

ISO Geodetic Registry

| | | |
|---------------------------|--|---|
| <i>Item class</i> | GeodeticCRS | |
| <i>Name</i> | WGS 84 (G2139) - LatLonEHt | |
| <i>Item status</i> | VALID | |
| <i>Identifier</i> | 797 | |
| <i>Information source</i> | <i>Title</i> | Recent Update to WGS 84 Reference Frame and NGA Transition to IGS ANTEX |
| | <i>Author</i> | Office of Geomatics / GNSS Division, National Geospatial-Intelligence Agency |
| | <i>Publisher</i> | National Geospatial-Intelligence Agency |
| | <i>Publication date</i> | 2021 |
| | <i>Series/Journal name</i> | Public Release |
| | <i>Issue identification</i> | 21-520 |
| | <i>Other citation details</i> | https://earth-info.nga.mil/php/download.php?file=(U)WGS%2084(G2139).pdf (accessed 2021-09-24) |
| <i>Information source</i> | <i>Title</i> | Personal communication |
| | <i>Author</i> | Robert Wong |
| | <i>Publisher</i> | National Geospatial-Intelligence Agency |
| | <i>Publication date</i> | 2021-10-25 |
| | <i>Series/Journal name</i> | ISOGR Control Body Meeting |
| <i>Data source</i> | <i>Issue identification</i> | 2021-10-25 |
| | ISO Geodetic Registry | |
| <i>Remarks</i> | Replaces WGS 84 (G1762) - LatLonEHt. | |
| <i>Scope</i> | Spatial referencing and GPS satellite navigation. | |
| <i>Datum</i> | World Geodetic System 1984 (G2139) | |
| <i>Coordinate System</i> | Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre. | |

Extent

| | | |
|--------------------------------|-----------------------------|--------|
| <i>Description</i> | World | |
| <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> | World Geodetic System 1984 (G2139) | |
| <i>Item status</i> | VALID | |
| <i>Identifier</i> | 795 | |
| <i>Alias</i> | WGS 84 (G2139) | |
| <i>Information source</i> | <i>Title</i> | Recent Update to WGS 84 Reference Frame and NGA Transition to IGS ANTEX |
| | <i>Author</i> | Office of Geomatics / GNSS Division, National Geospatial-Intelligence Agency |
| | <i>Publisher</i> | National Geospatial-Intelligence Agency |
| | <i>Publication date</i> | 2021 |
| | <i>Series/Journal name</i> | Public Release |
| | <i>Issue identification</i> | 21-520 |
| | <i>Other citation details</i> | https://earth-info.nga.mil/php/download.php?file=(U)WGS%2084(G2139).pdf (accessed 2021-09-24) |
| <i>Information source</i> | <i>Title</i> | Personal communication |
| | <i>Author</i> | Robert Wong |
| | <i>Publisher</i> | National Geospatial-Intelligence Agency |
| | <i>Publication date</i> | 2021-10-25 |
| | <i>Series/Journal name</i> | ISOGR Control Body Meeting |
| <i>Data source</i> | <i>Issue identification</i> | 2021-10-25 |
| | <i>ISO Geodetic Registry</i> | |
| <i>Remarks</i> | From 2021-01-03 replaces World Geodetic System 1984 (G1762), which has been redesignated World Geodetic System 1984 (G1762'). Tracking station coordinates changed on 2021-03-28 when NGA implemented the IGS definition of GPS satellite antenna phase centre offsets. | |
| <i>Anchor definition</i> | Defined through coordinates of 19 GPS tracking stations aligned to a subset of IGB14 stations at epoch 2016.0. The IGB14 station coordinates are considered to be equivalent to ITRF2014. | |
| <i>Release date</i> | 2021-01-03 | |
| <i>Coordinate Reference Epoch</i> | 2016.0 | |
| <i>Scope</i> | Spatial referencing and GPS satellite navigation | |
| <i>Ellipsoid</i> | WGS 84 | |
| <i>Prime Meridian</i> | Greenwich | |

Extent

| | | |
|--------------------------------|-----------------------------|--------|
| <i>Description</i> | World | |
| <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> | Ellipsoid |
| <i>Name</i> | WGS 84 |
| <i>Item status</i> | VALID |
| <i>Identifier</i> | 30 |
| <i>Alias</i> | WGS84 |
| <i>Information source</i> | <p><i>Title</i> Department of Defense World Geodetic System 1984: Its Definition and Relationships with Local Geodetic Systems, Version 1.0.0</p> <p><i>Author</i> National Geospatial-Intelligence Agency</p> <p><i>Publisher</i> National Geospatial-Intelligence Agency</p> <p><i>Publication date</i> 2014-07-08</p> <p><i>Series/Journal name</i> Standardization Document</p> <p><i>Issue identification</i> NGA.STND.0036_1.0.0_WGS84</p> |
| <i>Information source</i> | <p><i>Title</i> World Geodetic System 1984</p> <p><i>Author</i> L.B. Decker, Defense Mapping Agency Aerospace Center</p> <p><i>Publisher</i> Defense Mapping Agency Aerospace Center</p> <p><i>Publication date</i> 1986-04</p> <p><i>Edition date</i></p> |
| <i>Information source</i> | <p><i>Title</i> Refinements to The World Geodetic System 1984</p> <p><i>Author</i> S. Malys, J.A. Slater, R.W. Smith, L.E. Kunz, S.C. Kenyon</p> <p><i>Publisher</i> Institute of Navigation</p> <p><i>Publication date</i> 1997-09</p> <p><i>Edition date</i></p> <p><i>Series/Journal name</i> Proceedings of the 10th International Technical Meeting of the Satellite Division of The Institute of Navigation (ION-GPS-1997), Kansas City, MO, September 1997</p> <p><i>Page</i> 841-850</p> |
| <i>Data source</i> | ISO Geodetic Registry |
| <i>Remarks</i> | The World Geodetic System 1984 (WGS 84) contains four defining physical parameters for the Earth: the semi-major axis (a), the reciprocal of flattening (1/f) of an oblate spheroid of revolution, the geocentric gravitational constant ($GM = 3.986004418 \times 10^{14} \text{ m}^3/\text{s}^2$) includes the mass of the atmosphere, and the Earth's angular rotational velocity about its spin axis ($\omega = 7.2921150 \times 10^{-5} \text{ rad/s}$). |
| <i>Semi-major axis</i> | 6378137.0 m |
| <i>Inverse flattening</i> | 298.2572236 m |

ISO Geodetic Registry

| | | |
|----------------------------|-------------------------------|---|
| <i>Item class</i> | PrimeMeridian | |
| <i>Name</i> | Greenwich | |
| <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 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>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> | Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre. | |
| <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> | Geodetic latitude | |
| <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> | Geodetic longitude | |
| <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> | Ellipsoidal height | |
| <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 | |