An NTRIP Survey in HYPACK®

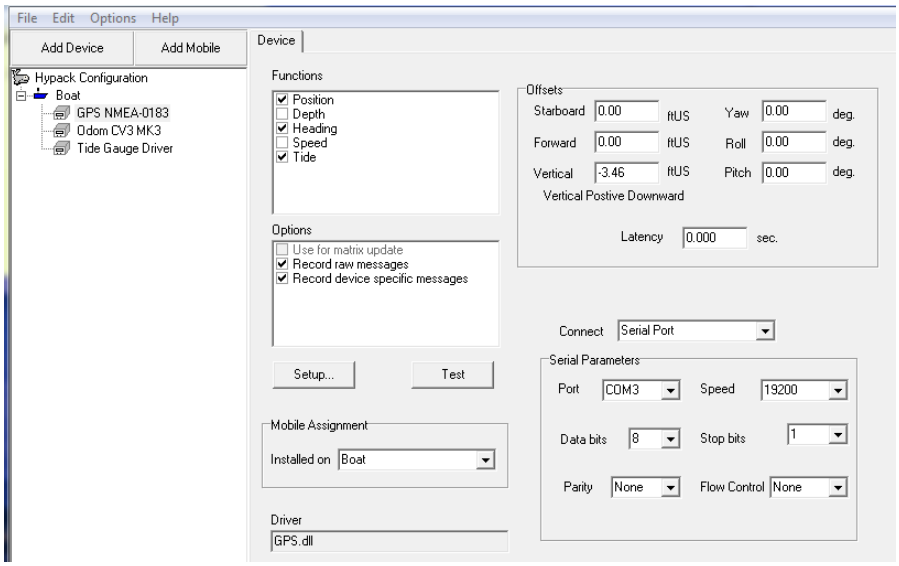
By Jerry Knisley

I recently spent a day on a survey boat running RTK with an NTRIP interface. The GPS was an older TRIMBLE 5700 model that did not allow the corrections to be received on the same port as the one on which the GGA message was sent out. This meant we could not use the new feature in the GPS.DLL to provide NTRIP data. To access the NTRIP data we used the GNSS Radio software. This allows you to log into an NTRIP service on the internet and get the corrections based on a user-defined GPS position. (For more information see Receiving Differential and RTK Corrections over the Internet in our March 2009 Sounding Better.)

Since we were working in Washington State, the company obtained an NTRIP server and password for that area.

The hardware side of things was easy to configure. Although we were recording tide from the RTK, we also were using the eTrac Tide Gauge as a backup.

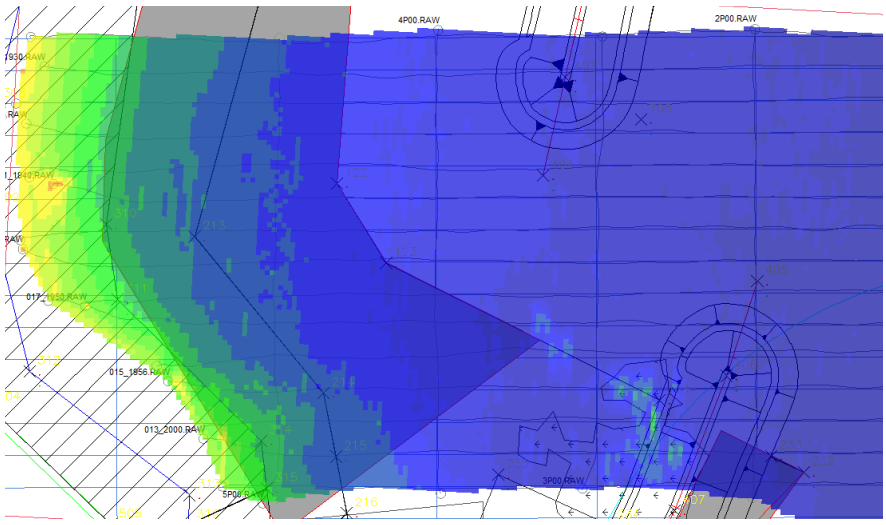
FIGURE 1. *Hardware Configuration*



We did a bar check on the system to calibrate everything. The computer time was synched to the GPS using a 1PPS box so there should be no latency.

