

257216

4.5 Navigation

The range-range system used for the survey was Syledis. The performance of the system was of an acceptable standard during the course of the survey but there were some problem areas as well.

The initial calibration of the system was very reasonable over the short baseline range. However after the stations were deployed to their locations for the survey and in situ ranges were measured some significant inconsistencies were noted. Between the mobile reference station, Stony Point and Charmouth the results were reasonably consistent but the ranges measured to Hardwicks and East Sandy were not consistent at all.

The system calibration was repeated on the 8th of November and the same inconsistencies were noted but because the characteristics of the errors seen were not random but related to station location rather than beacon, it was concluded that there was some sort of localized interference, possibly caused by the Telecom installation at Hardwicks Hill. It was decided to accept the results measured apply a velocity factor of 1, and observe the results of the three way fixes on the survey.

Three way fix closures calculated throughout the survey were of a very high standard for the vast majority of the survey. Typically the CEP was 1-2 meters but a figure of less than 1 meter was also quite common.

On the evening of the 19th, after completion of line 189, the baseline between Charmouth and Hardwicks stations was measured. This showed an observed value for the baseline distance of 31331.35 meters compared with the computed 31335.25 meters, (see Appendix C) and was considered to be well within the capabilities of the system.

The only hardware failure problem with the base stations during the survey was the loss of signal from the Stony Point station on the 13th of November. This was the result of the loss of a tower guy which was in turn probably the result of a hurried initial installation.

Apart from this the only other navigation related downtime occurred on the 14th, when the CMS computer idled and line 176 was terminated.

As the survey got underway it rapidly became apparent that the station geometry, while quite adequate for the majority of the survey lines would have to be modified before production on the southern ends of lines 187-189, and on the eastern half of line 205, would be possible. This was achieved on the 18th of November when sufficient of the western portion of the survey had been completed to safely allow the moving of beacon 2 from Stony Point to Mt. William. With this station in place the geometry was considered good enough to complete the survey.

Some difficulties were experienced on lines 199A and 191B, with localized currents pushing the vessel off line. In all of these instances the line was regained as smoothly as possible and the overall effect on data quality is expected to be minimal.

In conclusion then, the navigation for the survey was well within industry standards, but care should be taken in any future calibrations of Syledis in this vicinity.