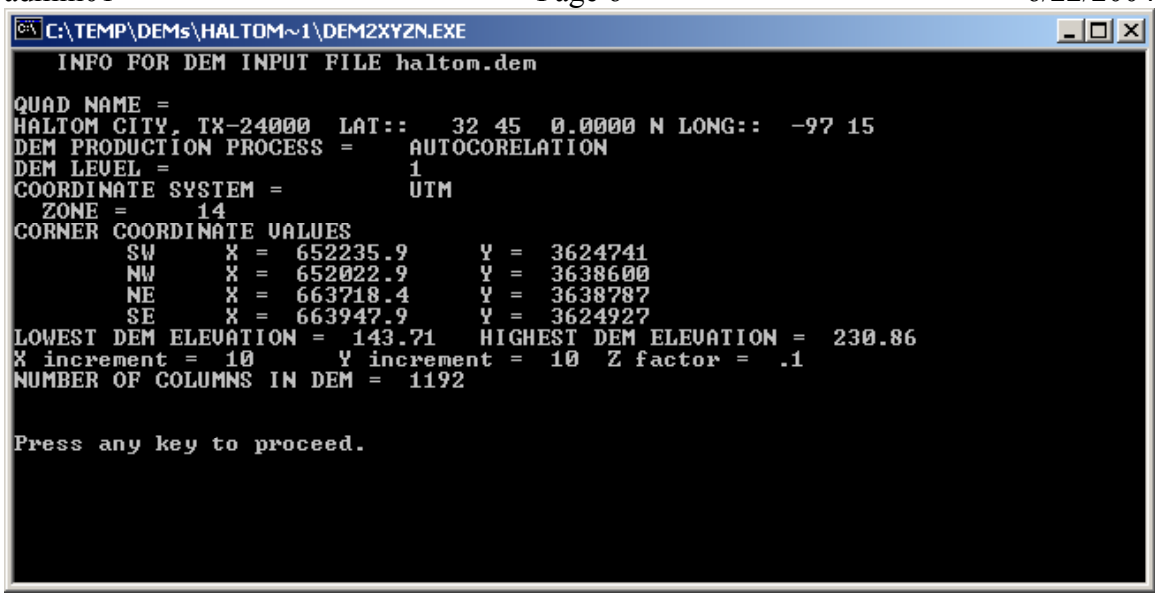
Step 7: Verify that the DEM exists and has content.

