

# ISO Geodetic Registry

|                           |   |   |
|---------------------------|---|---|
| <i>Item class</i>         | Transformation                          |   |
| <i>Name</i>               | <b>ITRF2000 to NAD 83 (MARP00) [v1]</b> |   |
| <i>Item status</i>        | VALID                                   |   |
| <i>Identifier</i>         | 738                                     |   |
| <i>Information source</i> | <i>Title</i>                            | Introducing Two Spatial Reference Frames for Regions of the Pacific Ocean   |
|                           | <i>Author</i>                           | R.A. Snay   |
|                           | <i>Publisher</i>                        | American Congress on Surveying and Mapping  |
|                           | <i>Publication date</i>                 | 2003-01-01  |
|                           | <i>Edition</i>                          |   |
|                           | <i>Edition date</i>                     |   |
|                           | <i>Series/Journal name</i>              | Surveying and Land Information Systems  |
|                           | <i>Issue identification</i>             | Volume 63, No. 1  |
|                           | <i>Page</i>                             | 5-12  |
|                           | <i>Other citation details</i>           | MARP00, PACP00. <a href="https://www.ngs.noaa.gov/PUBS_LIB/salis.pdf">https://www.ngs.noaa.gov/PUBS_LIB/salis.pdf</a> (accessed 2020-11-05)   |
| <i>Information source</i> | <i>Title</i>                            | NGS No Longer Updates Published CORS Coordinates in the Following Reference Frames  |
|                           | <i>Author</i>                           | National Geodetic Survey  |
|                           | <i>Publisher</i>                        | National Oceanic and Atmospheric Administration (NOAA) National Geodetic Survey (NGS)   |
|                           | <i>Revision date</i>                    | 2017-03-16  |
|                           | <i>Edition</i>                          |   |
|                           | <i>Edition date</i>                     |   |
|                           | <i>Series/Journal name</i>              | NGS Online listing of transformation parameters   |
|                           | <i>Issue identification</i>             |   |
|                           | <i>Page</i>                             |   |
|                           | <i>Other citation details</i>           | Webpage <a href="https://www.ngs.noaa.gov/CORS/coord_info/coordtrans_no_support_tables.shtml">https://www.ngs.noaa.gov/CORS/coord_info/coordtrans_no_support_tables.shtml</a> (accessed 2020-11-05) |
| <i>Information source</i> | <i>Title</i>                            | Introducing HTDP 3.1 to transform coordinates across time and spatial reference frames  |
|                           | <i>Author</i>                           | C. Pearson, R.A. Snay   |
|                           | <i>Publisher</i>                        | Springer-Verlag   |
|                           | <i>Publication date</i>                 | 2013-01-01  |
|                           | <i>Edition</i>                          |   |
|                           | <i>Edition date</i>                     | 2013-01-01  |
|                           | <i>Series/Journal name</i>              | GPS Solutions   |
|                           | <i>Issue identification</i>             | Volume 17, No. 1  |
|                           | <i>Page</i>                             | 1-15  |
|                           | <i>Other citation details</i>           | NAD83 (2011), NAD83 (MA11), NAD83 (PA11) transformation from IGB08. <a href="http://dx.doi.org/10.1007/s10291-012-0255-y">http://dx.doi.org/10.1007/s10291-012-0255-y</a> (accessed 2020-11-05)     |
| <i>Information source</i> | <i>Title</i>                            | Transforming positions and velocities between the International Terrestrial Reference Frame of 2000 and the North American Datum of 1983  |
|                           | <i>Author</i>                           | T. Soler, R.A. Snay   |
|                           | <i>Publisher</i>                        | American Society of Civil Engineers   |
|                           | <i>Publication date</i>                 | 2004-05   |
|                           | <i>Edition</i>                          |   |
|                           | <i>Edition date</i>                     |   |
|                           | <i>Series/Journal name</i>              | Journal of Surveying Engineering  |
|                           | <i>Issue identification</i>             | Volume 130, No. 2   |
|                           | <i>Page</i>                             | 49-55   |
|                           |   |   |

