Cornell Caltech Atacama Telescope

Status: 13 December 2006

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Thomas A. Sebring	Project Manager
Simon Radford	Deputy Project Manager
Jonas Zmuidzinas	Project Scientist Caltech
Terry Herter	Project Scientist Cornell

Partnership Development Status

- Interim Partnership Agreement
  - Reviewed by Caltech and Cornell Attorneys
  - Still Some Wrinkles to be Ironed Out
  - Hope to Schedule January Signing Date
- Funding Status
  - Cornell: Awaiting Formal Decision by University, Source for $10.5 M Identified
  - Caltech: Proposal to Moore Foundation for $20 M in Development
  - ROE/ATC: Statement of Intent Drafted…Comments?
  - Canada: Funding for Submm Astronomy Awarded….Comments?
  - U of Colorado: Comments?
  - Harvard Smithsonian CfA?

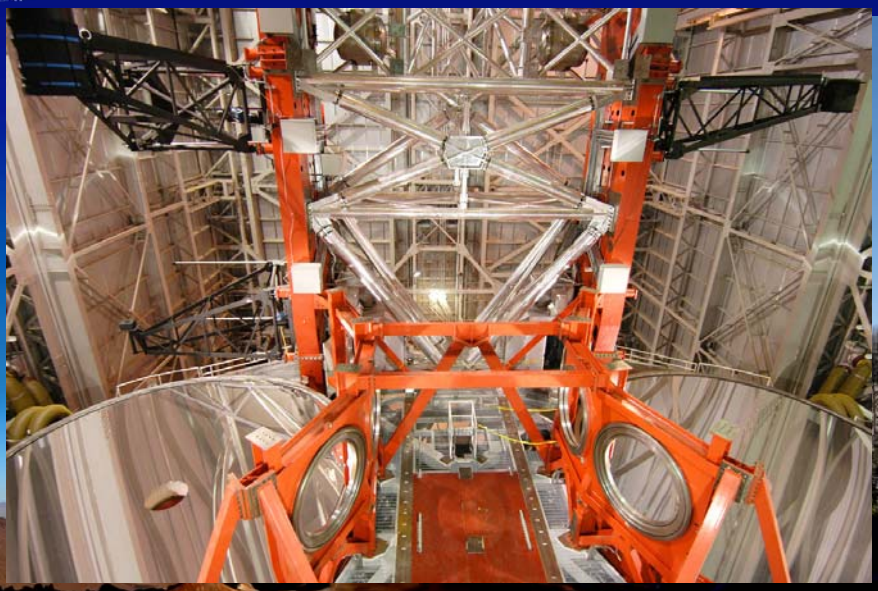
Recent Activities

- Visit to M3, Tucson
  - Discussed Content and Lead Time for Site Development Plan
  - Road Upgrades Required: GPS Track to Assess Route
- Visit to Composite Mirror Applications
  - Additional Discussion of CFRP/Al Panel Manufacture
  - 1 m Mirrors Under Development, Results TBD
- Visit to U of A Mirror Lab
  - Discuss Mandrel Fabrication & Metrology
  - Will Continue to Develop Concepts
- Presentation of CCAT to U of A Astronomy/Steward Observatory

Recent Activities (cont.)

- SMT (Heinrich Hertz Telescope) Mt. Graham
- Built by Krupp (MAN) Duisberg, Germany
- Now Vertex (General Dynamics)
- Built Vertex ALMA
- CFRP/Invar Truss
- Flexure Mounted to Structure
- Surface Not Optimized Since Satellite Died (~2.5 years)

LBT (Target of Opportunity)



