

ACCURACY OF THE MOLODENSKY TRANSFORMATION PARAMETERS USED IN E & P INDUSTRY FOR TRANSFORMATION BETWEEN EVEREST AND WGS84 DATUMS

Ghulam Mujtaba

LMK Resources, 300 Software Technology Park-1 ETC, Sir Agha Khan Road, F-5/1 Islamabad, Pakistan.

Telephone: 92 (51) 111101101. Fax: 92 (51) 2879854, 2879855. E-mails: gmujtaba@lmkr.com

A common problem faced by most countries is the estimation of precise transformation parameters between their national geodetic datum, and the World Geodetic System 1984 (WGS84) global datum, used by the Global Positioning System (GPS). There can be considerable difference in positions of the local ellipsoidal datum and the global datum, sometimes up to several hundred meters. So a country like Pakistan may require a lot of transformation parameters for accurate transformation of coordinates from the local datum to the global one and vice-versa.

In Pakistan, there are many transformation parameter sets that are available for Everest and GPS datum. Different parameter sets are being used for transformation of GPS acquired coordinates to local Everest datum and vice versa. Map users and makers are facing many problems due to this non-standardization of the transformation parameters.

This study is focused to evaluate the accuracy of the currently used transformation parameters in the region and to find out the zone wise transformation parameters for Pakistan. All the available transformation parameters from different sources are used to transform the positions of common known points from WGS84 datum to Everest datum. Transformed Everest coordinates are then compared with the original Everest coordinates. Finally the difference between transformed and original coordinates was calculated and evaluated. On the basis of this difference, different zones and their corresponding best fit transformation parameters has been established.

This study will ultimately provide a standardization and ease for the future mapping and will help to reference all previously acquired exploration data to its true earth location.