

ISO Geodetic Registry

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|---------------------------|--|---|
| <i>Item class</i> | Transformation | |
| <i>Name</i> | ITRF2020 to NAD 83 (MA11) Epoch 2010 [NGS v1] | |
| <i>Item status</i> | VALID | |
| <i>Identifier</i> | 988 | |
| <i>Information source</i> | <i>Title</i> | HTDP User Guide (Version 3.5.0) |
| | <i>Author</i> | M. Dennis, J. Saleh, R. Snay, C. Pearson |
| | <i>Publisher</i> | National Geodetic Survey (NGS), National Oceanic and Atmospheric Administration (NOAA) |
| | <i>Publication date</i> | 2022-12-01 |
| | <i>Other citation details</i> | https://geodesy.noaa.gov/TOOLS/Htdp/HTDP-user-guide.pdf (accessed 2023-01-28) |
| <i>Data source</i> | ISO Geodetic Registry | |
| <i>Remarks</i> | Transformation defines NAD 83 (MA11) with respect to ITRF2020 and is treated as errorless. | |
| <i>Operation version</i> | NGS v1 | |
| <i>Scope</i> | Spatial referencing | |
| <i>Operation accuracy</i> | 0.0 m | |
| <i>Source CRS</i> | ITRF2020 - XYZ | |
| <i>Target CRS</i> | NAD 83 (MA11) Epoch 2010 - XYZ | |
| <i>Operation method</i> | Time-Dependent Coordinate Frame Transformation (geocentric Cartesian domain) | |

Extent

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|--------------------------------|--|--------|
| <i>Description</i> | Guam - onshore and offshore. Northern Mariana Islands - onshore and offshore. Palau - onshore and offshore. | |
| <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

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|---|---------------------------------|
| <i>Time reference</i> | 2010.0 year |
| <i>Rate of change of scale difference</i> | 0.11 parts per billion per year |
| <i>Rate of change of Z-axis rotation</i> | -0.347 milliarc-second per year |
| <i>Rate of change of Y-axis rotation</i> | 0.105 milliarc-second per year |
| <i>Rate of change of X-axis rotation</i> | -0.02 milliarc-second per year |
| <i>Rate of change of Z-axis translation</i> | -0.0017 metre per year |
| <i>Rate of change of Y-axis translation</i> | 0.0 metre per year |
| <i>Rate of change of X-axis translation</i> | 1.0E-4 metre per year |
| <i>Scale difference</i> | 1.7 parts per billion |
| <i>Z-axis rotation</i> | 4.417 milliarc-second |
| <i>Y-axis rotation</i> | 11.785 milliarc-second |
| <i>X-axis rotation</i> | 28.711 milliarc-second |
| <i>Z-axis translation</i> | -0.5859 metre |
| <i>Y-axis translation</i> | -2.0133 metre |

X-axis translation

0.9095 metre

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|--------------------|--|
| <i>Item class</i> | OperationMethod |
| <i>Name</i> | Time-Dependent Coordinate Frame Transformation (geocentric Cartesian domain) |
| <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

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|---|
| <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> |