

USING THE STOCHASTIC COMPONENT OF THE GSDM

Use of the stochastic component of the GSDM is optional. If the stochastic component is not used, the;

- Covariance matrix values are zero (by default).
- X/Y/Z coordinate values are used as being exact.

Use of the stochastic component of the GSDM is quite flexible. Options include:

- Input standard deviation information when a point is defined. Alternatives are:
 1. Geocentric covariance matrix is input as:
 - a. Standard deviations - no correlation.
 - b. The full covariance matrix.
 2. The local covariance matrix is input (and converted to geocentric) as:
 - a. Standard deviations in local components e/n/u – no correlation.
 - b. The full covariance matrix.
- The covariance matrix of a new point is computed using traverse data and the covariance matrix of an existing control point. Two alternatives are:
 1. For a known baseline, input:
 - a. Standard deviations of the components
 - b. Full covariance matrix for base line.
 2. For observed baseline, input:
 - a. Standard deviations of observations.
 - b. Compute covariance matrix of baseline:
 1. In local system and convert to geocentric.
 2. In geocentric system.

Caution!!

"With respect to what?" At all times when using the stochastic model, the user should be able to answer that question. If the question is misunderstood or misinterpreted, a danger exists that the stochastic model is being misused. In that case, it is possible to be precisely wrong. The stochastic component of the GSDM is a powerful tool that can be used very beneficially. But, use of the GSDM does not guarantee good work or correct results.