

**Stochastic velocity modeling of the Kaapvaal Craton beneath the BASO station**

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From a statistical view point, geophysical parameters are interpreted as random variables. For example, arrival times for P and S waves have a random component, attributed to sources such as distant-dependent measurement error, human error in picking arrival phases, and random noise attributed to travel path. Stochastic modeling of such phenomenon quantifies these random processes. Genetic algorithms are iterative stochastic models that evaluate progressively improved mathematical models. In this presentation, we will provide a background on how genetic algorithms in general, and the Non-dominated Sorting Genetic Algorithm (NSGA-II) in particular, model the velocity structure, with specific reference to the BOSA station on the Kaapvaal Craton in Southern Africa.