

# ISO Geodetic Registry

|                    |  |  |  |
|--------------------|--|--|--|
| Item class         | GeodeticCRS  |  |  |
| Name               | ITRF2008 - LatLonEHt   |  |  |
| Item status        | VALID  |  |  |
| Identifier         | 277  |  |  |
| Alias              | IERS Terrestrial Reference Frame 2008  |  |  |
| Alias              | International Terrestrial Reference Frame 2008   |  |  |
| Information source | Title  | Analysis and results of ITRF2008   |  |
|                    | Author   | Z. Altamimi, X. Collilieux, L. Metivier  |  |
|                    | Publisher  | International Earth Rotation and Reference Systems Service Central Bureau, Verlag des Bundesamts fur Kartographie und Geodasie, Frankfurt am Main, Germany |  |
|                    | Publication date   | 2012-01-01   |  |
|                    | Edition date   |  |  |
|                    | Series/Journal name  | IERS Technical Notes   |  |
|                    | Issue identification   | 37.0   |  |
| Information source | Title  | ITRF2008 is available on line  |  |
|                    | Author   | IERS   |  |
|                    | Publication date   | 2010-05-31   |  |
|                    | Edition date   |  |  |
|                    | Series/Journal name  | IERS Message   |  |
| Data source        | Issue identification   | 164.0  |  |
|                    | ISO Geodetic Registry  |  |  |
| Remarks            | Replaces ITRF2005 - LatLonEHt. Replaced by ITRF2014 - LatLonEHt.   |  |  |
| Scope              | Spatial referencing  |  |  |
| Datum              | International Terrestrial Reference Frame 2008   |  |  |
| Coordinate System  | Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre. |  |  |

## Extent

| <i>Description</i>             | <b>World.</b>               |        |
|--------------------------------|-----------------------------|--------|
| <i>Geographic Bounding Box</i> | <i>West-bound longitude</i> | -180.0 |
|                                | <i>North-bound latitude</i> | 90.0   |
|                                | <i>East-bound longitude</i> | 180.0  |
|                                | <i>South-bound latitude</i> | -90.0  |

# ISO Geodetic Registry

|                                   |  |  |
|-----------------------------------|--|--|
| <i>Item class</i>                 | GeodeticDatum  |  |
| <i>Name</i>                       | <b>International Terrestrial Reference Frame 2008</b>  |  |
| <i>Item status</i>                | VALID  |  |
| <i>Identifier</i>                 | 179  |  |
| <i>Alias</i>                      | IERS Terrestrial Reference Frame 2008  |  |
| <i>Alias</i>                      | ITRF2008   |  |
| <i>Information source</i>         | <i>Title</i>   | IERS Conventions (2010)  |
|                                   | <i>Author</i>  | G. Petit, B.J. Luzum (eds)   |
|                                   | <i>Publisher</i>   | Verlag des Bundesamts fur Kartographie und Geodasie  |
|                                   | <i>Publication date</i>  | 2010   |
|                                   | <i>Edition date</i>  |  |
|                                   | <i>Series/Journal name</i>   | IERS Technical Notes   |
|                                   | <i>Issue identification</i>  | 36.0   |
| <i>Information source</i>         | <i>Other citation details</i>  | ISSN: 1019-4568  |
|                                   | <i>Title</i>   | ITRF2008 is available on line  |
|                                   | <i>Author</i>  | IERS   |
|                                   | <i>Publication date</i>  | 2010-05-31   |
|                                   | <i>Edition date</i>  |  |
| <i>Information source</i>         | <i>Series/Journal name</i>   | IERS Message   |
|                                   | <i>Issue identification</i>  | 164.0  |
|                                   | <i>Title</i>   | Analysis and results of ITRF2008   |
|                                   | <i>Author</i>  | Z. Altamimi, X. Collilieux, L. Metivier  |
|                                   | <i>Publisher</i>   | International Earth Rotation and Reference Systems Service Central Bureau, Verlag des Bundesamts fur Kartographie und Geodasie, Frankfurt am Main, Germany |
| <i>Information source</i>         | <i>Publication date</i>  | 2012-01-01   |
|                                   | <i>Edition date</i>  |  |
|                                   | <i>Series/Journal name</i>   | IERS Technical Notes   |
|                                   | <i>Issue identification</i>  | 37.0   |
|                                   | <i>Data source</i>   | ISO Geodetic Registry  |
| <i>Remarks</i>                    | Replaces ITRF2005. Replaced by ITRF2014. This is a purely Cartesian reference frame with no ellipsoid defined. GRS80 is the ellipsoid recommended by the IAG and IERS.   |  |
| <i>Anchor definition</i>          | Realisation of the IERS Terrestrial Reference System (ITRS) at reference epoch 2005.0. Origin is defined such that it has zero translations and translation rates with respect to the mean Earth center of mass, averaged by the SLR station positions time series. Scale is defined by nullifying the scale factor and its rate with respect to the mean of VLBI and SLR long-term solutions as obtained by stacking their respective time series. Orientation (at epoch 2005.0) and its rate are aligned to the ITRF2005 using 179 stations of high geodetic quality. Datum defined by a set of 3 dimensional Cartesian station coordinates and velocities given by the citations. |  |
| <i>Release date</i>               | 2010-05-31   |  |
| <i>Coordinate Reference Epoch</i> | 2005.0   |  |
| <i>Scope</i>                      | Spatial referencing  |  |
| <i>Ellipsoid</i>                  | GRS 1980   |  |
| <i>Prime Meridian</i>             | Greenwich  |  |