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|---------------------------|---|
|                           | <i>Other citation details</i> <a href="http://dx.doi.org/10.1061/(ASCE)0733-9453(2004)130:2(49)">http://dx.doi.org/10.1061/(ASCE)0733-9453(2004)130:2(49)</a> (accessed 2020-11-05) |
| <i>Data source</i>        | ISO Geodetic Registry   |
| <i>Remarks</i>            | Transformation defines NAD83(MA11) and is treated as errorless. Replaces and corrects rotations in invalidated item 547.  |
| <i>Operation version</i>  | v1  |
| <i>Scope</i>              | Spatial referencing   |
| <i>Operation accuracy</i> | 0.0 m   |
| <i>Source CRS</i>         | ITRF2000 - XYZ  |
| <i>Target CRS</i>         | NAD 83 (MARP00) - XYZ   |
| <i>Operation method</i>   | Time-Dependent Coordinate Frame Transformation (geocentric Cartesian domain)  |

## Extent

|                                |  |        |
|--------------------------------|--|--------|
| <i>Description</i>             | <b>Guam - onshore and offshore. Northern Mariana Islands - onshore and offshore. Palau - onshore and offshore.</b> |        |
| <i>Geographic Bounding Box</i> | <i>West-bound longitude</i>  | 129.48 |
|                                | <i>North-bound latitude</i>  | 23.9   |
|                                | <i>East-bound longitude</i>  | 149.55 |
|                                | <i>South-bound latitude</i>  | 1.64   |

## Operation parameter values

|   |                                 |
|---|---------------------------------|
| <i>X-axis translation</i>                   | 0.9102 metre                    |
| <i>Y-axis translation</i>                   | -2.0141 metre                   |
| <i>Z-axis translation</i>                   | -0.5602 metre                   |
| <i>X-axis rotation</i>                      | 28.971 milliarc-second          |
| <i>Y-axis rotation</i>                      | 10.42 milliarc-second           |
| <i>Z-axis rotation</i>                      | 8.928 milliarc-second           |
| <i>Scale difference</i>                     | 0.0 parts per billion           |
| <i>Rate of change of X-axis translation</i> | 0.0 metre per year              |
| <i>Rate of change of Y-axis translation</i> | 0.0 metre per year              |
| <i>Rate of change of Z-axis translation</i> | 0.0 metre per year              |
| <i>Rate of change of X-axis rotation</i>    | -0.02 milliarc-second per year  |
| <i>Rate of change of Y-axis rotation</i>    | 0.105 milliarc-second per year  |
| <i>Rate of change of Z-axis rotation</i>    | -0.347 milliarc-second per year |
| <i>Rate of change of scale difference</i>   | 0.0 parts per billion per year  |
| <i>Time reference</i>                       | 1997.0 year                     |

# ISO Geodetic Registry

|                    |  |
|--------------------|--|
| <i>Item class</i>  | OperationMethod  |
| <i>Name</i>        | <b>Time-Dependent Coordinate Frame Transformation (geocentric Cartesian domain)</b>  |
| <i>Item status</i> | VALID  |
| <i>Identifier</i>  | 94   |
| <i>Alias</i>       | Time-Dependent 7-Parameter Transformation  |
| <i>Alias</i>       | 14-Parameter Transformation  |
| <i>Alias</i>       | Time-Dependent Coordinate Frame Transformation   |
| <i>Data source</i> | ISO Geodetic Registry  |
| <i>Remarks</i>     | Note the analogy with the Time-dependent Position Vector Transformation but beware of the differences! The Position Vector Transformation convention is used by IAG. |
| <i>Formula</i>     | Geomatics Guidance Note No 7, part 2: Coordinate Conversions and Transformations including Formulas  |

## Operation parameters

|   |
|---|
| <i>X-axis translation</i>                   |
| <i>Y-axis translation</i>                   |
| <i>Z-axis translation</i>                   |
| <i>X-axis rotation</i>                      |
| <i>Y-axis rotation</i>                      |
| <i>Z-axis rotation</i>                      |
| <i>Scale difference</i>                     |
| <i>Rate of change of X-axis translation</i> |
| <i>Rate of change of Y-axis translation</i> |
| <i>Rate of change of Z-axis translation</i> |
| <i>Rate of change of X-axis rotation</i>    |
| <i>Rate of change of Y-axis rotation</i>    |
| <i>Rate of change of Z-axis rotation</i>    |
| <i>Rate of change of scale difference</i>   |
| <i>Time reference</i>                       |