

Importance of Keeping Charts Up-to-Date

6. The positions of the permanent oil and gas installations, submarine pipelines, together with the safety zones and prohibited anchoring and fishing areas, are shown on appropriate New Zealand charts. The positions of exploration rigs that change their location from time to time are promulgated in New Zealand coastal navigational warnings and *Fortnightly NZ Notices to Mariners (NM)*. Mariners should ensure that their charts and navigational warning information is up-to-date at all times.

Authorities : Maritime New Zealand; Land Information New Zealand

Certain warships cannot comply fully with the requirements of the *Collision Regulations Order 1976*, as to the number and positioning of lights, but these warships comply as closely as possible in accordance with Rule 1(c) and (e). Some vessels of 50 metres in length or over cannot be fitted with a second masthead light, or may have such lights placed in positions that differs from those normally associated with a ship of that size, owing to their special construction.

Authority: Royal New Zealand Navy

Status

1. The GPS constellation of 24 satellites is complete and available for civil use.
2. Mariners are advised to use GPS with the same caution they apply to other aids to navigation and to ensure that positions are checked by all available means.

Derived Positions and Charts

3. GPS is referenced to the World Geodetic System 1984 (WGS 84) datum. This datum relates positions on the Earth's surface, or in space, to a mathematically defined figure, in this case the WGS 84 spheroid (often referred to as an ellipsoid), which is used to approximate, or to model, the complex shape of the Earth. Its origin is the Earth's centre of mass and it provides positional reference throughout the world. WGS 84 is thereby a global, geocentric datum.
4. Local or regional datums such as the New Zealand Geodetic Datum 1949, use different, non-geocentric spheroids which provide close approximation to the shape of the Earth over a selected area but become progressively poorer beyond that region.

It is essential, wherever possible, that the datum to which positions are referred is compatible with the datum used for the chart on which the position is to be plotted.

5. Charts referred to the WGS 84 datum enable GPS-derived positions, referred to the WGS 84 datum, to be plotted directly.
6. Charts not referred to WGS 84 datum, having a '**SATELLITE-DERIVED POSITIONS**' note, provide latitude and longitude shift values which enable GPS-derived positions to be adjusted before plotting on the chart.
7. The remaining charts, some of which carry a note stating that a satellite-derived position shift cannot be determined, are those for which insufficient details of horizontal datum are known. It is important to note that in the worst cases, such as isolated oceanic islands or charts of great antiquity, positions may be several miles discrepant from those derived from GPS. Internal positional discrepancies in such charts are the result of horizontal control inconsistencies within, and between, sources of data used in their compilation and **MAY BE SIGNIFICANT TO NAVIGATION**. Mariners are therefore advised to make greater use of classical methods of observational position fixing when close to the shore or navigating in the vicinity of dangers. The relative positions of features may be more reliable for navigation than the use of unadjusted satellite-derived positions on a chart whose horizontal datum cannot be defined.

Chart Scale

8. Positions plotted on, or extracted from, a chart will contain an element of imprecision related to the scale of the chart. Thus, for example, at a scale of 1:600,000, a chart user who is capable of plotting to a precision of 0.2 millimetres must appreciate that this represents approximately 120 metres on the ground. A position shift, say from one datum to another, of this magnitude is therefore meaningless at such a scale. Similarly, at 1:25,000, the plotting error may be about 5 metres.
9. Thus, if WGS 84 positions could be defined only to an accuracy of 10 metres, this would not be plottable at the smaller scale in the example, (the chart could effectively be said to be on WGS 84 Datum) but would be plottable (and therefore significant) at the larger scale. This explains why it is not uncommon for small and medium scale approach charts to be referenced to the WGS 84 datum, while the larger scale port plans have no quoted horizontal datum.

Authority: Land Information New Zealand