Presentation of GLOSS training capabilities and standards - manuals (quality control, radar sensors)

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Intergovernmental Oceanographic Commission

Bernardo Aliaga Rossel
Technical Secretary GLOSS

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Example 1 – 1 week training on Tides and Sea Levels: Stations, Operations, Products

Planning team

In 2022, a planning team was assembled composed of representatives from the **IOC, IMO, IHO, the Universidad Nacional Costa Rica, and the National Oceanic and Atmospheric Administration (NOAA on behalf of IHO)** to organize and execute the course.

Instructors:

- Mr. David WOLCOTT (NOAA, **USA**)
- Dr. rer.nat Silvia CHACÓN-Barrantes, Mr. Jose VALVERDE, Mr. Jose VEGA (Universidad Nacional **Costa Rica**)
- CDR Cesar BORBA (Marinha Do Brasil Hidrografia e Navegação, **Brazil**)
- Ms. Silvia COSTA González (Instituto Hidrografico de la Marina (IHM, **Spain**),
- Mr. Philippe HENSEL (NOAA, **USA**)

Participants (31):

Argentina, Brazil, Chile (2), Colombia, Costa Rica (6), Cuba, Dominican Republic (4), Ecuador (2), Guatemala (2), Honduras, Mexico, Nicaragua (2), Panama (3), Peru, El Salvador (2), Uruguay

Participant profile

- Geographer
- Oceanographer
- Navy staff (with sea level resp.)
- Geologist
- Physicist
- Topographer
- Coastal Engineer

Agenda

Annex 2
Programme
Training Course on Tides and Sea Levels: Stations, Operations, Products
Dates: November 13 – 17, 2023

Monday,
0800-0830: Opening ceremony and formal remarks & class picture taken
0830-0900: Instructor introduction, presentation of participants, and training overview
0900-1030: Tide theory and important cycles
1030-1045: Break
1045-1130: Terms and definitions
1130-1230: Lunch
1230-1300: Practical example (identify lunar cycles in WL data)
1300-1400: Water level measurement technologies/approaches
1400:1415: Break
1415-1530: Types of currently used tide gauges and anatomy of a tide station
1530-1630: Review day 1, followup questions

Tuesday,
0830-0900: Review day 1, follow up question/researched explanations
0900-1000: Connecting WL data to land, maintaining station datum
1000-1015: Break
1015-1200: Classroom theory on Leveling and GNSS
1200-1300: Lunch
1300-1500: GNSS (continued): Vertical Land Motion, GNSS-Reflectometry
1500-1515: Break
1515-1615: Review days 1-2, followup questions

Wednesday,
0715-0730: Meet at Bus
0730-0900: Bus ride to Quepos
0900-1630: Full day at tide gauge
0930-1230: Group A at tide station / Group B leveling
- Tide Station Activities:
  - Hardware
  - Considerations for placement of tide gage infrastructure
  - Tide station hardening
  - Troubleshooting hardware issues
  - Benchmark types and installation
  - Overview of tide station networks (indoors)
- Leveling Activities
  - Basics of leveling (hands-on)
  - Leveling practice session for students
  - Field site data and metadata collection and management
  - Leveling data analysis (indoors)

1230-1330: Lunch
1330-1630: Group B at tide station Group A leveling
- Tide Station Activities:
  - Hardware
  - Considerations for placement of tide gage infrastructure
  - Tide station hardening
  - Troubleshooting hardware issues
  - Benchmark types and installation
  - Overview of tide station networks (indoors)
- Leveling Activities
  - Basics of leveling (hands-on)
  - Leveling practice session for students
  - Field site data and metadata collection and management
  - Leveling data analysis (indoors)

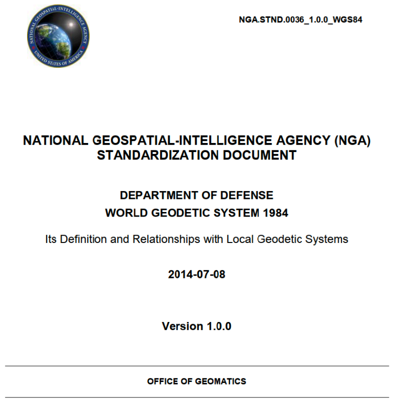
1630-1800: Bus return to Punta Leona

Thursday,
0830-0915: Review days 1-3, followup questions
0915-1015: Water level data quality control and analysis
1015-1030: Break
1030-1200: Datums definitions and analysis
1200-1300: Lunch
1300-1430: Co-tide and co-range maps
1430-1445: Break
1445-1530: S-100 and S-104 Principles
1530-1630: Practical example and Review

