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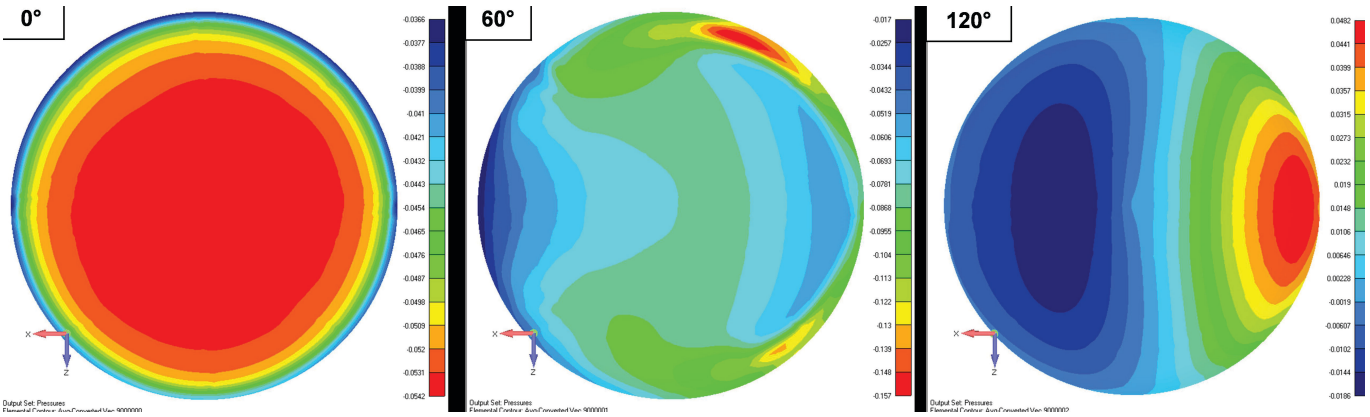
Wind Load Analysis for a Parabolic Dish Antenna



Case Study

OVERVIEW

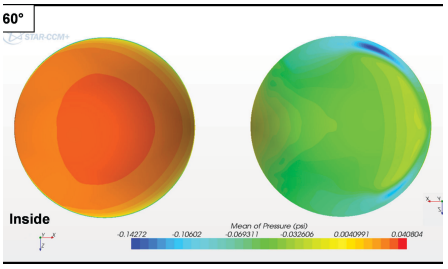
Wasatch Composite Analysis was under contract to provide structural analysis of a composite parabolic dish used in an antenna design. ATA was asked to provide detailed pressure distributions from the required wind loading, which would allow for a more accurate structural analysis than could be achieved using uniform theoretical pressure coefficients, thus providing higher confidence in the antenna design. Overall results matched theoretical values well, and ATA's experience and internal tools allowed for an extremely quick turnaround.

TASKS PERFORMED & KEY INNOVATIONS

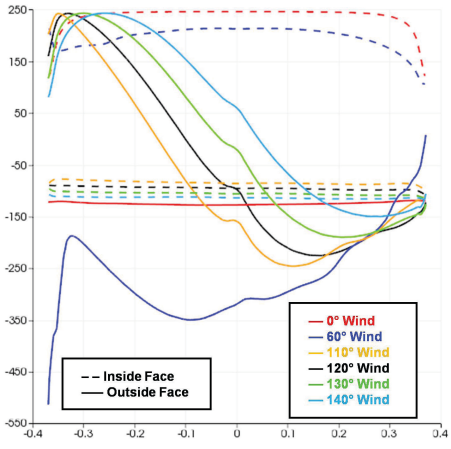
- Creating a computational fluid dynamics (CFD) model of flow around the dish.
- Analyzing multiple wind angles to determine the direction of maximum loading on the dish surface.
- Providing delta pressures across the dish—calculated from CFD results using the ATA software tool Pressmap—for use in customer structural analyses.
- Providing detailed documentation of the flow field and pressures in the final report.

"ATA Engineering was a pleasure to work with. Their capabilities, professionalism, and rapid response allowed us to locate the critical loading conditions in less than a week."

–Tim Douglas, President, Wasatch Composites



Pressure contours on dish surface



Dish centerline pressure profiles