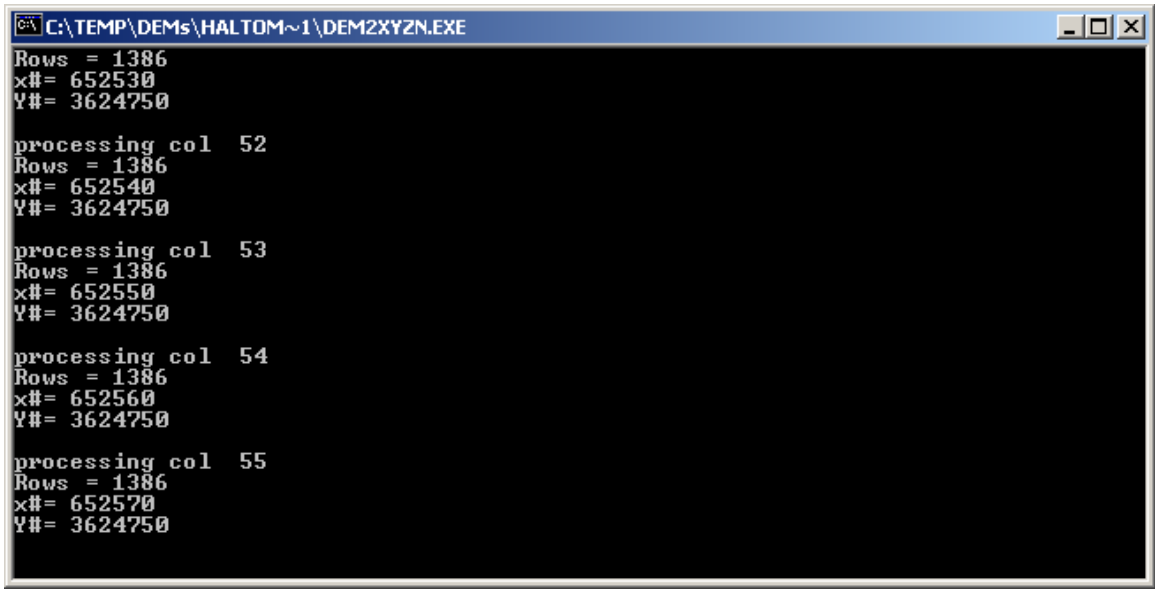

C:\TEMP\DEMs\Haltom_City,TX
File Edit View Favorites Tools Help
Back Search Folders
Address C:\TEMP\DEMs\Haltom_City,TX
Go
Name Size Type Modified
3809313.DEM.SDTS.TXT 1 KB Text Document 12/2/2003 4:34 PM
BROWSE.COM 2 KB MS-DOS Application 2/24/1991 3:04 AM
DEM_HDR.TXT 1 KB Text Document 11/26/2003 1:54 PM
DEM2XYZN.EXE 46 KB Application 10/12/2001 11:04 AM
DEM2XYZN.TXT 4 KB Text Document 10/12/2001 10:22 AM
FILEVIEW.COM 8 KB MS-DOS Application 9/3/1990 1:33 AM
README 3 KB File 7/2/2003 10:41 AM
sdts2dem.exe 226 KB Application 11/26/2003 1:27 PM
3734CATD.DDF 2 KB DDF File 7/2/2003 10:41 AM
3734CATS.DDF 3 KB DDF File 7/2/2003 10:41 AM
3734CEL0.DDF 6,578 KB DDF File 7/2/2003 10:41 AM
3734DDDF.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734DDOM.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734DDSH.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734DQAA.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734DQCG.DDF 3 KB DDF File 7/2/2003 10:41 AM
3734DQHL.DDF 5 KB DDF File 7/2/2003 10:41 AM
3734DQLC.DDF 2 KB DDF File 7/2/2003 10:41 AM
3734DQPA.DDF 4 KB DDF File 7/2/2003 10:41 AM
3734IDEN.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734IREF.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734LDEF.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734RSDF.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734SPDM.DDF 1 KB DDF File 7/2/2003 10:41 AM
3734STAT.DDF 2 KB DDF File 7/2/2003 10:41 AM
3734XREF.DDF 1 KB DDF File 7/2/2003 10:41 AM
haltom_10m.dem 10,545 KB DEM File 12/2/2003 5:09 PM
Type: Application Size: 225 KB
225 KB
My Computer

