



VII SIRGAS School on Reference Systems

Santo Domingo, Dominican Republic, November 16 - 17, 2015

Overview

	Monday, November 16th, 2015	Tuesday, November 17th, 2015
07:00-08:30	Registration	
08:30-09:00	Aperture	Vertical reference systems
09:00-10:30	Types of coordinates Celestial Reference System and Frame Rotation and tides of the Earth	
10:30-11:00	Coffee break	
11:00-12:30	Terrestrial Reference System and Frame Regional Reference Frames	Crustal deformation observation and modelling
12:30-14:00	Lunch	
14:00-15:30	GPS positioning: observation equations and error analysis	Ionosphere modelling and analysis
15:30-16:00	Coffee break	
16:00-17:30	Adjustment of GPS networks	SIRGAS: definition, realisation, maintenance

Hermann Drewes

Claudio Brunini

Laura Sánchez

Contents

1. Introduction (L. Sánchez)
2. Geodetic reference systems and frames (H. Drewes)
 - 2.1 Types of coordinates and transformations (Cartesian, ellipsoidal, topocentric, plane)
 - 2.2 Definition of reference systems and frames
 - 2.3 Celestial (inertial) reference system and frame (ICRS, ICRF)
 - 2.4 Rotation and tides of the Earth (nutation, polar motion, length of day, tides)
 - 2.5 Terrestrial reference system and frame (ITRS, ITRF)
 - 2.6 Regional and national reference frames
3. Coordinates determination from GNSS (C. Brunini)
 - 3.1 GNSS observables
 - 3.2 Observation equations
 - 3.3 Errors generated by the Earth atmosphere (neutral and ionized)
 - 3.4 Other error sources (multipath, thermal noise, electronic delays)
 - 3.5 Coordinates computation and error estimation
4. Vertical reference systems (L. Sánchez)
 - 4.1 Ellipsoidal (GPS) heights
 - 4.2 Physical heights
 - 4.3 Reference surfaces (ellipsoid, geoid, quasi-geoid)
 - 4.4 Classical vertical datums
 - 4.5 Modern vertical reference systems



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5. Crustal deformation observation and modelling (H. Drewes)
 - 5.1 Earth structure and geodynamic processes
 - 5.2 Plate tectonics and plate kinematics
 - 5.3 Intra-plate and inter-plate crustal deformation
 - 5.4 Monitoring seismic deformations by GNSS

6. Ionosphere modelling and analysis (C. Brunini)
 - 6.1 Structure of the atmosphere
 - 6.2 Models of the ionosphere
 - 6.3 Observation techniques
 - 6.4 Analysis of the ionosphere

7. Reference system and frame for the Americas - SIRGAS (L. Sánchez)
 - 7.1 Definition, realization, purposes
 - 7.2 Organizational issues
 - 7.3 Dissemination and application of SIRGAS products