

of latitude and for each five minutes of longitude. These intervals are considered to be more than adequate to define a normal field that exhibits an almost exact east-west strike. The program that was used to obtain these values is one developed by Goddard Space Center that utilized a series of spherical harmonic expansions based on the 1960 epoch.

The surveyed area lies within the zone of 0 to -10 gamma yearly change in total magnetic intensity so the results after data reduction should not differ seriously from the results of the 1967 survey and data reduction by Aero Service Corporation that utilized data from the BMR Isomagnetic Maps of Australia, Epoch 1957.5. The aeromagnetic data were reduced by a normal field that preceded it by some ten years; the marine data by one that preceded by approximately nine years.

The values of the Earth's normal field were posted on copies of the shot point base map and contoured with ten gamma intervals. Values of the contoured Earth's field were then transferred directly to their corresponding locations on the magnetogram charts. The difference between a base line connecting these values and the total intensity trace was then posted on the shot point location map at each five shot point interval.

#### Traverse Mis-Tie Corrections

If one assumes that the track locationing is correct, then all the traverse intersection mis-ties must be attributed to diurnal changes in the normal field. However, in correcting these mis-ties, one must usually consider some error in locationing as well as diurnal variations. To accomplish this mis-tie correction, the amount and direction of mis-tie is noted on the location map at each traverse intersection. They are then reduced to zero at all intersections utilizing the smoothest possible correction curve.

On this survey the gamma amount of mis-tie varied from 0 to 45 and is considered to be typical of a survey of this type. Base station recordings from the Toolangi Observatory were used in conjunction with the mis-tie correction procedure.