## Extent

|                    |               |
|--------------------|---------------|
| <i>Description</i> | <b>World.</b> |
|--------------------|---------------|

|                                |                             |        |
|--------------------------------|-----------------------------|--------|
| <i>Geographic Bounding Box</i> | <i>West-bound longitude</i> | -180.0 |
|                                | <i>North-bound latitude</i> | 90.0   |
|                                | <i>East-bound longitude</i> | 180.0  |
|                                | <i>South-bound latitude</i> | -90.0  |

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|                             |  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
|-----------------------------|--|--------------|--------------------------------|---------------|-----------|------------------|--------------------------------------|-------------------------|---------|----------------------------|---------------------|-----------------------------|------------------|-------------|---------|
| <i>Item class</i>           | Ellipsoid  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Name</i>                 | <b>GRS 1980</b>  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Item status</i>          | VALID  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Identifier</i>           | 27   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | Geodetic Reference System 1980   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | GRS1980  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | IAG GRS80  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | International 1979   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | GRS80  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Information source</i>   | <table> <tr> <td><i>Title</i></td><td>Geodetic Reference System 1980</td></tr> <tr> <td><i>Author</i></td><td>H. Moritz</td></tr> <tr> <td><i>Publisher</i></td><td>Springer International Publishing</td></tr> <tr> <td><i>Publication date</i></td><td>2003-03</td></tr> <tr> <td><i>Series/Journal name</i></td><td>Journal of Geodesy</td></tr> <tr> <td><i>Issue identification</i></td><td>Volume 74, No. 1</td></tr> <tr> <td><i>Page</i></td><td>128–162</td></tr> </table>  | <i>Title</i> | Geodetic Reference System 1980 | <i>Author</i> | H. Moritz | <i>Publisher</i> | Springer International Publishing    | <i>Publication date</i> | 2003-03 | <i>Series/Journal name</i> | Journal of Geodesy  | <i>Issue identification</i> | Volume 74, No. 1 | <i>Page</i> | 128–162 |
| <i>Title</i>                | Geodetic Reference System 1980   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Author</i>               | H. Moritz  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publisher</i>            | Springer International Publishing  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publication date</i>     | 2003-03  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Series/Journal name</i>  | Journal of Geodesy   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Issue identification</i> | Volume 74, No. 1   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Page</i>                 | 128–162  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Information source</i>   | <table> <tr> <td><i>Title</i></td><td>Geodetic Reference System 1980</td></tr> <tr> <td><i>Author</i></td><td>H. Moritz</td></tr> <tr> <td><i>Publisher</i></td><td>International Association of Geodesy</td></tr> <tr> <td><i>Publication date</i></td><td>1984</td></tr> <tr> <td><i>Series/Journal name</i></td><td>Bulletin Geodesique</td></tr> <tr> <td><i>Issue identification</i></td><td>Volume 58, No. 3</td></tr> <tr> <td><i>Page</i></td><td>395-405</td></tr> </table> | <i>Title</i> | Geodetic Reference System 1980 | <i>Author</i> | H. Moritz | <i>Publisher</i> | International Association of Geodesy | <i>Publication date</i> | 1984    | <i>Series/Journal name</i> | Bulletin Geodesique | <i>Issue identification</i> | Volume 58, No. 3 | <i>Page</i> | 395-405 |
| <i>Title</i>                | Geodetic Reference System 1980   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Author</i>               | H. Moritz  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publisher</i>            | International Association of Geodesy   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publication date</i>     | 1984   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Series/Journal name</i>  | Bulletin Geodesique  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Issue identification</i> | Volume 58, No. 3   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Page</i>                 | 395-405  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Data source</i>          | ISO Geodetic Registry  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Remarks</i>              | Adopted by IUGG 1979 Canberra. Inverse flattening is derived from geocentric gravitational constant $GM = 3986005e8 \text{ m}^3/\text{s}^2$ , dynamic form factor $J_2 = 108263e-8$ and Earth's angular velocity = $7292115e-11 \text{ rad/s}$ .   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Semi-major axis</i>      | 6378137.0 m  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Inverse flattening</i>   | 298.257222101 m  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |

