Introduction: A reasonable, albeit low resolution estimate of mare-basalt thickness and sub-basalt topography is possible by using crater diameter to rim height trends of fresh craters to obtain the depth of burial of partially buried craters. By plotting thickness estimates throughout Oceanus Procellarum it is possible to identify thick lenses of basalt that probably occupy basin-size depressions.

Oceanus Procellarum: Oceanus Procellarum consist of wide-spread mare basalt. Mare basalt mantles several intermediate-size basins. Buried basins are recognized by roughly circular thick lenses of basalt; by scattered massifs representing remnants of basin rim material; and by discontinuities in topographic trends. At least four buried basins are recognized beneath Procellarum lavas. One of the basins is the East Procellarum Basin (EPB) adjacent to Mare Imbrium.

East Procellarum Basin: The large gap in the southwestern rim of the Imbrium basin corresponds to location of a thickened lens of basalt approximately 600 km in diameter. The thickened lens probably occupies a Preimbrion impact basin. Additional evidence of thickened basalt lens is provided by presence of a positive gravity anomaly in this region.

Summary: Lavas in Oceanus Procellarum mantle a large area of pre-Imbrian cratered topography. Isopach mapping reveals several thickened lenses of basalt that probably occupy flood impact basins. The East Procellarum Basin is responsible for the large gap in the western rim of the Imbrium basin.

Imbrium Basin: The most prominent rim of the Imbrium basin is broken and discontinuous. Large discontinuities in the rim mark the location of interference of Imbrium excavation and pre-existing basins. Gaps appear in the east with the overlap of the Serenitatis basin; in the south with the impinging upon the Stadius-Aestrum basin; and in the west with the overlap of the East Procellarum basin.

Missing rim segments in craters and basins are usually produced when excavation impinges on an existing crater or basin. The missing segment in the southwest is consistent with the presence of a buried basin in this region.