

ISO Geodetic Registry

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|---------------------------|--|---|
| <i>Item class</i> | Transformation | |
| <i>Name</i> | ITRF2020 to NAD 83 (2011) Epoch 2010 [NGS v1] | |
| <i>Item status</i> | VALID | |
| <i>Identifier</i> | 985 | |
| <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 |
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| | <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 (2011) 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 (2011) Epoch 2010 - XYZ | |
| <i>Operation method</i> | Time-Dependent Coordinate Frame Transformation (geocentric Cartesian domain) | |

Extent

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|--------------------------------|--|--------|
| <i>Description</i> | United States and Territories - onshore and offshore: Puerto Rico. United States (USA) - Alaska, CONUS (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming). Virgin Islands (US). | |
| <i>Geographic Bounding Box</i> | <i>West-bound longitude</i> | 167.65 |
| | <i>North-bound latitude</i> | 74.71 |
| | <i>East-bound longitude</i> | -63.88 |

Operation parameter values

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|---|-------------------------------------|
| <i>X-axis translation</i> | 1.0039 metre |
| <i>Y-axis translation</i> | -1.90961 metre |
| <i>Z-axis translation</i> | -0.54117 metre |
| <i>X-axis rotation</i> | 26.78138 milliarc-second |
| <i>Y-axis rotation</i> | -0.42027 milliarc-second |
| <i>Z-axis rotation</i> | 10.93206 milliarc-second |
| <i>Scale difference</i> | -0.05109 parts per billion |
| <i>Rate of change of X-axis translation</i> | 7.9E-4 metre per year |
| <i>Rate of change of Y-axis translation</i> | -7.0E-4 metre per year |
| <i>Rate of change of Z-axis translation</i> | -0.00124 metre per year |
| <i>Rate of change of X-axis rotation</i> | 0.06667 milliarc-second per year |
| <i>Rate of change of Y-axis rotation</i> | -0.75744 milliarc-second per year |
| <i>Rate of change of Z-axis rotation</i> | -0.05133 milliarc-second per year |
| <i>Rate of change of scale difference</i> | -0.07201 parts per billion per year |
| <i>Time reference</i> | 2010.0 year |

ISO Geodetic Registry

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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> |