Geodetic Reference Systems Template

International Committee on GNSS Working Group D

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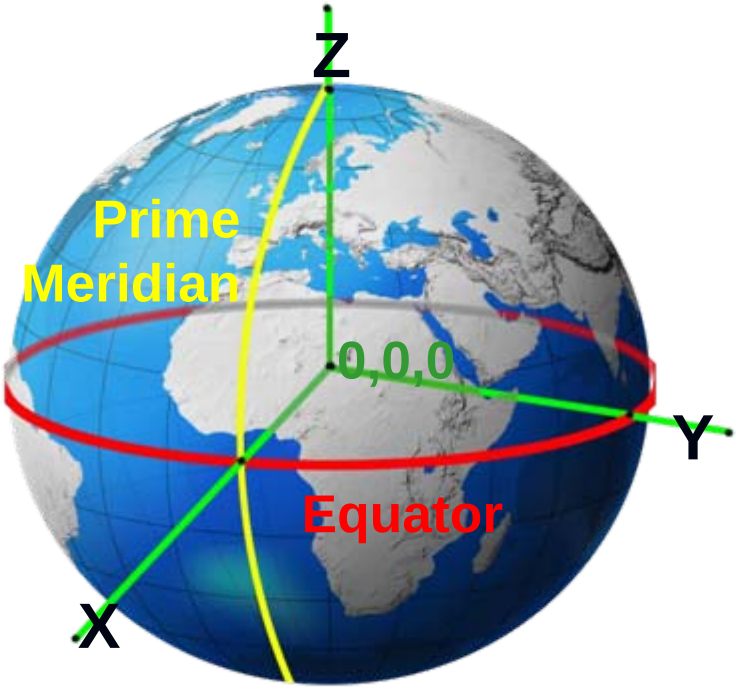
Geodetic Reference System Outline

- Description of System
- Definition of System
  - Coordinate System
  - Ellipsoid
  - Epoch
- Physical Constants
- Description of system development
  - List of Core Sites
- Relationship to other geodetic reference systems
- Future developments



Reference System Description

General information which identifies the reference system and gives fundamental information about it

- Name
- Coverage (global, regional, local)
- System dimension (horizontal, vertical, 3-dimensional)
- Reference epoch

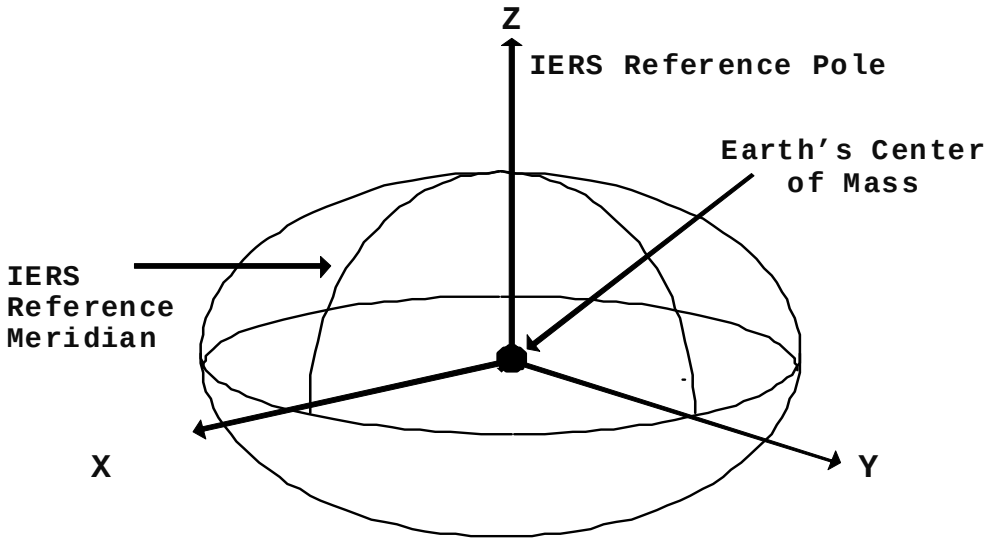
For GPS

- Name: World Geodetic System 1984 (WGS 84)
- Coverage: Global
- Dimensions: 3-Dimensional
- Epoch: 2001.0

Definition

Describe the coordinate system and its orientation along with its reference ellipsoid. Specify any standards with which this complies.

Coordinate System
Reference Ellipsoid
- Name
- Semi-major axis
- Flattening



WGS 84 is a right-handed, Earth-fixed orthogonal System and generally conforms to IERS technical note 21

Physical Constants

The Working Group will need to determine the specific information needed in this category

These items may include

- Angular velocity
- Earth's Gravitational Constant
- Second Degree Zonal Harmonic
- Velocity of Light
- Universal Constant of Gravitation

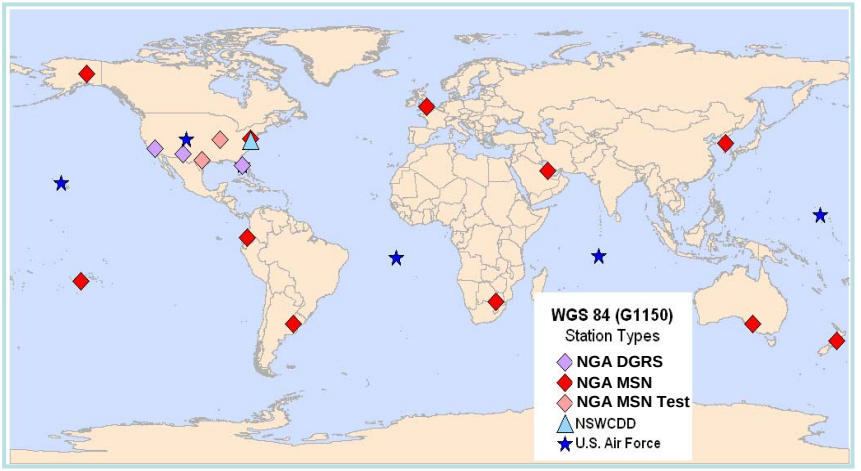
These values along with other constants are given for WGS in the distributed document

System Development

Describe the methodology used to determine the system. General description of how the physical and geometric constants were determined or derived. Include:

- Types and accuracy of sources and models used
- Mathematical formulas where appropriate
- Associated models

Identify core sites used including location and velocity or velocity model. Include overall accuracy of the reference frame.



Relationship to Other Geodetic Reference Systems

Describe the relationship to other global and or regional reference systems

- Give transformation parameters and accuracy if determined
- Identify level of consistency
- Identify shared information such as monitoring sites

Example for WGS 84

- At development, WGS 84 (G1150) was aligned to ITRF2000
- NGA contributes its sites to the International GNSS Service
- NGA incorporates some IGS sites in its reference system

Future Development

Discuss established plans for future development that will impact the system. May include:

- New or improved equipment
- New or improved software
- Changes in core sites
- Improved methods
- Updated models