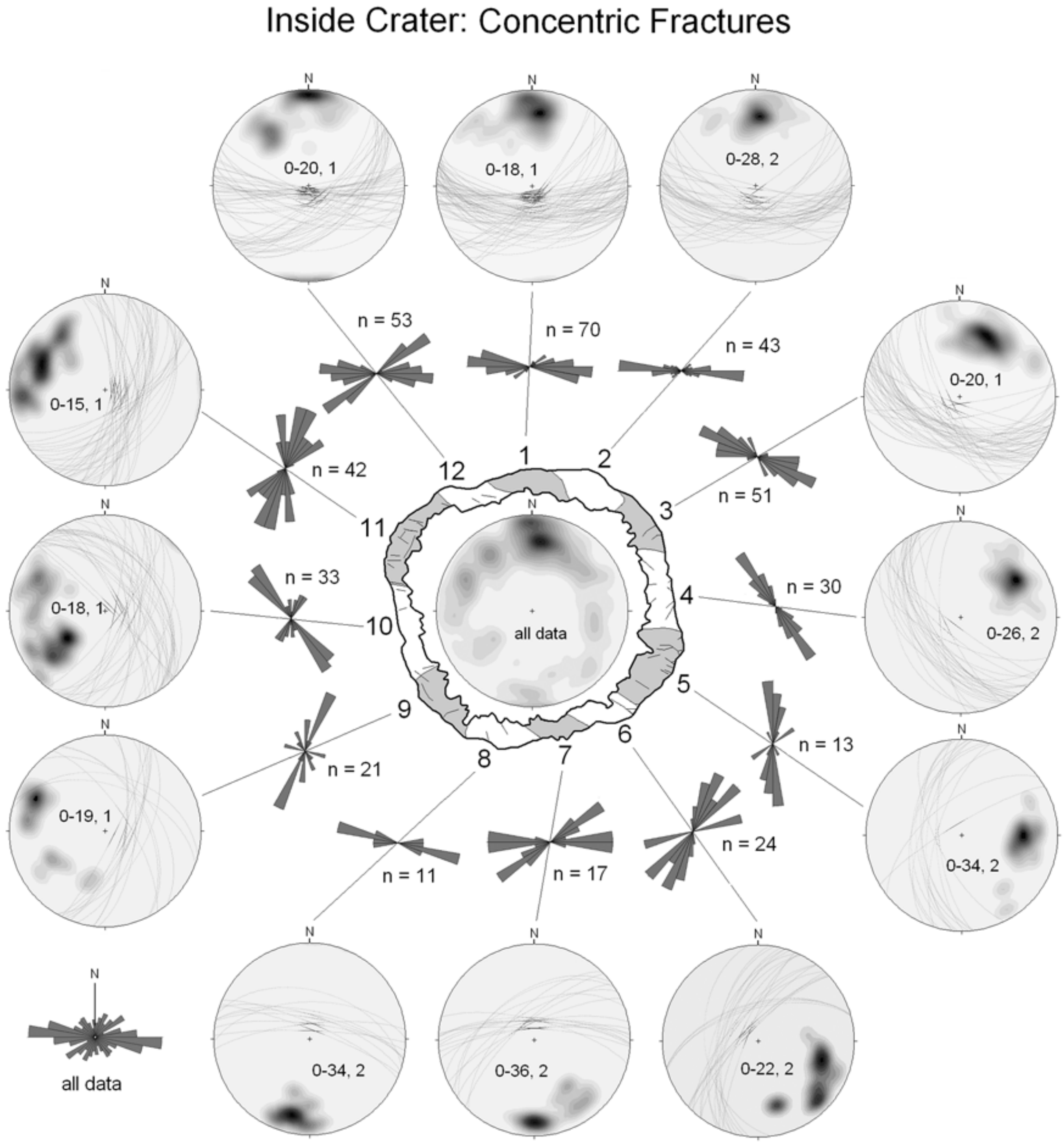

Figure 7. Impact structures (concentric fractures): great circles, pole density contours, and bidirectional rose diagrams representing the geometry of concentric fractures in the Moenkopi (Moqui and Wupatki members) and Kaibab formations (Alpha and Beta members) exposed on the 12 crater wall tectonic blocks. The pole density range (in percent) and contour interval (in percent) are shown inside the equal-area plots; n represents a number of strike/dip measurements. A bidirectional rose diagram representing all measurements indicates preferential orientations of the concentric fractures.

Faulting may have also been accommodated along bedding planes, but that type of fault slip and/or fracturing is still poorly documented [e.g., *Kring*, 2007] and is not included in our population of conical fractures. In general, the radial, concentric and conical fractures show mutual crosscutting relationships.

[13] The crater wall is cut by several fault systems, whose orientations are also parallel to the preexisting joint systems (Figures 2 and 3). The four corners of the crater have the most prominent tear faults (Figure 9), which are parallel to the preexisting NW-SE and NE-SW fractures and are generally thought to have been activated into tear faults during the excavation phase of the crater forming event [*Shoemaker*, 1960; *Roddy*, 1978]. Thrust faults have also been observed [*Shoemaker*, 1960], which occur subparallel to the bedding surfaces in the sedimentary rocks (Figure 2). The relationship between the thrust faults and fracturing reported here is unclear. Slumping is common on the inner slope and appears to have formed during the crater modi-