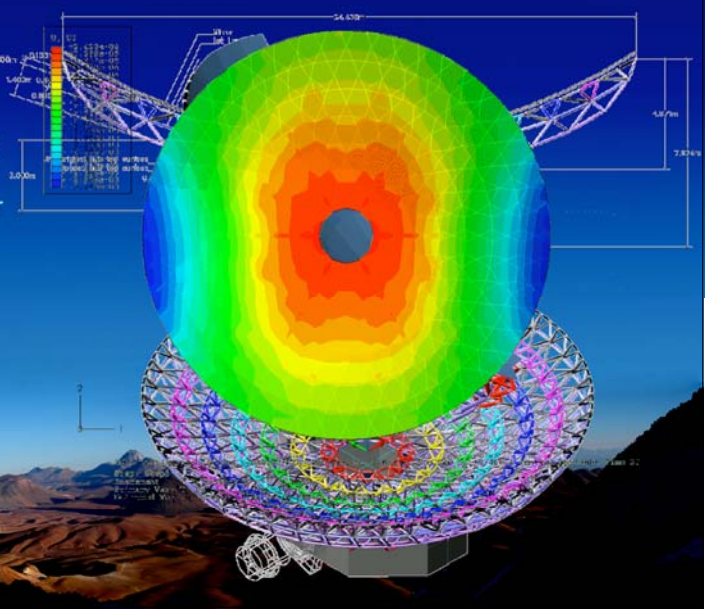
Vertex ALMA Prototype

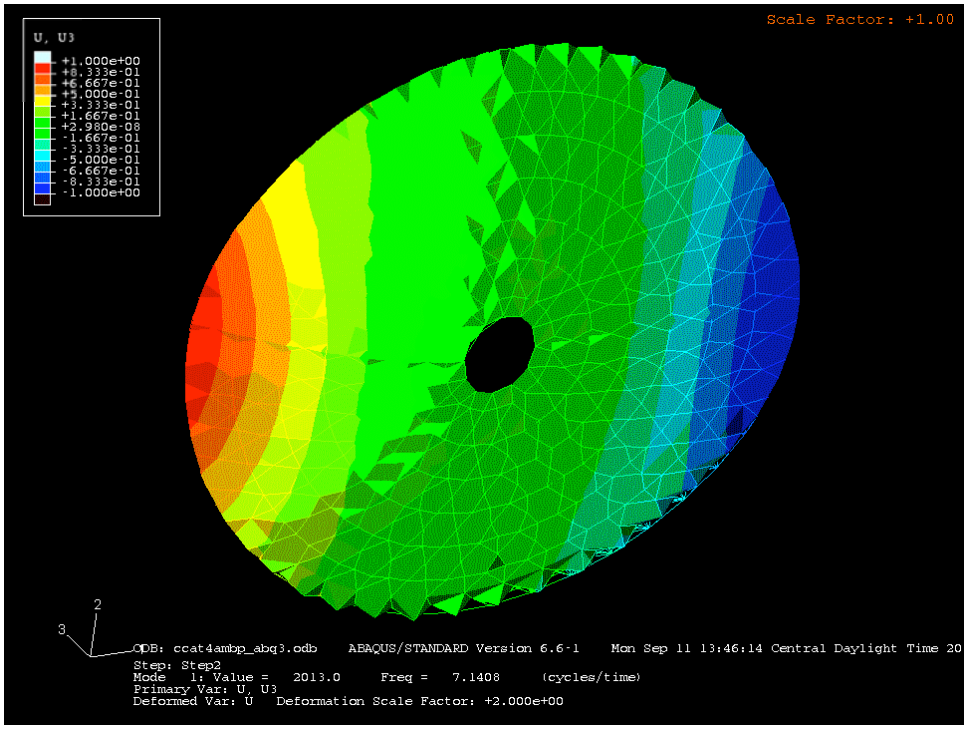
EIE Alcatel Prototype

- All CFRP Construction
- Media Lario Ni/Al Panels on CFRP Bus
- “Linear” Drives
- Recently Awarded Contract for Production

Stutzki Engineering PM Truss Concept Design

- Funded by JPL
- Objective: First Order Design to Assess Deformation and Modes
- Provide Basis for Initial Estimates of Cost
- Identify any Significant Risks of Cost or Performance
- Discussed with Mero Structures, Wurzburg, Germany

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U, U3
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+6.667e-01
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+3.333e-01
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+2.980e-08
-1.667e-01
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2
3
ODB: ccat4ambp_abq3.odb ABAQUS/STANDARD Version 6.6-1 Mon Sep 11 13:46:14 Central Daylight Time 20
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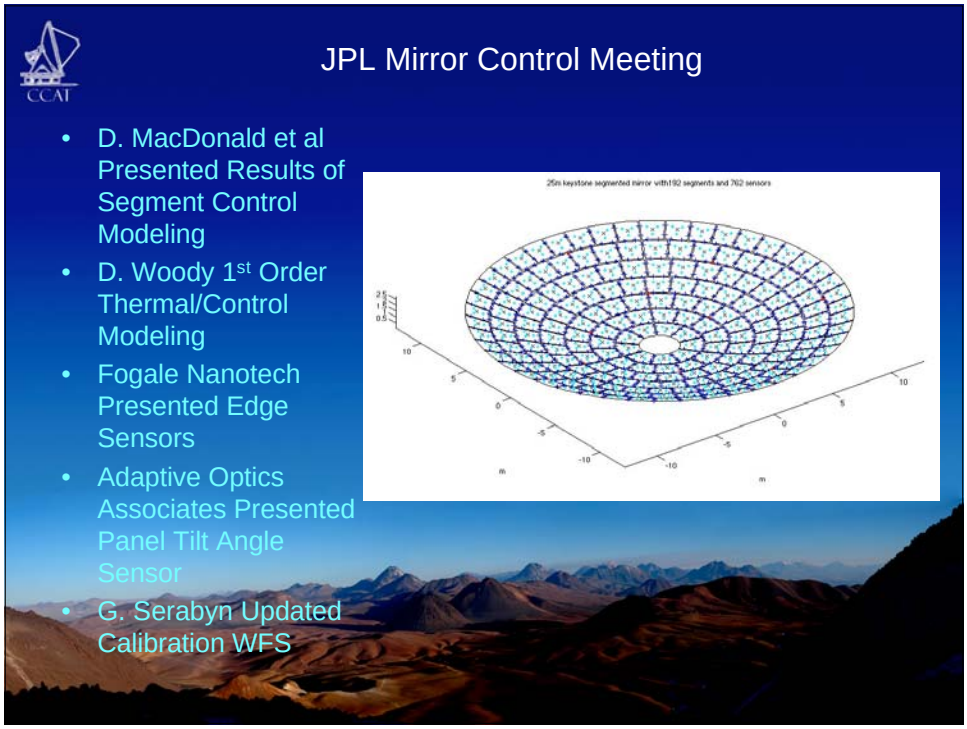
Deformed Var: U Deformation Scale Factor: +2.000e+00


