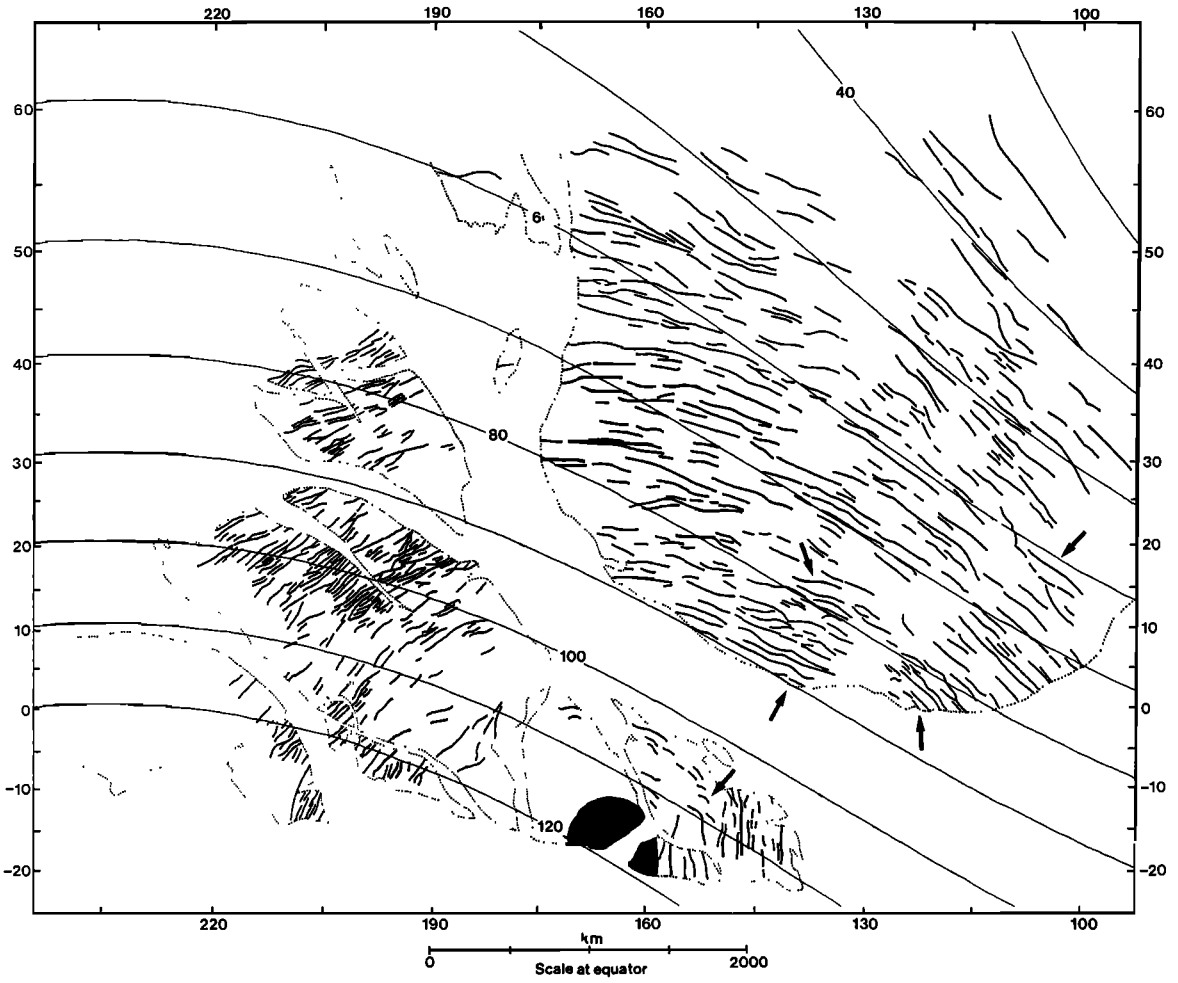


Fig. 12. Mercator map of system I arcuate furrows. Curved lines extending throughout the hemisphere are small circles placed at 10° intervals and centered on the center of curvature of the older system III arcuate furrows. Arrows show area of nonconcentric system I furrows that follow the older system III trend.

Subradial furrows in system I are uncommon in western and northwestern Marius Regio and western Galileo Regio, but are abundant in eastern Marius Regio and southern Galileo Regio (Figure 13). Those in Marius Regio are truly radially arrayed, but those in Galileo Regio have a consistent northeast orientation that differs in places by up to 30° from a truly radial orientation. No similar widespread, systematic trend is seen among subradial furrows in system III. As in the case of the linear, nonconcentric arcuate furrows, inheritance of older structures might have affected the subradial furrows. Figure 14 illustrates that, throughout Galileo Regio, the subradial system I furrows are in fact arrayed radially about the center of system III. The relationship of both arcuate and subradial system I furrow orientations to system III structural trends is evidence that reactivation of older structures was important in furrow formation.

Stratigraphic relations of system I furrows vary on both local and regional scales. In Marius Regio, subradial furrows are superposed on the arcuate furrows, occur singly, and have lengths of 50-200 km. Two classes of subradial furrows occur in Galileo Regio. One class contains furrows 100-500 km in length, occurring singly or in pairs, that are usually crosscut by and predate the arcuate furrows. However, a number of these subradial furrows also crosscut and postdate arcuate furrows (arrows, Figure 15*d*). The second class of subradial furrows consists of troughs 30-150 km in length and generally 2-6 km in width, which terminate against arcuate furrows in "T-relationships" (arrow, Figure 15*e*). Where the short troughs terminate against the arcuate furrows, they are in some cases partly buried by arcuate furrow rim and flank materials, and they are sometimes also crosscut by one or more arcuate furrows. These relations suggest a complicated sequence of events, involving (1) structural confinement of the short subradial furrows by fractures within the arcuate furrows, and (2) resurfacing and fracturing along and within the arcuate furrows contemporaneously with formation of the short subradial furrows.

Galileo Regio and Marius Regio contain at least six surface units which are distinct in terms of morphology and albedo. Four of these units consist of smooth to hummocky materials, described below, that partially or completely bury system I furrows (Figure 16). However these materials are superposed by and predate the younger system II furrows, which are discussed later. The remaining two units are the dissimilar furrowed surfaces of Marius Regio (Figure 15*a*) and Galileo Regio (Figures 15*d* and 15*f*).

The dark terrain surface unit in system I with the greatest calculated crater age is northwestern Marius Regio (Figure 15*a*; normalized ≥10-km crater density, 342±35 x $10^{-6}$ $km^{-2}$). Smooth to hummocky low-albedo material is cut by arcuate