

# ISO Geodetic Registry

|                           |   |   |
|---------------------------|---|---|
| <i>Item class</i>         | Transformation  |   |
| <i>Name</i>               | <b>ITRF94 to SIRGAS95 [SIRv1]</b>   |   |
| <i>Item status</i>        | VALID   |   |
| <i>Identifier</i>         | 525   |   |
| <i>Information source</i> | <i>Title</i>  | Use of velocities in the processing of GNSS data  |
|                           | <i>Author</i>   | Sistema de Referencia Geocéntrico para las Américas (SIRGAS)  |
|                           | <i>Publisher</i>  | Sistema de Referencia Geocéntrico para las Américas (SIRGAS)  |
|                           | <i>Publication date</i>   | 2017  |
|                           | <i>Other citation details</i>   | Website   |
| <i>Information source</i> | <i>Title</i>  | Deformation of the South American crust estimated from finite element and collocation methods   |
|                           | <i>Author</i>   | H. Drewes, O. Heidbach  |
|                           | <i>Publisher</i>  | Springer Berlin Heidelberg  |
|                           | <i>Publication date</i>   | 2005  |
|                           | <i>Series/Journal name</i>  | International Association of Geodesy Symposia   |
|                           | <i>Issue identification</i>   | 128.0   |
|                           | <i>Page</i>   | 544-549   |
|                           | <i>Other citation details</i>   | In Sanso F. (eds) A Window on the Future of Geodesy. International Association of Geodesy Symposia, Vol 128. Springer, Berlin, Heidelberg |
| <i>Information source</i> | <i>Title</i>  | South American Geocentric Reference System: Final Report, Working Groups I and II   |
|                           | <i>Author</i>   | SIRGAS Working Groups I and II  |
|                           | <i>Publisher</i>  | Instituto Brasileiro de Geografia e Estatística (IBGE), Rio de Janeiro, Brasil  |
|                           | <i>Publication date</i>   | 1997  |
|                           | <i>Other citation details</i>   | Report in both English and Spanish.   |
| <i>Information source</i> | <i>Title</i>  | Sistema de Referencia Geocentrico para las Americas (SIRGAS)  |
|                           | <i>Author</i>   | Sistema de Referencia Geocéntrico para las Américas (SIRGAS)  |
|                           | <i>Publisher</i>  | Sistema de Referencia Geocéntrico para las Américas (SIRGAS)  |
|                           | <i>Publication date</i>   | 2018  |
|                           | <i>Other citation details</i>   | Website   |
| <i>Data source</i>        | ISO Geodetic Registry   |   |
| <i>Remarks</i>            | Null reference frame transformation between ITRF94 and SIRGAS95.            |   |
| <i>Operation version</i>  | SIRv1   |   |
| <i>Scope</i>              | Spatial referencing   |   |
| <i>Operation accuracy</i> | 0.01 m  |   |
| <i>Source CRS</i>         | ITRF94 - LatLon   |   |
| <i>Target CRS</i>         | SIRGAS95 - LatLon   |   |
| <i>Operation method</i>   | Time-Dependent Position Vector Transformation (geocentric Cartesian domain) |   |

## Extent

|                                |   |         |
|--------------------------------|---|---------|
| <i>Description</i>             | <b>South America - onshore and offshore</b> |         |
| <i>Geographic Bounding Box</i> | <i>West-bound longitude</i>                 | -113.21 |
|                                | <i>North-bound latitude</i>                 | 16.75   |
|                                | <i>East-bound longitude</i>                 | -26.0   |

## Operation parameter values

|   |                                |
|---|--------------------------------|
| <i>Time reference</i>                       | 1995.4 year                    |
| <i>Rate of change of scale difference</i>   | 0.0 parts per billion per year |
| <i>Rate of change of Z-axis rotation</i>    | 0.0 milliarc-second per year   |
| <i>Rate of change of Y-axis rotation</i>    | 0.0 milliarc-second per year   |
| <i>Rate of change of X-axis rotation</i>    | 0.0 milliarc-second per year   |
| <i>Rate of change of Z-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 X-axis translation</i> | 0.0 millimetre per year        |
| <i>Scale difference</i>                     | 0.0 parts per billion          |
| <i>Z-axis rotation</i>                      | 0.0 milliarc-second            |
| <i>Y-axis rotation</i>                      | 0.0 milliarc-second            |
| <i>X-axis rotation</i>                      | 0.0 milliarc-second            |
| <i>Z-axis translation</i>                   | 0.0 millimetre                 |
| <i>Y-axis translation</i>                   | 0.0 millimetre                 |
| <i>X-axis translation</i>                   | 0.0 millimetre                 |

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|                    |  |
|--------------------|--|
| <i>Item class</i>  | OperationMethod  |
| <i>Name</i>        | <b>Time-Dependent Position Vector Transformation (geocentric Cartesian domain)</b>   |
| <i>Item status</i> | VALID  |
| <i>Identifier</i>  | 82   |
| <i>Alias</i>       | Time-Dependent 7-Parameter Transformation  |
| <i>Alias</i>       | 14-Parameter Transformation  |
| <i>Alias</i>       | Time-Dependent Position Vector Transformation  |
| <i>Data source</i> | ISO Geodetic Registry  |
| <i>Remarks</i>     | Note the analogy with the rotation for the Time-dependent Coordinate Frame 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>                       |