Friday,
0830-0915: Review days 1-4, followup questions
0915-1015: Harmonic analysis and prediction
1015-1030: Break
1030-1115: International water level data centers
1115-1200: Water level information for tsunamis
1200-1300: Lunch
1300-1415: Separation models
1415-1430: Break
1430-1500: IHO error budget for tides
1500-1600: Final review
1600-1700: Closing Ceremony and Conferring of certificates

Field trip – hands-on tranning

Suggested bibliography


NGA.STND.0036_1.0.0_WGS84

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY (NGA)
STANDARDIZATION DOCUMENT

DEPARTMENT OF DEFENSE
WORLD GEODETIC SYSTEM 1984

Its Definition and Relationships with Local Geodetic Systems

2014-07-08

Version 1.0.0

OFFICE OF GEOMATICS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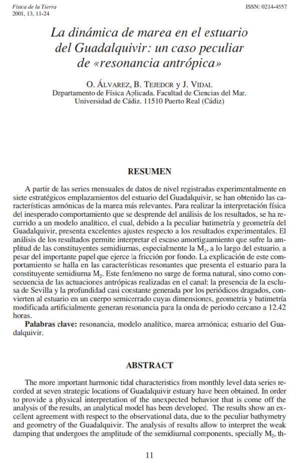
Determinación de los datums de referencia vertical con fines hidrográficos para la Bahía de Cartagena

Vertical reference datums determination for hydrographic applications in Cartagena Bay

Resumen

Abstract

175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La dinámica de marea en el estuario del Guadalquivir: un caso peculiar de «resonancia antrópica»

O. Álvarez, B. Tejedor y J. Vidal
Departamento de Física Aplicada. Facultad de Ciencias del Mar.
Universidad de Cádiz. 11510 Puerto Real (Cádiz)

RESUMEN

ABSTRACT

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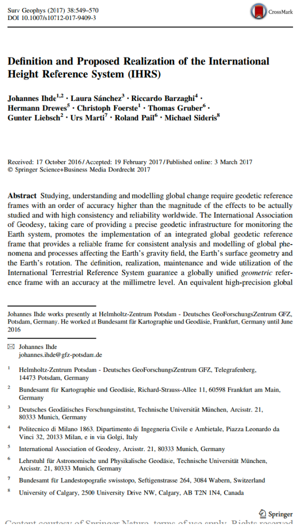
Surv Geophys (2017) 38:549–570
DOI 10.1007/s10712-017-9409-3

Definition and Proposed Realization of the International Height Reference System (IHRS)

Johannes Ihde · Laura Sánchez · Riccardo Barzaghi · Hermann Drewes · Christoph Foerste · Thomas Gruber · Gunter Liebsch · Urs Marti · Roland Pail · Michael Sideris

Received: 17 October 2016 / Accepted: 19 February 2017 / Published online: 3 March 2017
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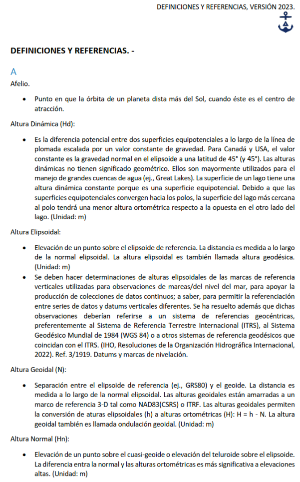
DEFINICIONES Y REFERENCIAS, VERSIÓN 2023.

DEFINICIONES Y REFERENCIAS. -

A

Afelio.

