

PNG2020 - a New Geodetic Datum for Papua New Guinea

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SUMMARY

Papua New Guinea (PNG) is developing a new geodetic datum PNG2020 to supersede PNG94. PNG is a very complex and active country from a tectonic perspective with numerous microplates forming the boundary zone between the Pacific and Australian plates. The rapid motion of these plates and frequent earthquakes and volcanic activity require regular updates to the datum and great care with the use of GNSS-PPP in such an active setting. The current datum PNG94, is becoming increasingly difficult to maintain with uncertainties increasing over time due to the sparse monitoring network in PNG. Differences between ITRF2014 and PNG94 are becoming very significant. These effects are motivating the requirement for a newer datum PNG2020 which will be coincident with ITRF2014 (or later ITRF) at epoch 2020.0. Implementation of PNG2020 will require reobservation of the geodetic network in PNG. The process will also involve development of a suite of models to enable high precision transformation between PNG94 and PNG2020 for different adjustments over the preceding 20 years and also a site velocity model for ITRF to PNG2020 transformations. This paper shows progress to date in the implementation of PNG2020 and some of the practical issues to be overcome.

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