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|                            |                               |   |
|----------------------------|-------------------------------|---|
| <i>Item class</i>          | PrimeMeridian                 |   |
| <i>Name</i>                | <b>Greenwich</b>              |   |
| <i>Item status</i>         | VALID                         |   |
| <i>Identifier</i>          | 25                            |   |
| <i>Alias</i>               | Zero meridian                 |   |
| <i>Information source</i>  | <i>Title</i>                  | Why the Greenwich meridian moved                                |
|                            | <i>Author</i>                 | S. Malys, J.H. Seago, N.K. Pavlis, P.K. Seidelmann, G.H. Kaplan |
|                            | <i>Publisher</i>              | Springer International Publishing                               |
|                            | <i>Publication date</i>       | 2015-12   |
|                            | <i>Series/Journal name</i>    | Journal of Geodesy  |
|                            | <i>Issue identification</i>   | Volume 89, No. 12   |
|                            | <i>Page</i>                   | 1263–1272   |
| <i>Information source</i>  | <i>Title</i>                  | IERS Conventions (2010)   |
|                            | <i>Author</i>                 | G. Petit, B.J. Luzum (eds)                                      |
|                            | <i>Publisher</i>              | Verlag des Bundesamts für Kartographie und Geodäsie             |
|                            | <i>Publication date</i>       | 2010  |
|                            | <i>Edition date</i>           |   |
|                            | <i>Series/Journal name</i>    | IERS Technical Notes  |
|                            | <i>Issue identification</i>   | 36.0  |
| <i>Data source</i>         | <i>Other citation details</i> | ISSN: 1019-4568   |
|                            | ISO Geodetic Registry         |   |
| <i>Greenwich longitude</i> | 0.0 °                         |   |

