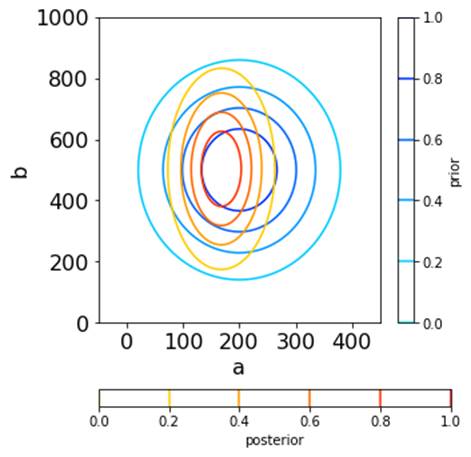
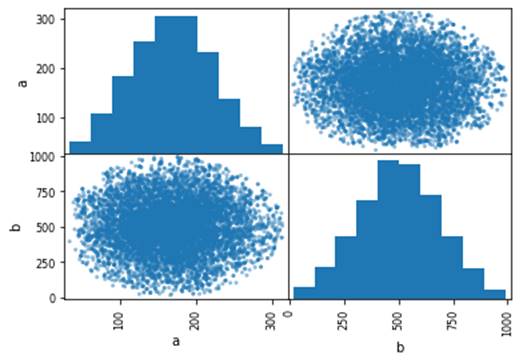
The mcmc samplers (NUTS, MetropolisHastings, Ensemble Slice Sampling) are all biased towards trying to find the highest density region of probability. This bias causes problems during rough response surfaces which depend on many parameters  (very rapidly above 4 parameters). It means one cannot be confident in the result since there may be more than one result.

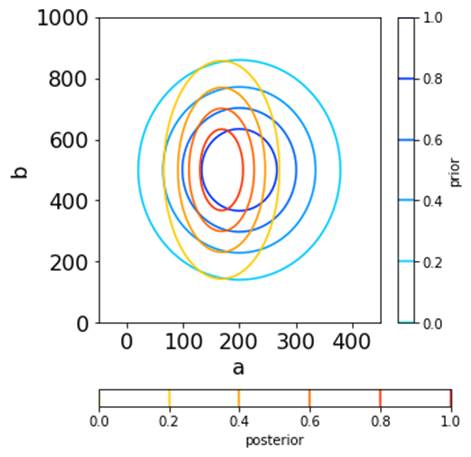
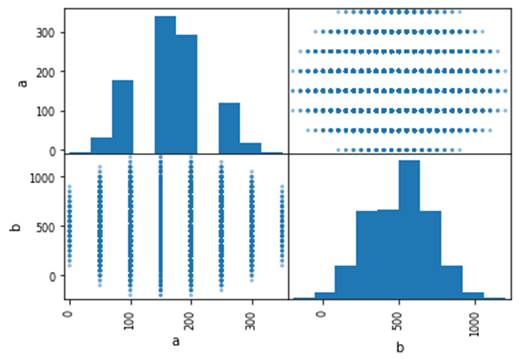
So CheKiPEUQ also has \*\*unbiased\*\* sampling. This has two advantages:  a) no rejection of samples, b) can be used to make sure that the bias from the mcmc is not affecting the final distribution found.  A simple example is below, and is now Example 00f in the official examples.

Below is example 00f and works well.

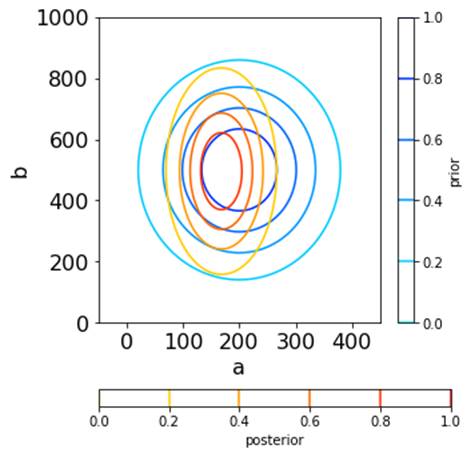
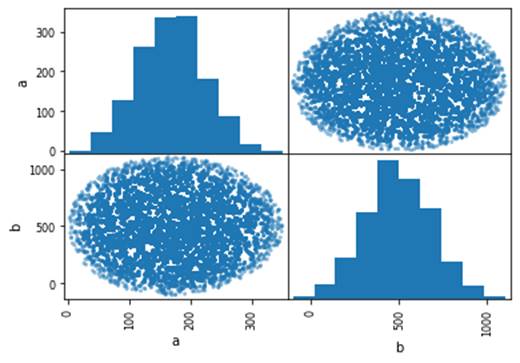
Here is regular Metropolis Hastings (00f1):



Here is the gridsearch (00f3):



Here is the uniform random sampling (00f4):



This feature is important because some response surfaces are too rough to sample properly with mcmc.  It was always a huge pain that some other packages had no way of doing this.  And with CheKiPEUQ I implemented the grid search, but still hadn’t gotten that gridsearch to convert to a distribution.  Now I have gotten CheKiPEUQ to do it, and it now happens automatically, almost like if we had done mcmc!