During the 16th century, Portuguese and Spanish navigators visited the island. Annexed by Queensland in 1883, the region became a British Protectorate in 1884 and was annexed by Great Britain in 1888 as British New Guinea. Administration was passed to Australia in 1905, and the name was changed to the Territory of Papua. In 1949, it was united with the Territory of New Guinea to form Papua New Guinea.

The Independent State of Papua New Guinea became independent in 1975. The country is comprised of the Eastern part of New Guinea, the island of Bougainville, and the Bismarck Archipelago: a total area of 462,840 km² which is slightly larger than the State of California. The land area totals 820 km² and is mostly mountains with coastal lowlands and rolling foothills. The lowest point is the Pacific Ocean, and the highest point is Mount Wilhelm (4,509 m). According to the CIA Factbook, the “natural hazards include active volcanism; situated along the Pacific ‘Ring of Fire’; the country is subject to frequent and sometimes severe earthquakes; mud slides; tsunamis. On 18 July 1998, a tsunami took the lives of 2,200 north shore residents of Papua New Guinea.

The first Australian Engineer Officer for mapping was posted to Rabaul on New Britain in 1914. Topographic mapping of the area began during World War II, and consisted mainly of one inch to the mile compilations with classical triangulation control. The Australian military mapping installations consisted of drafting and computation sections quartered in tents. Map printing services in Queensland were transferred to the U.S. Army 69th Engineer Topographic Battalion’s lithographic detachment in Port Moresby. Supplemented by reconnaissance aerial photo mosaics, additional mapping control continued through the 1950s with assistance from the Royal Australian Survey Corps and the U.S. Army (Australia’s Military Map-Makers, 2000).

The oldest “Astro station” serving as a local datum is Paga Hill 1939 near Port Moresby where: $\Phi_0 = 9^\circ 29’ 00.31”$ S, $\Lambda_0 = 147^\circ 08’ 21.66”$ E of Greenwich, and the ellipsoid of reference is the Bessel 1841 where: $a = 6,378,397.155$ m., and $1/f = 299.1528$. The grid system commonly associated with the Paga Hill Datum of 1939 is the 1943 Southern New Guinea Lambert Zone where the Latitude of Origin, $\phi_0 = 8^\circ$ S, Central Meridian, $\lambda_o = 150^\circ$ E, Scale Factor at Origin, $m_o = 0.9997$, False Northing = 1,000 km, False Easting = 3,000 km. The original limits of the Zone were for the North: Parallel of 7° S, east to 153° 30’ E, thence north along this meridian to 5° S, thence east along this parallel to 165° E, East: Meridian of 165° E. South: Parallel of 12° S, west to 145° E, thence west along this parallel to 141° E, thence south along this meridian to 11° S, thence west along this parallel to 137° E, West: Meridian of 137° E. Recent source data for Paga Hill Datum of 1939 now state the ellipsoid of reference as: International 1924 where: $a = 6,378,388$ m and $1/f = 297$. When this supposed change occurred is unknown.

Thanks to John W. Hager for the following: other astro positions in Papua New Guinea include: Brown Island, East New Britain Province $\Phi_0 = 5^\circ 01’ 40”$ S, $\Lambda_0 = 151^\circ 58’ 54”$ E; Cay, Panaeati & Deboyne Island, Milne Bay Province $\Phi_0 = 14^\circ 41’ S, \Lambda_0 = 152^\circ 22’ E$; Dedele Point, Central Province $\Phi_0 = 10^\circ 14’ S, \Lambda_0 = 148^\circ 45’ E$; Dobodura Astro Fix, Northwestern Province, $\Phi_0 = 8^\circ 45’ 50.13”$ S, $\Lambda_0 = 148^\circ 22’ 38.8”$ E; Dumpu. Madang Province, $\Phi_0 = 5^\circ 50’ 34.4”$ S, $\Lambda_0 = 145^\circ 44’ 29.55”$ E; Guadagaal Astro Fix, Gulf Province, $\Phi_0 = 7^\circ 33.6” S, \Lambda_0 = 146^\circ 58’ 42.0” E; Guasopo B. Woodlark Island, Milne Bay Province, $\Phi_0 = 9^\circ 13’ 39” S, \Lambda_0 = 152^\circ 57’ 03” E$; Hetau Island Naval Astro, Buka Island, North Solomons Province, $\Phi_0 = 5^\circ 09’ 57” S, \Lambda_0 = 154^\circ 31’ 12” E$;
For the most part, cartographic products of Papua New Guinea have been on the Australian Geodetic Datum of 1966 with its origin at Johnston Cairn where: \( \Phi_0 = 25° 56' 54.5515'' S, \Lambda_0 = 133° 12' 30.0771'' E, h_0 = 571.2 m. \), and the ellipsoid of reference is the Australian National Spheroid: \( a = 6,378,160 m, \) and \( 1/f = 298.25. \) A new system is the Papua New Guinea Geodetic Datum 1994 (PNG94), which is a geocentric datum defined by a widespread network of geodetic stations around PNG. There are three permanent GPS base stations operating in PNG. The Papua New Guinea Map Grid 1994 (PNGMG) is the UTM grid on the GRS80 ellipsoid. For Papua New Guinea project datums, GIS data). 50 Years (and +) of Geodesy in PNG2020 transformations (e.g. legacy data such as DCDB, project datums, GIS data).. 50 Years (and +) of Geodesy in PNG, Richard Stanaway, 2016. The Association of Surveyors of Papua New Guinea, Inc. has numerous technical papers and notes available for download in pdf format at: http://www.aspng.org/techinfo.htm

**A Semi-Dynamic Geodetic Datum For Papua New Guinea**

https://www.semanticscholar.org/paper/A-SEMI-DYNAMIC-GEODETIC-DATUM-FOR-PAPUA-NEW-GUINEA-Stanaway/y/49f1c8a765a39ddff72da0c89da4108a0b6df9f79

The contents of this column reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the American Society for Photogrammetry and Remote Sensing and/or the Louisiana State University Center for GeoInformatics (C4G).

This column was previously published in the March 2005 issue of PE&RS.