

measures of mean square distortions of line lengths in principle directions about a point and the relationship of angular and areal distortion of a map, has been suggested by Bayeva. Additionally, a new method modifying the Tissot's Theory of Distortions has been suggested for use in analyzing map projection distortions. This new method, as stated by Laskowski (1989), presents the Singular Value Decomposition which offers a powerful conceptual and computational tool for analyzing [map] distortions. This "Singular Value Decomposition" method basically measures comparable line segments of digitized lines on different maps and computes the mean square distortions of each comparable line segment pair. Obviously, this is a computational intensive technique which requires a powerful computer. The advantage of this technique exists in evaluating the geometric properties of points and lines which is independent of projection determination required by other comparative techniques.

If the selection of projections is critical in the construction of a map, then evaluation of the comparative quality or assessment of the distortion is necessary in determining the accuracy of a map. This is especially true in a cartographic assessment utilizing quantitative methods for evaluating historic maps as source documents for geographical research.