

The Relationship Between the Vietnam National Coordinate Reference System (VN-2000) and ITRS, WGS84 and PZ-90

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SUMMARY

In July 2000, Hanoi-72 reference system was replaced by the Vietnam reference system, namely VN-2000 as an official geodetic background system in Vietnam. Ministry of Natural Resources and Environment of Vietnam has reported the transformation parameters between VN-2000 and WGS84. Nevertheless, there is a need to estimate a new transformation parameter set between VN-2000 and WGS84 because WGS84 has been updated. In addition, there is now a lack of an accurate published set of parameters for transformation from VN-2000 to not only the International Terrestrial Reference System ITRS but also PZ-90. In this study, coordinate transformation parameters between ITRS and VN-2000 are estimated through the use of a least squares approach and the common points with known coordinates in both systems. The set of parameters was then deployed to determine the link between VN-2000 and WGS84 as well as PZ-90. The results denoted that the derived transformation parameters, on the basis of the results at the checkpoints, could generate station positions with centimeter-level accuracy for transformation from VN-2000 to the new realizations of ITRS, WGS84 and PZ90 and reversely. These achievements reveal that the set of parameters is a significance for many applications related to positioning in Vietnam.

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