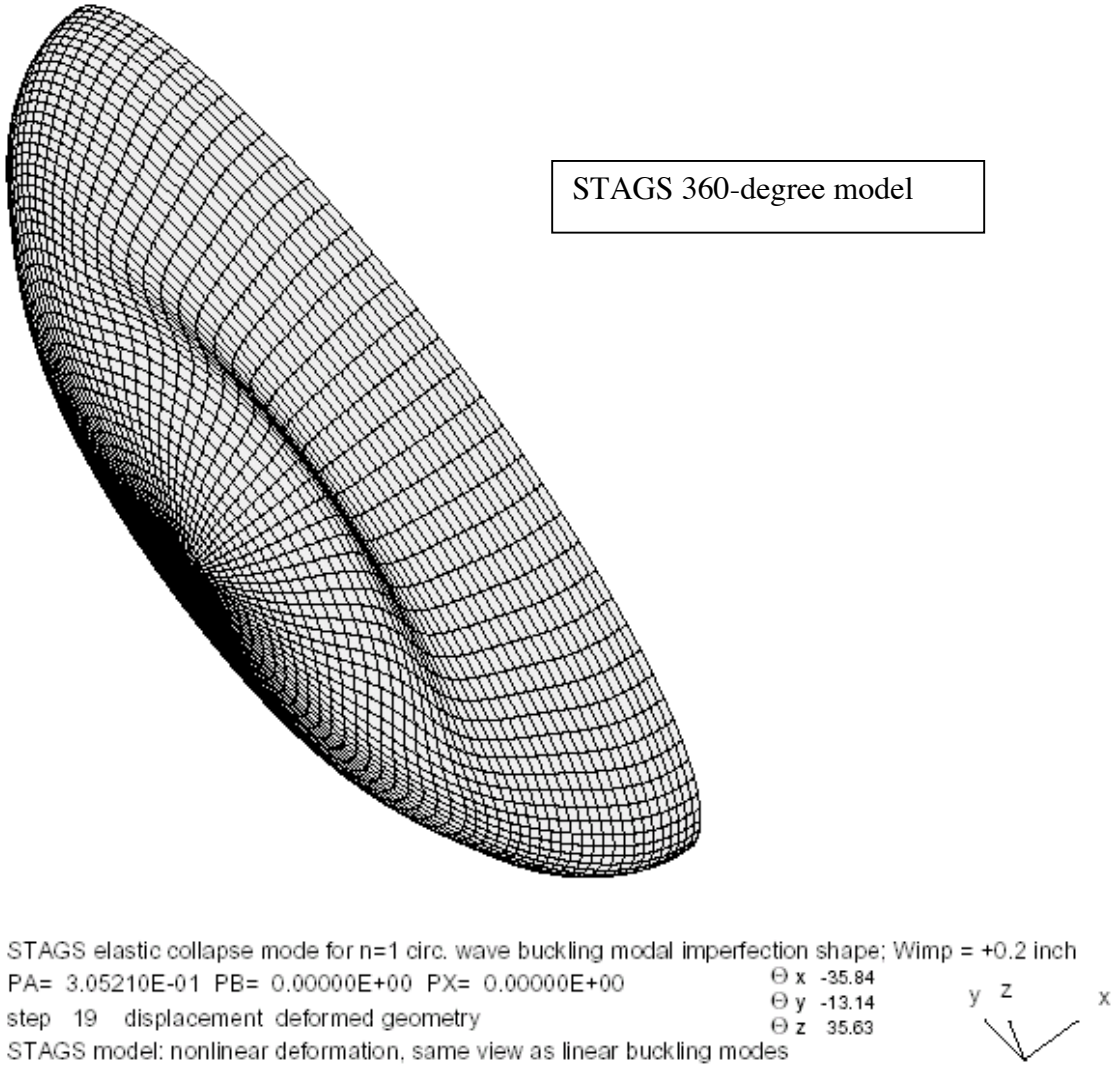

Fig. 95 Mode of collapse of the optimized **imperfect unstiffened** equivalent ellipsoidal shell with a **non-axisymmetric** linear buckling modal imperfection with amplitude, Wimp = +0.2 inch and **n = 1 circumferential wave**. The non-axisymmetric imperfection shape is displayed in Fig. 77. The maximum load-bearing capability of this non-axisymmetrically imperfect shell is about 215 psi, less than half the design pressure (Fig. 94); the shell is grossly under-designed. **Unfortunately, BIGBOSOR4 cannot compute collapse loads of shells of revolution with non-axisymmetric buckling modal imperfections. Therefore, in the GENOPT application described in this paper only optimum designs of imperfect shells with AXISYMMETRIC imperfections can be determined. Fortunately, there seems to be an easy way out of this dilemma: use of the formulation of the optimization problem described in Section 9, in which the region of the unstiffened shell in the neighborhood of the apex is forced to remain thick during optimization cycles by imposition of a relatively high lower bound on the skin thickness at and in the neighborhood of the shell apex.**