

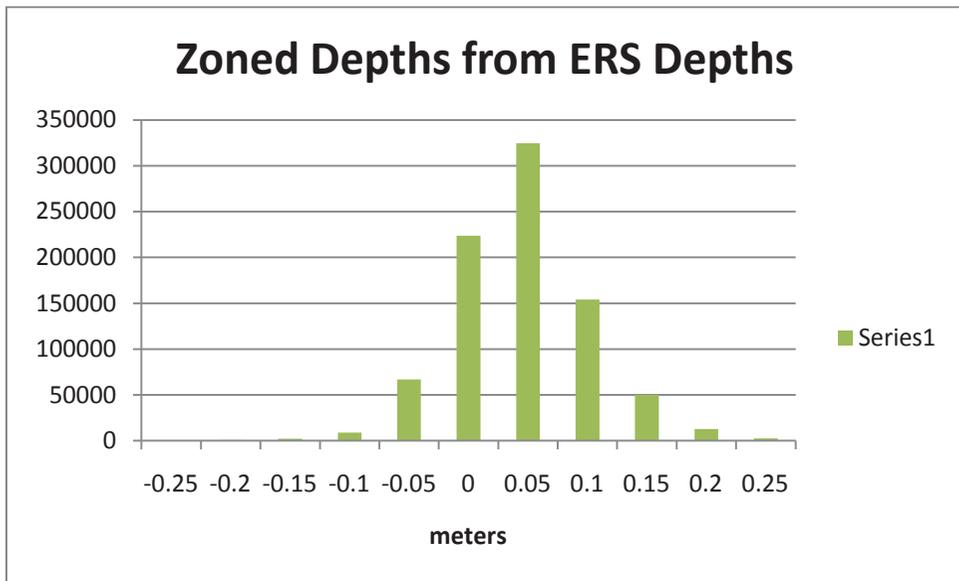
**StdDev 0.074903**

## Mainscheme Analysis

CARIS HIPS and BASE Editor were used for surface generation and differencing. Since there is a combination of multibeam and single beam data, these were generated as 4m uncertainty surfaces. Three surfaces were created to generate the required statistics:

1. A surface containing all MB and VB depths reduced via tidal zoning
2. A surface containing all MB and VB depths reduced via VDatum ERS
3. A difference surface of the depths reduced via tidal zoning from VDatum ERS

Due to text file size limitations, the nodes in the difference surface were queried in five sections, each containing approximately 175,000 points. These were then combined in one Excel spreadsheet. The mean, standard deviation and a histogram were calculated. The results are shown below.



**Mean 0.020352**

**StdDev 0.057274**

## Discussion

Results of the crossline analysis show the ERS based tidal reduction method yielded approximately a 3.5 cm reduction in the mean difference between crosslines and mainscheme data. The mainscheme ERS to mainscheme analysis indicates a mean difference of approximately 2 cm between the two methods. In this instance, the ERS data appears to provide a better solution. It should be noted that the generation of VDATUM ERS tide reduction for this survey required approximately 40 additional hours of processing and data management. One additional factor to be considered if VDATUM is used for data submission is that some of the

critical areas of bathymetry data were acquired without the use of a POS, and therefore cannot be reduced via VDATUM, causing a discontinuity in the survey wide tidal reduction method.

## **Recommendation**

TJ recommends the ERS deliverables, reduced to tidal datum using VDatum, be treated as the final deliverable grids for this survey, with the exception of single beam data acquired by the utility boat which is not equipped with a POS/MV system. The single beam data acquired by the utility boat will be submitted with soundings reduced to tidal datum using discrete zoning and Final Tides from CO-OPS.

In addition, TJ requests a streamlined VDATUM validation method to facilitate future ERS surveys. This method should not necessitate CO-OPS Final Tides.