Figure 2 is an example of the data that was collected displayed in a filled MTX file.

FIGURE 2. *Project Data in a Matrix File*

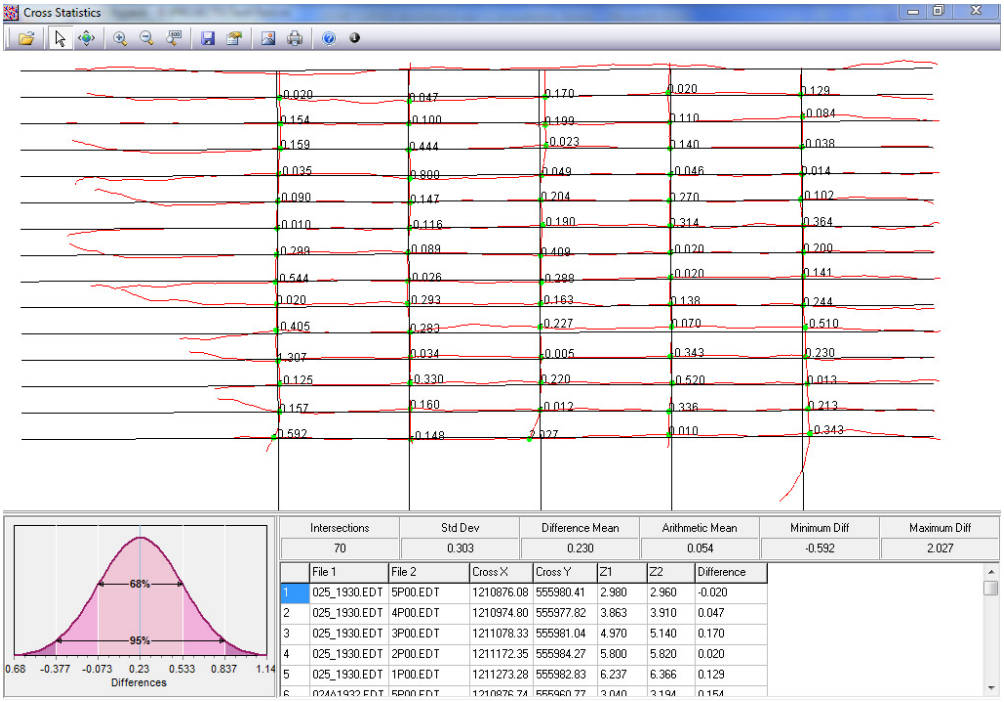


The area that has bright spots around the dyke to be built are actually areas of eel grass. They mostly fall within the area bordered on the DXF drawing to show the eel grass.

Using the NTRIP interface was very easy. We surveyed for 2 hours using an aircard to receive the corrections and never lost RTK FIXED position reference.

Figure 3 and Figure 4 compare the HYPACK® Cross Check Statistics Reports for the same survey data using the RTK NTRIP data. Figure 3 uses the RTK tide corrections while Figure 4 uses the tide gauge data. The statistical distributions are almost identical.

FIGURE 3. *Cross Check Statistics using RTK NTRIP Data*



Intersections	Std Dev	Difference Mean	Arithmetic Mean	Minimum Diff	Maximum Diff
70	0.303	0.230	0.054	-0.592	2.027

	File 1	File 2	Cross X	Cross Y	Z1	Z2	Difference
1	025_1930.EDT	5P00.EDT	1210876.08	555980.41	2.980	2.960	-0.020
2	025_1930.EDT	4P00.EDT	1210974.80	555977.82	3.863	3.910	0.047
3	025_1930.EDT	3P00.EDT	1211078.33	555981.04	4.970	5.140	0.170
4	025_1930.EDT	2P00.EDT	1211172.35	555984.27	5.800	5.820	0.020
5	025_1930.EDT	1P00.EDT	1211273.28	555982.83	6.237	6.366	0.129
6	024A1932.EDT	5P00.EDT	1210876.74	555960.77	3.040	3.194	0.154

FIGURE 4. *Cross Check Statistics using Tide Corrections from the Tide Gauge*