**Learning Objectives**

You’ll be able to:

**Examine** the foundational attributes that define horizontal and vertical geodetic datums.

**Realize** the accessibility of datums through passive and active control stations.

**Review** the positional reliability of geoid models and datum transformations.

**Study** the rationale for the decision by the National Geodetic Survey to replace existing Horizontal and Vertical Datums.

**Understand** the approximate 3-dimensional positional changes to existing datums.

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**Fundamentals of Geodetic Datums**

- Geodetic surfaces – ellipsoid and geoid
- Positioning elements of the National Spatial Reference System (NSRS)
- Classical horizontal positioning – triangulation and traverse
- U.S. national horizontal datums – NAD 27 and NAD 83
- Development of satellite positioning systems
- Foundation of space-based positioning up to GPS/GNSS
- GPS impact on integrity of NAD 83
- Relationship of NAD 83 and WGS 84
- Horizontal datum transformations – NADCON, Molodensky

**Vertical datums**

- Vertical datums definitions – geodetic and tidal
- U.S. national vertical datums – NGVD 29 and NAVD 88
- Issues with GPS/GNSS-derived heights
- Vertical datum transformations - VERTCON

**New Geodetic Datums for the United States 2022**

Rationale for replacing current geodetic datums
- Problems with NAD 83 and NAVD 88
- Introduction to international terrestrial reference frame (ITRF)
- Adoption of ITRF14 into NSRS
- National geodetic survey plans for new national datums
- New geometric/geopotential datum definitions
- Gravity for the redefinition of the American vertical datum (GRAV-D)
- Computing approximate horizontal and vertical positional differences
- Importance of positional metadata
Webinar Series
Distributed Batteries for Solar PV Systems
- Distributed Batteries for Solar PV Systems, Part I
  Thurs., April 2, 2020, 11:00 AM - 2:15 PM CDT
- Distributed Batteries for Solar PV Systems, Part II
  Friday, April 3, 2020, 11:00 AM - 2:15 PM CDT

Compliance with the 2018 International Building Code
- Compliance with the 2018 International Building Code, Part I
  Wed., April 8, 2020, 1:00 - 3:00 PM CDT
- Compliance with the 2018 International Building Code, Part II
  Wed., April 8, 2020, 10:00 AM - 1:00 PM CDT
- Compliance with the 2018 International Building Code, Part III
  Thurs., April 9, 2020, 11:00 AM - 12:30 PM CDT

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Additional Learning
Tree Science
- Biology and Benefits of Trees
  Wed., April 15, 2020, 11:00 AM - 1:00 PM CDT
- Tree Infrastructure
- Design Elements That Appreciate
  Thurs., April 16, 2020, 10:00 AM - 12:00 PM CDT
- Trees and Site Requirements
  Thurs., April 16, 2020, 1:30 - 3:30 PM CDT
- Project Completion and Tree Threat Prevention
  Thurs., April 16, 2020, 12:00 - 2:00 PM CDT
- Structural Forensic Engineering
  - Overview of the Role of Forensic Engineering
    Thurs., April 16, 2020, 10:00 - 1:30 PM CDT
  - Forensic Engineering Process and Forensic Engineering Report
    Thurs., April 16, 2020, 1:30 - 3:30 PM CDT
  - Causes of Structural Failures
    Fri., April 17, 2020, 11:00 - 12:30 PM CDT
  - Forensic Examination of Structures and Use in Litigation
    Fri., April 17, 2020, 1:00 - 3:00 PM CDT

Can't Attend? Order the Manual and Audio from the Live Seminar as a Self-Study Package!
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Registration
Geodetic Datums: Fundamentals and New Developments
Columbia, MD - Monday, May 4, 2020

How to Register
- Online: www.halfmoonseminars.org
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