JPL Mirror Control Meeting
CCAT
D. MacDonald et al Presented Results of Segment Control Modeling
D. Woody 1st Order Thermal/Control Modeling
Fogale Nanotech Presented Edge Sensors
Adaptive Optics Associates Presented Panel Tilt Angle Sensor
G. Serabyn Updated Calibration WFS

Eigenmodes and Eigenvalues of 4 segment mirror


Mode 0 : 0.41

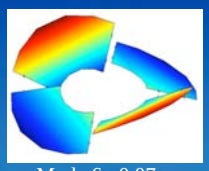

Mode 1 : 0.37


Mode 2 : 0.37

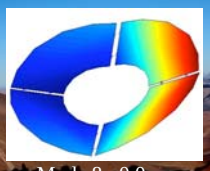

Mode 3 : 0.38

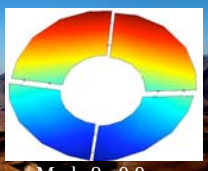

Mode 4 : 0.07


Mode 5 : 0.07


Mode 6 : 0.07


Mode 7 : 0.01


Mode 8 : 0.0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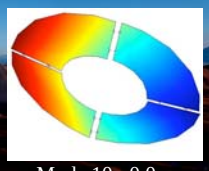
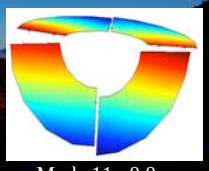
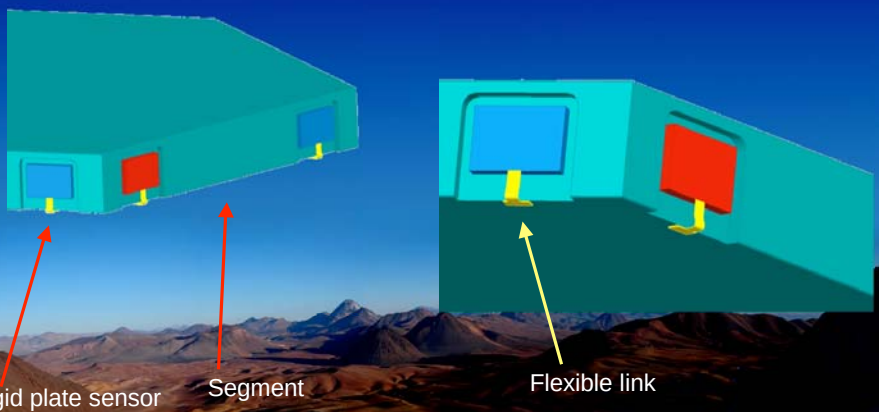

Mode 10 : 0.0

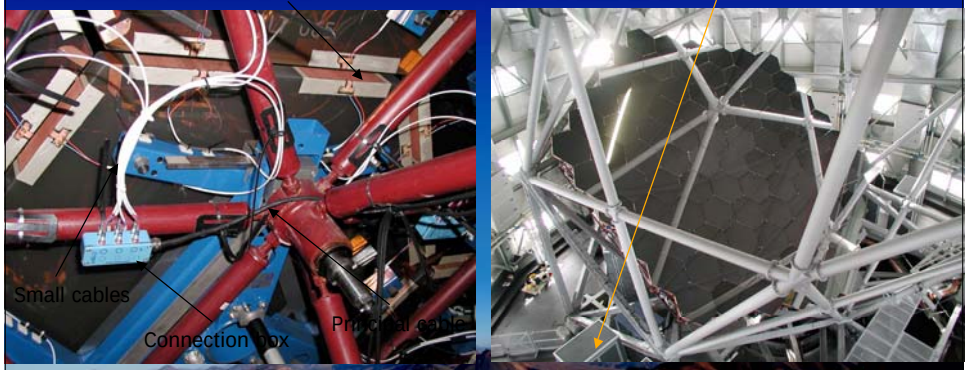

Mode 11 : 0.0

Fogale Nanotech
Approach to Sensor mounting
Rigid plate Sensor Clamped
or bonded in recessing of Mirror



Mass of one plate sensor ~ 20 grams

Fogale experience S.A.L.T. Installation



Installation on truss