May 14, 2003

To: Tom Phillips
From: Melanie Leong

Subject: DSOS February 2003 Results with 28 Activated Toothpick Assemblies

I am please to document the Dish Surface Optimization System's performance with SHARCII during the February 2003 engineering run.

During this run there were 28 calibrated toothpick assemblies. These toothpicks are at locations where past holography maps have shown the most deformations.

This has been the most extensive engineering run so far, covering Ganymede on both ascent and descent.

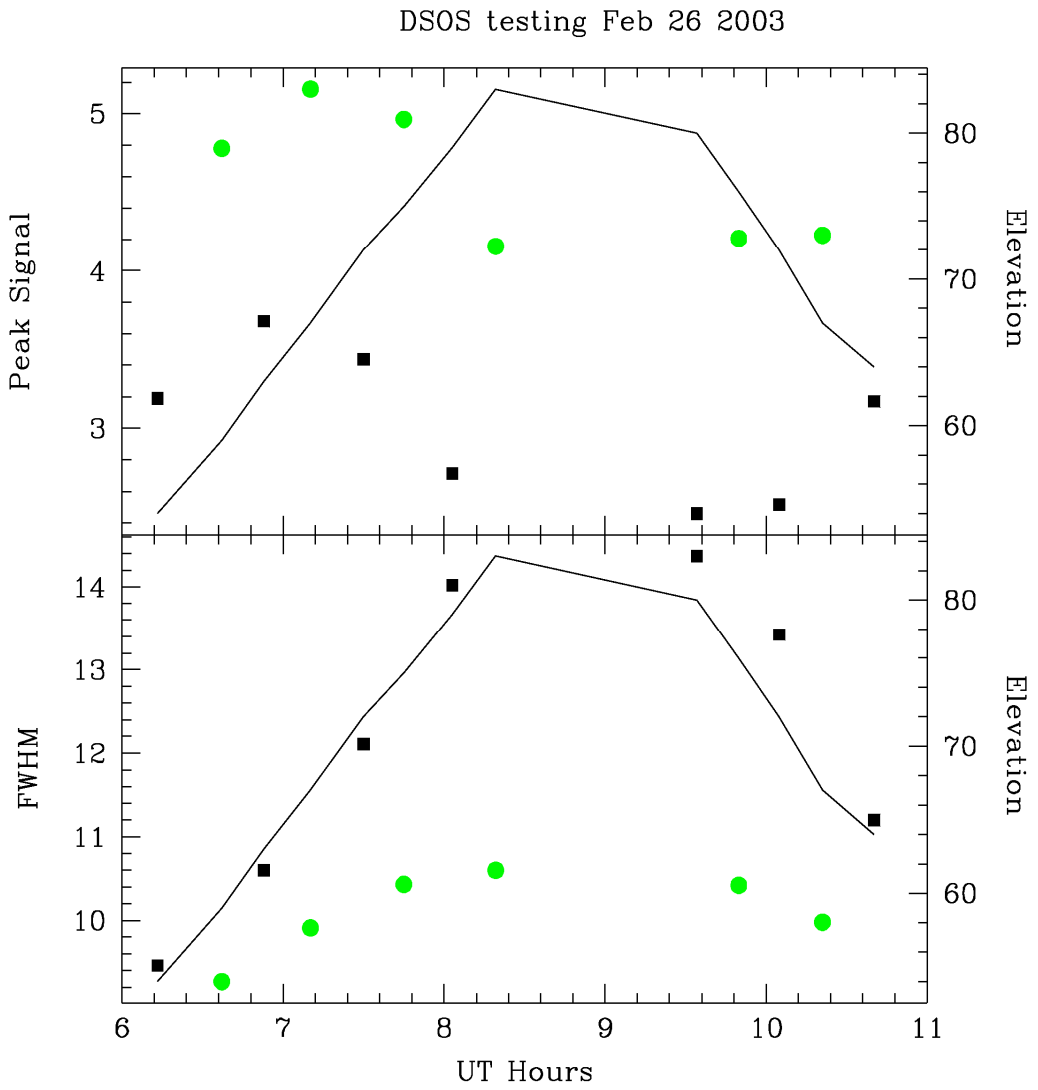
The plots are shown on pages 2 and 3. These plots were put together by Colin Borys.

