SANG-a kernel density estimator incorporating information about the measurement error.[1] ROBERT HAYES[2], North Carolina State University — Analyzing nominally large data sets having a measurement error unique to each entry is evaluated with a novel technique. This work begins with a review of modern analytical methodologies such as histograming data, ANOVA, regression (weighted and unweighted) along with various error propagation and estimation techniques. It is shown that by assuming the errors obey a functional distribution (such as normal or Poisson), a superposition of the assumed forms then provides the most comprehensive and informative graphical depiction of the data set's statistical information. The resultant approach is evaluated only for normally distributed errors so that the method is effectively a Superposition Analysis of Normalized Gaussians (SANG). SANG is shown to be easily calculated and highly informative in a single graph from what would otherwise require multiple analysis and figures to accomplish the same result. The work is demonstrated using historical radiochemistry measurements from a transuranic waste geological repository's environmental monitoring program.

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