

Notes on Google Earth kml files to view the locations of data sets used in

Practical Least Squares and Statistics for Surveyors by Bruce Harvey

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I have prepared a file called Harvey_Monograph13_networks.kml that can be opened in Google Earth to show the locations of the data sets used for examples and tutorial questions in Harvey (2009). I have many other real data sets that are used in my lectures, exams and assignments.

When I was a student most of the examples shown to me were either very small data sets and not based on real data or real sites, or they were surveys in Europe. So my teaching tries to use real observations collected at sites in NSW, Australia. Now we have 'overseas' readers of my book so I add the 'kml' file to show readers where the data was collected for many of our examples. The Google Earth (or similar) views of the sites can also add an understanding of why some lines may not have been observed (e.g. obstructions).

Some of the surveys were done by my students years ago and the sites have changed somewhat, but the data is still excellent for educational purposes. Some surveys were done on local datum or on datums other than WGS, so I have estimated their approximate location on WGS. Some of the surveys do have accurate coordinates but don't line up well with the current images, sometimes I have shifted the coordinates to appear better (more accurate location) in Google Earth, sometimes not. My FIXIT program that does the LS calculations now creates 'kml' files if the coordinates in the input file are on MGA or ISG projection systems.

If you are familiar with using Google Earth you should have no trouble viewing the data. However if you are a beginner you might try the following. In Google Earth software, FILE | OPEN the Harvey_Monograph13_networks.kml file. This will probably select all the data sets, so to see any one network and to zoom into it, untick the folder called Harvey_Monograph13_networks.kml then expand the folder and tick/select the data set you want to see and double click on that subfolder's name. Each data set is in its own subfolder and is identified by the page number in Harvey (2009) that first refers to the data. If the point has a name it will show the name, if not then it will show the point number. Sometimes double click on a point to see its number, name and approx coordinates in MGA (if relevant).

Mono 13 page number	Description or comments
85	Morpeth traverse, similar to page 18. The coordinates on p85 are on a local datum. They were truncated ISG coordinates.
88	EDM height differences by students at Morpeth
117, 161, 223, 300	Chifley Dam, from ISG 55/3 coordinates and approx shift.
129	Part of GPS network at Windradyne
132	Middle Harbour 3D control survey with lines for GPS vectors, directions, distances and height differences.
155, 210, 212, 221, 292	This network is used several times, but it is a rare case where I have not used real data. So it cannot be plotted on GE.
168	Mangrove Creek Dam, Gosford. Note that the coordinates in the textbook are on a local datum oriented for an axis along the dam wall so the plan appears rotated by many degrees compared to the actual orientation as shown on the Google image.
177, 199	Oatley
181	WellingtonCaves
226	Design survey for telescope location
237	Orroral Valley LR location
256	Water Tower location, volume determination

276	UNSW Oval, village green, circle fit
276	VLBI radio telescope sites, the old Hobart dish has now gone. Transformations.
277	Sofala GPS, Q9 Ch8
314, 13	UNSW old survey network. Some new buildings now obscure some lines.
320	Ch10 Q8 – based on part of the Chifley Dam network
322	Ch10 Q9 - based on part of the Mangrove Creek Dam, Gosford network. Note that the network has been rotated from local datum supplied in question onto approx WGS.

Harvey, B.R. (2009) Practical Least Squares and Statistics for Surveyors, Monograph 13, Third Edition, School of Surveying and Spatial Information Systems, UNSW. 332 + x pp. ISBN 0-7334-2339-6. Third edition in 2006 was reprinted in 2009 with spiral binding.