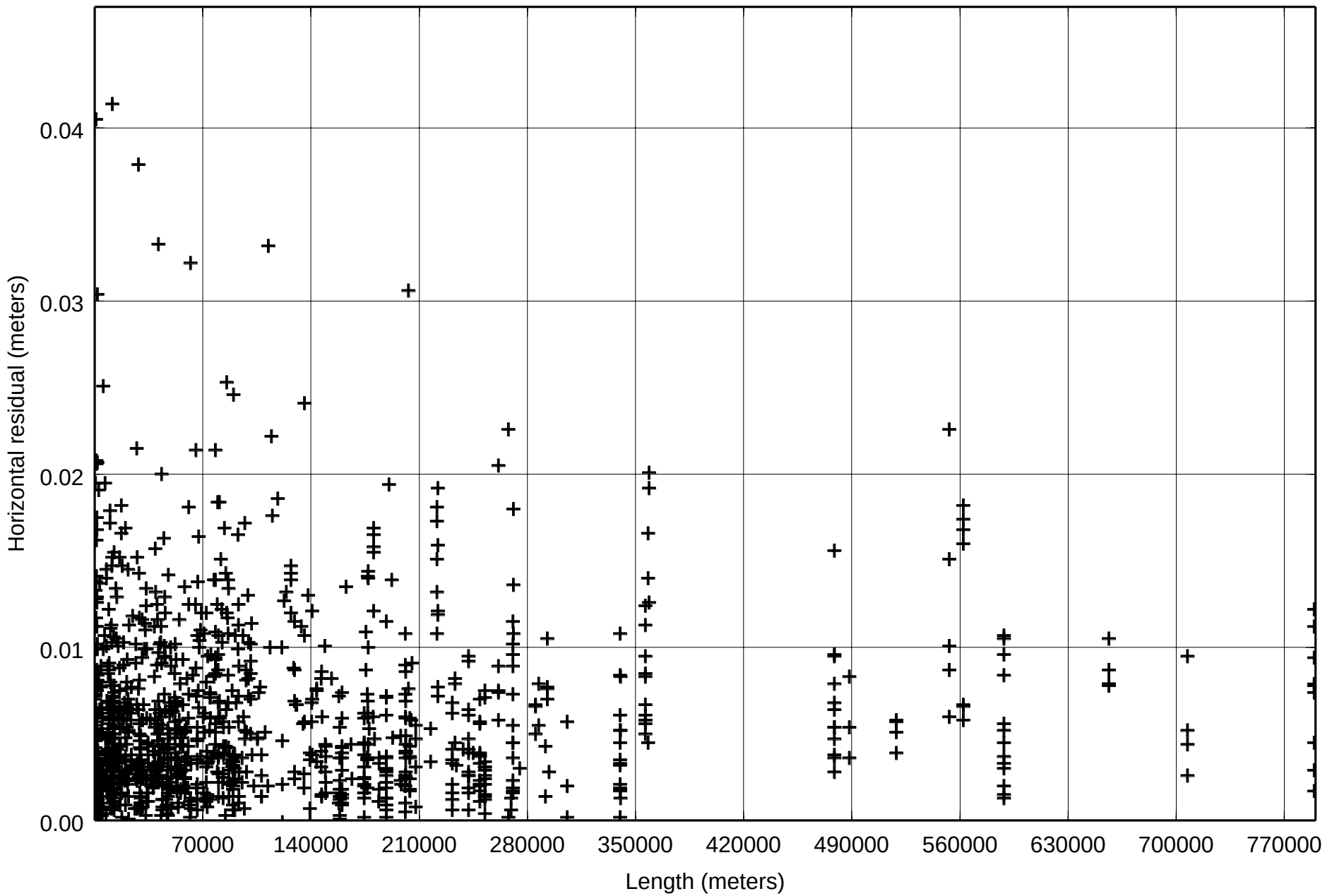UTAH FINAL CONSTRAINED Horizontal Residuals