



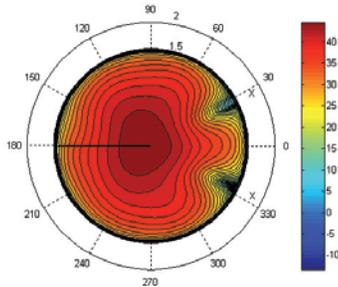
# STAPTool ANALYSIS SOFTWARE MODEL



## DESCRIPTION

The STAPTool Analysis Software Model has proven valuable in studying the application of Space Time Adaptive Processing (STAP) to GPS. The software allows investigation of various adaptive optimization strategies and can be expanded to support additional techniques under a wide range of conditions. Conditions include the number, strength and type of jammers, features of discrete multi-path scatterers, system parameters such as front-end bandwidth and analog-to-digital converter sample rate, number and location of antenna elements, and parameters that define the cancellation ratio.

## MITRE



These are two main GUIs:

- 1) STAPTool – develops anti-jam response  $C/N_0$  sky-maps based on user specified simulation parameters. Launched from within STAPTool are visualization tools and tools for generating jammer threat files and simple antenna arrays.
- 2) plot\_c\_no\_gui – plots a  $C/N_0$  sky-map file representing the  $C/N_0$  that a GPS receiver experiences as a function of satellite azimuth and elevation angle. Sky-maps depend on the STAP technique and jammer configuration.

## FEATURES

- ▶ STAP solution based on analytically formulated covariance matrix
- ▶ Covariance matrix determined by jammer strengths and jammer-antenna relative geometry
- ▶ Stochastic nature due to finite cancellation ratio
- ▶ Exact evaluation of a particular direct matrix inversion weight optimization strategy

- ▶ Optimistic converged solutions

## APPLICATIONS

System level performance analysis of GPS systems with STAP anti-jam technique

## FOR FURTHER INFORMATION CONTACT:

NAVSTAR, GPS Joint Program Office  
DSN: 833-6507 or 310-363-6507