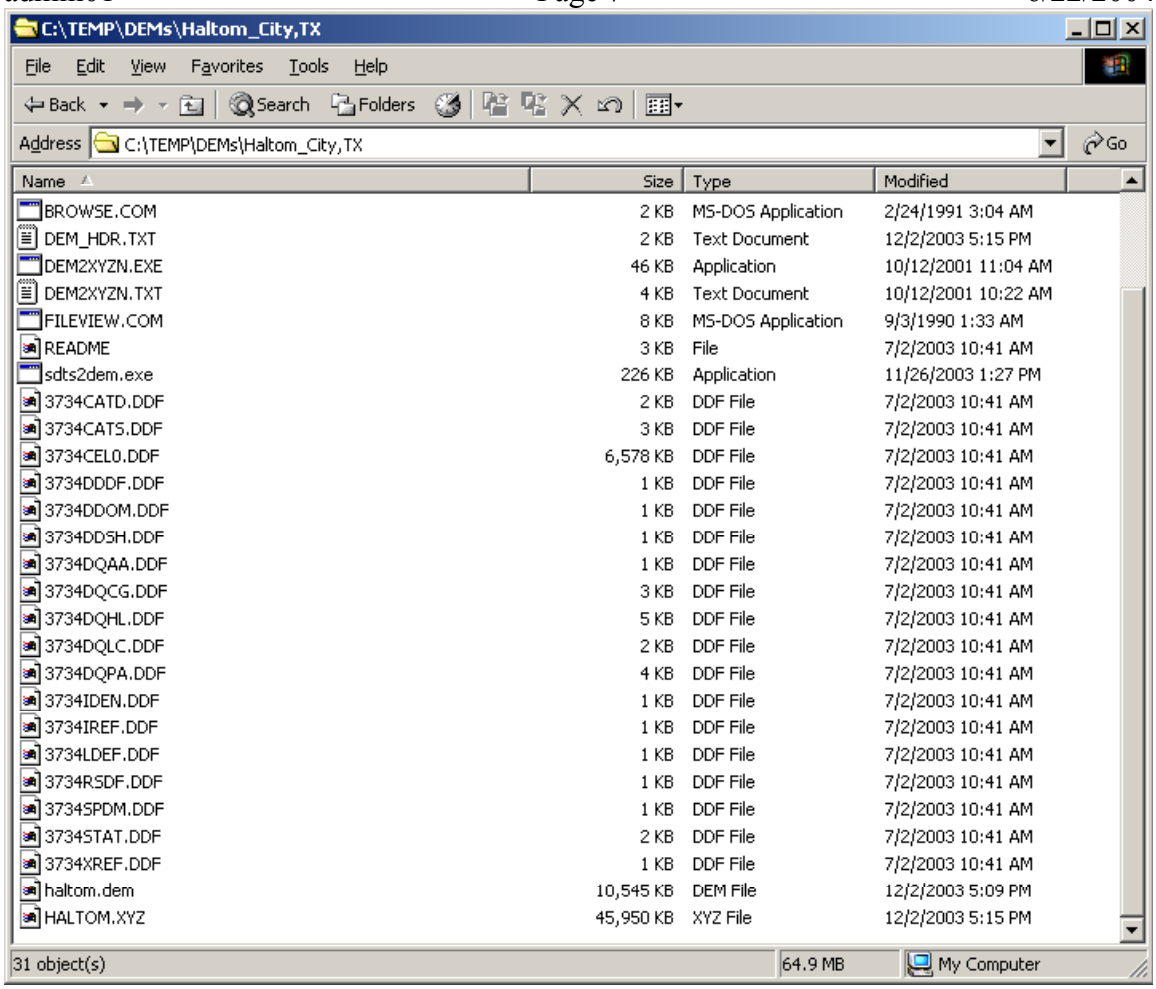


Step 8 : Convert the file into xyz format for use with the gridding program (either SURFER or home grown. Also get the UTM panel number from the DEM readme) The xyz translator needs short file names, so you may need to change the input file name.




C:\TEMP\DEMs\HALTOM~1\DEM2XYZN.EXE
INFO FOR DEM INPUT FILE haltom.dem
QUAD NAME =
HALTOM CITY, TX-24000 LAT:: 32 45 0.0000 N LONG:: -97 15
DEM PRODUCTION PROCESS = AUTOCORELATION
DEM LEVEL = 1
COORDINATE SYSTEM = UTM
ZONE = 14
CORNER COORDINATE VALUES
SW X = 652235.9 Y = 3624741
NW X = 652022.9 Y = 3638600
NE X = 663718.4 Y = 3638787
SE X = 663947.9 Y = 3624927
LOWEST DEM ELEVATION = 143.71 HIGHEST DEM ELEVATION = 230.86
X increment = 10 Y increment = 10 Z factor = .1
NUMBER OF COLUMNS IN DEM = 1192
Press any key to proceed.


C:\TEMP\DEMs\HALTOM~1\DEM2XYZN.EXE
Rows = 1386
x#= 652530
Y#= 3624750
processing col 52
Rows = 1386
x#= 652540
Y#= 3624750
processing col 53
Rows = 1386
x#= 652550
Y#= 3624750
processing col 54
Rows = 1386
x#= 652560
Y#= 3624750
processing col 55
Rows = 1386
x#= 652570
Y#= 3624750



Name	Size	Type	Modified
BROWSE.COM	2 KB	MS-DOS Application	2/24/1991 3:04 AM
DEM_HDR.TXT	2 KB	Text Document	12/2/2003 5:15 PM
DEM2XYZN.EXE	46 KB	Application	10/12/2001 11:04 AM
DEM2XYZN.TXT	4 KB	Text Document	10/12/2001 10:22 AM
FILEVIEW.COM	8 KB	MS-DOS Application	9/3/1990 1:33 AM
README	3 KB	File	7/2/2003 10:41 AM
sdts2dem.exe	226 KB	Application	11/26/2003 1:27 PM
3734CATD.DDF	2 KB	DDF File	7/2/2003 10:41 AM
3734CATS.DDF	3 KB	DDF File	7/2/2003 10:41 AM
3734CEL0.DDF	6,578 KB	DDF File	7/2/2003 10:41 AM
3734DDDF.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734DDOM.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734DDSH.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734DQAA.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734DQCG.DDF	3 KB	DDF File	7/2/2003 10:41 AM
3734DQHL.DDF	5 KB	DDF File	7/2/2003 10:41 AM
3734DQLC.DDF	2 KB	DDF File	7/2/2003 10:41 AM
3734DQPA.DDF	4 KB	DDF File	7/2/2003 10:41 AM
3734IDEN.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734IREF.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734LDEF.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734RSDF.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734SPDM.DDF	1 KB	DDF File	7/2/2003 10:41 AM
3734STAT.DDF	2 KB	DDF File	7/2/2003 10:41 AM
3734XREF.DDF	1 KB	DDF File	7/2/2003 10:41 AM
haltom.dem	10,545 KB	DEM File	12/2/2003 5:09 PM
HALTOM.XYZ	45,950 KB	XYZ File	12/2/2003 5:15 PM

At this point the DEM is now translated into a nearly useful form for our work. The next steps are to convert it into an ASCII grid using some algorithm. Of note is that the data are already on a grid, and a simple approach is simply to convert it into an array form, but there are duplicates, so an averaging technique is needed to handle duplicate points. For our work we will use SURFER to interpolate and, more importantly, build the grid.