Plot 1's top graph displays the peak signal power when the DSOS is off and on, in relation to time and elevation. Signal power at smaller zenith angles improved as much as 60%.

Even more impressive is Plot 1's bottom graph, which displays the FWHM of Ganymede. At small zenith angle there is a reduction in size by as much as 3.2 arcsec from an originally 14.0 arcsec object.

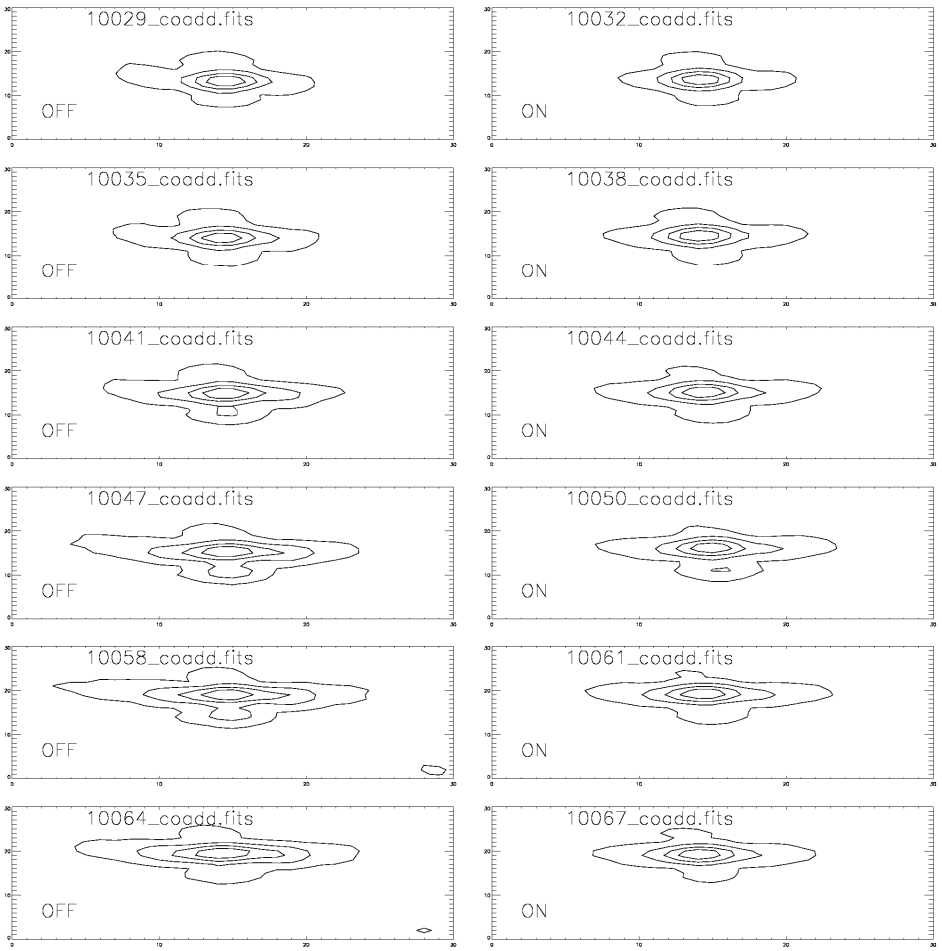
Plot 2 is a contour plot of the data points in Plot 1. The left column contains contours of Ganymede with the DSOS off. The right column contains contours of Ganymede with the DSOS on. All after pictures show an improvement.

This engineering run has been very successful at obtaining data showing that the Dish Surface Optimization System is working well with 28 toothpicks activated.



Green circles = DSOS On. Black squares = DSOS Off.

Plot 1 top: Detected Peak Signal Power of Ganymede with the DSOS On and Off.
Plot 1 bottom: FWHM of Ganymede with the DSOS On and Off.



Plot 2: Contour Plots of Ganymede with the DSOS Off (left column) and On (right column)