

ISO Geodetic Registry

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|---------------------------|--|---|
| <i>Item class</i> | Transformation | |
| <i>Name</i> | ATRF2014 to GDA2020 [GA v1] | |
| <i>Item status</i> | VALID | |
| <i>Identifier</i> | 790 | |
| <i>Information source</i> | <i>Title</i> | Australian Terrestrial Reference Frame |
| | <i>Author</i> | Geoscience Australia |
| | <i>Publisher</i> | Geoscience Australia |
| | <i>Revision date</i> | 2020 |
| | <i>Other citation details</i> | Website. https://www.icsm.gov.au/australian-terrestrial-reference-frame (accessed 2021-09-27) |
| <i>Information source</i> | <i>Title</i> | Australian Terrestrial Reference Frame (ATRF): Technical Implementation Plan |
| | <i>Author</i> | Intergovernmental Committee on Surveying and Mapping (ICSM) |
| | <i>Publisher</i> | Geoscience Australia |
| | <i>Revision date</i> | 2020-02-12 |
| | <i>Edition</i> | Version 2.3 |
| | <i>Edition date</i> | 2020-02-12 |
| | <i>Other citation details</i> | https://www.icsm.gov.au/sites/default/files/2020-02/ATRF%20Technical%20Implementation%20Plan%20v2.3_1.pdf (accessed 2021-09-27) |
| <i>Data source</i> | ISO Geodetic Registry | |
| <i>Remarks</i> | Australian Plate Motion Model | |
| <i>Operation version</i> | GA v1 | |
| <i>Scope</i> | Spatial referencing | |
| <i>Operation accuracy</i> | 0.03 m | |
| <i>Source CRS</i> | ATRF2014 - XYZ | |
| <i>Target CRS</i> | GDA2020 - XYZ | |
| <i>Operation method</i> | Time-Dependent Coordinate Frame Transformation (geocentric Cartesian domain) | |

Extent

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|--------------------------------|--|--------|
| <i>Description</i> | Australia including Lord Howe Island, Macquarie Island, Ashmore and Cartier Islands, Christmas Island, Cocos (Keeling) Islands, Norfolk Island. All onshore and offshore. | |
| <i>Geographic Bounding Box</i> | <i>West-bound longitude</i> | 93.41 |
| | <i>North-bound latitude</i> | -8.47 |
| | <i>East-bound longitude</i> | 173.34 |
| | <i>South-bound latitude</i> | -60.56 |

Operation parameter values

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|---------------------------|---------------------|
| <i>X-axis translation</i> | 0.0 millimetre |
| <i>Y-axis translation</i> | 0.0 millimetre |
| <i>Z-axis translation</i> | 0.0 millimetre |
| <i>X-axis rotation</i> | 0.0 milliarc-second |
| <i>Y-axis rotation</i> | 0.0 milliarc-second |
| <i>Z-axis rotation</i> | 0.0 milliarc-second |

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|---|----------------------------------|
| <i>Scale difference</i> | 0.0 parts per billion |
| <i>Rate of change of X-axis translation</i> | 0.0 millimetre per year |
| <i>Rate of change of Y-axis translation</i> | 0.0 millimetre per year |
| <i>Rate of change of Z-axis translation</i> | 0.0 millimetre per year |
| <i>Rate of change of X-axis rotation</i> | 1.50379 milliarc-second per year |
| <i>Rate of change of Y-axis rotation</i> | 1.18346 milliarc-second per year |
| <i>Rate of change of Z-axis rotation</i> | 1.20716 milliarc-second per year |
| <i>Rate of change of scale difference</i> | 0.0 parts per billion per year |
| <i>Time reference</i> | 2020.0 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> |