

PNG2020 a New Geodetic Datum for Papua New Guinea

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SUMMARY

Papua New Guinea is currently developing a new geodetic datum PNG2020 to supersede PNG94 (ITRF92 at epoch 1994.0) which has been the gazetted national datum since 1996. In the intervening 28 years, there have been over 3000 Mw 5 or greater earthquakes, 33 greater than Mw 7 and one greater than Mw 8. The displacements arising from these earthquakes has been very significant in the impacted areas. The complexity and uncertainty of the interseismic velocity field and magnitude of coseismic displacements and ongoing postseismic deformation is increasingly impacting on the accuracy and utility of PNG94, 28 years on from the original reference epoch when the coordinates were fixed for PNG94. Furthermore, 1994 epoch coordinates are also up to 2.5 metres different from current ITRF2014 coordinates resulting in some confusion with users of precise GNSS positioning techniques in the context of PNG94 datum requirements. For these reasons, the PNG Government through the Office of the Surveyor-General (OSG) is planning on releasing a new geodetic datum PNG2020 by the end of 2022 to overcome the increasing limitations of PNG94 as time goes on. The new datum will be aligned with the latest realisation of ITRF at epoch 2020.0 (1st January 2020). This presentation describes the technical implementation of the new datum.