

Additional performance tests

A set of tests were performed for periods of 500 steps on the white and red noise models. 66 Unc - MSR combinations were used taking values: $100 < \text{Unc} < 1200$ and $5 < \text{MSR} < 195$.

Out of these the empirical success rate (sr^1) was $> 95\%$ in 32 and 30 cases for the red and white noise models respectively.

In the case of the **red noise** model, the prediction of CUSP agreed with simulation results in 97% of the cases for $sr > 95\%$ and 94% for $sr < 95\%$.

For the **white noise** model, the prediction of CUSP agreed with simulation results in 97% of the cases for $sr > 95\%$ and 86% for $sr < 95\%$.

Thus we consider the CUSP model highly accurate.

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¹ See Sect. 2.2 in Hatvani et al., 2022 for details: <https://doi.org/10.1016/j.quascirev.2021.107294>