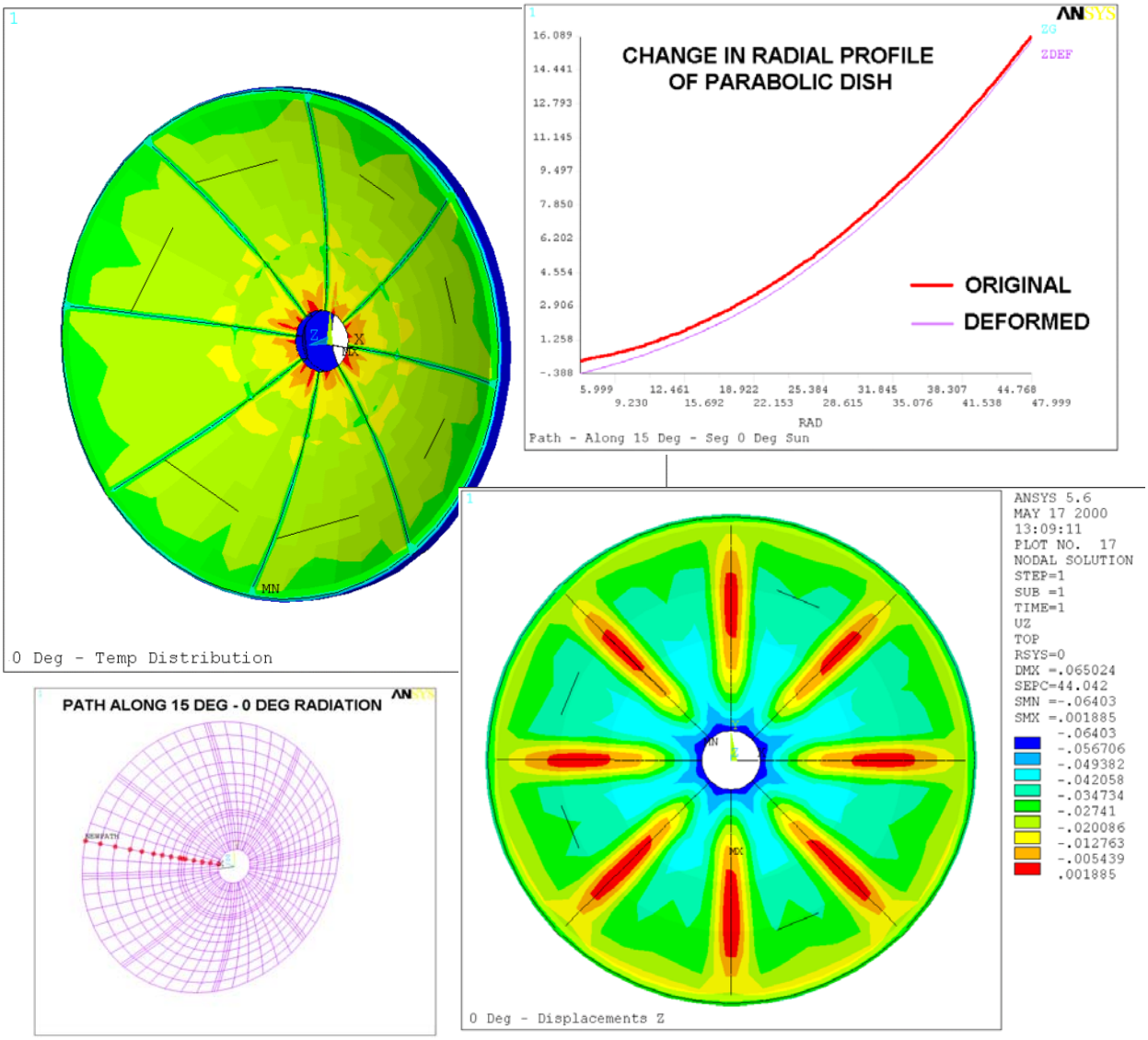
FINITE ELEMENT RADIATION AND STRUCTURAL ANALYSIS OF AN ANTENNA

PURPOSE: Evaluate the thermal and structural deflection of an antenna due to Radiation and Wind Loads.

Radiation Analysis is a non-linear Thermal solution. View Factor Matrices need to be developed between the various parts of the structure. A Steady State Non-linear Thermal analysis was performed to compute the temperature distributions due to Radiation from a Uniform Temperature Radiating Body at various incidence orientation angles. The Temperature distributions were then used as a load step in the Linear Structural Analysis. The coupled Thermal-Structural Analysis provided deflections of the parabolic dish, based on which a signal distortion analysis can be performed. The analysis is also used in computing thermal fatigue of the structure.



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