# ISO Geodetic Registry

|                           |  |   |
|---------------------------|--|---|
| <i>Item class</i>         | EllipsoidalCS  |   |
| <i>Name</i>               | <b>Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre.</b>  |   |
| <i>Item status</i>        | VALID  |   |
| <i>Identifier</i>         | 46   |   |
| <i>Information source</i> | <i>Title</i>   | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>  | International Organization for Standardization (ISO)                    |
|                           | <i>Publisher</i>   | International Organization for Standardization (ISO)                    |
|                           | <i>Publication date</i>  | 2007-07-01  |
|                           | <i>Edition</i>   | Second Edition  |
|                           | <i>Series/Journal name</i>   | International Standard  |
|                           | <i>Issue identification</i>  | ISO 19111:2007  |
| <i>Data source</i>        | ISO Geodetic Registry  |   |
| <i>Remarks</i>            | Used in geographic 3D coordinate reference systems. Horizontal coordinates referenced to this CS are in degrees. Any degree representation (e.g. DMSH, decimal, etc.) may be used but that used must be declared for the user. |   |

## Axes

|                           |   |   |
|---------------------------|---|---|
| <i>Item class</i>         | CoordinateSystemAxis  |   |
| <i>Name</i>               | <b>Geodetic latitude</b>  |   |
| <i>Item status</i>        | VALID   |   |
| <i>Identifier</i>         | 38  |   |
| <i>Information source</i> | <i>Title</i>  | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>   | International Organization for Standardization (ISO)                    |
|                           | <i>Publisher</i>  | International Organization for Standardization (ISO)                    |
|                           | <i>Publication date</i>   | 2007-07-01  |
|                           | <i>Edition</i>  | Second Edition  |
|                           | <i>Series/Journal name</i>  | International Standard  |
|                           | <i>Issue identification</i>   | ISO 19111:2007  |
| <i>Data source</i>        | ISO Geodetic Registry   |   |
| <i>Remarks</i>            | Used in geographic 2D and geographic 3D coordinate reference systems. |   |
| <i>Abbreviation</i>       | Lat   |   |
| <i>Direction</i>          | north   |   |
| <i>Unit</i>               | degree (supplier to define representation)                            |   |

  

|                           |                           |   |
|---------------------------|---------------------------|---|
| <i>Item class</i>         | CoordinateSystemAxis      |   |
| <i>Name</i>               | <b>Geodetic longitude</b> |   |
| <i>Item status</i>        | VALID                     |   |
| <i>Identifier</i>         | 34                        |   |
| <i>Information source</i> | <i>Title</i>              | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>             | International Organization for Standardization (ISO)                    |

|                     |   |  |
|---------------------|---|--|
|                     | <i>Publisher</i>  | International Organization for Standardization (ISO) |
|                     | <i>Publication date</i>   | 2007-07-01   |
|                     | <i>Edition</i>  | Second Edition                                       |
|                     | <i>Series/Journal name</i>  | International Standard                               |
|                     | <i>Issue identification</i>   | ISO 19111:2007                                       |
| <i>Data source</i>  | ISO Geodetic Registry   |  |
| <i>Remarks</i>      | Used in geographic 2D and geographic 3D coordinate reference systems. |  |
| <i>Abbreviation</i> | Lon   |  |
| <i>Direction</i>    | east  |  |
| <i>Unit</i>         | degree (supplier to define representation)                            |  |

  

|                           |  |   |
|---------------------------|--|---|
| <i>Item class</i>         | CoordinateSystemAxis   |   |
| <i>Name</i>               | <b>Ellipsoidal height</b>  |   |
| <i>Item status</i>        | VALID  |   |
| <i>Identifier</i>         | 36   |   |
| <i>Information source</i> | <i>Title</i>   | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>  | International Organization for Standardization (ISO)                    |
|                           | <i>Publisher</i>   | International Organization for Standardization (ISO)                    |
|                           | <i>Publication date</i>  | 2007-07-01  |
|                           | <i>Edition</i>   | Second Edition  |
|                           | <i>Series/Journal name</i>   | International Standard  |
|                           | <i>Issue identification</i>  | ISO 19111:2007  |
| <i>Data source</i>        | ISO Geodetic Registry  |   |
| <i>Remarks</i>            | Used only as part of an ellipsoidal 3D coordinate system in a geographic 3D coordinate reference system, never on its own. |   |
| <i>Abbreviation</i>       | h  |   |
| <i>Direction</i>          | up   |   |
| <i>Unit</i>               | metre  |   |