Altura Dinámica (Hd):

Altura Elipsoidal:

Altura Geoidal (N):

Altura Normal (Hn):


AUSPOS GPS Processing Report

February 14, 2023

Geoscience Australia

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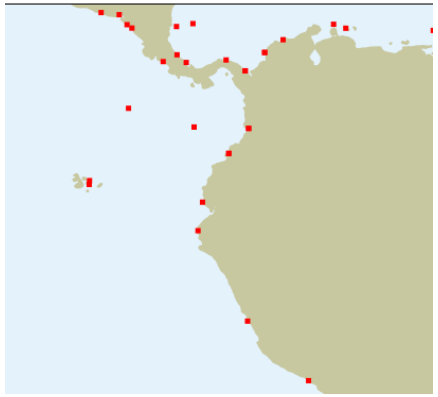
Example 2 : 3-4 days workshop on Sea Level Data Sharing

Workshop

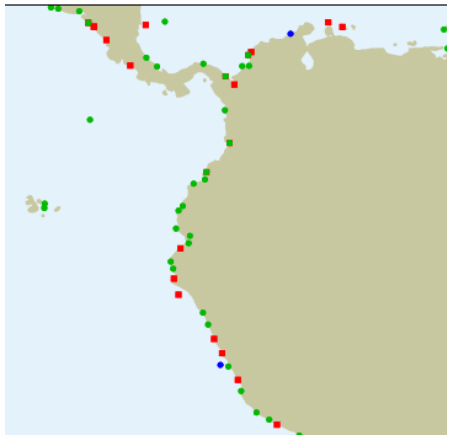
"**Sea Level Data Sharing**: Tools for an effective Regional Emergency Response"
Only for staff from National Tsunami Warning Centres of Chile, Colombia, Ecuador and Peru

27 -30 September 2022
Valparaíso - Chile

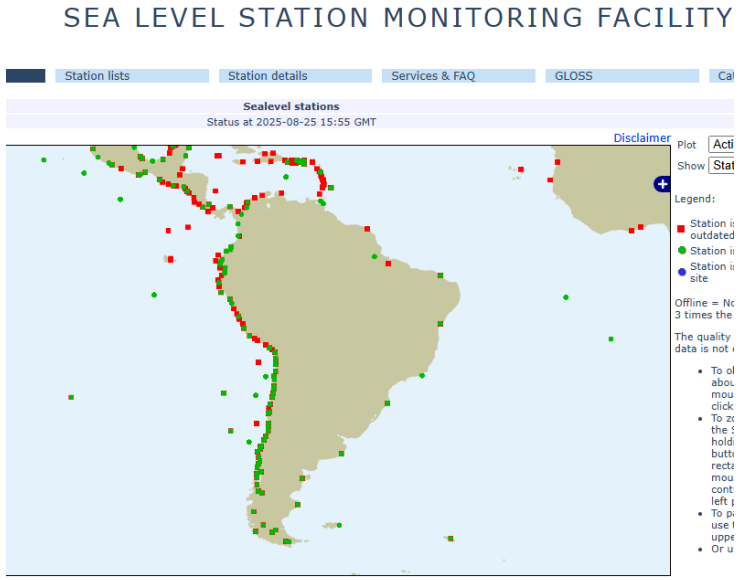
Before



After



Yesterday (25/08/2025



11:30	12:00	What brings us together in this workshop	VLIZ-PTWC-SHOA
12:00	13:00	Overview of data systems and tools	VLIZ: IOC PTWC:
13:00	13:30	Tsunami Analysis Tools Tonga Event:	PTWC
14:30	15:15	Tsunami Analysis Tools: Chile's Tonga Experience	
15:15	15:45	Getting data in the IOC sea level facility	VLIZ (
16:00	17:30	Data Network Design	SHOA's PARTNER SAVTEC (Rafael)
Start	End	Topic	Comment
09:00	09:30	Using and Sharing Data	VLIZ
09:30	10:00	Data transfer redundancy	SHOA (Jorge)
10:00	10:30	Overview of Low Cost Tide Gauge Hardware	VLIZ contact
10:30	11:00	Data Sharing Formats and transmission Strategies	COLOMBIA
11:00	11:30	Data Sharing Formats and transmission Strategies	ECUADOR
11:45	12:15	Data Sharing Formats and transmission Strategies	PERU
12:15	13:30	Data Sharing Formats and transmission Strategies	VLIZ (Comments Tjess and Bart)
14:30	15:15	Sensor Integration and data format design	SHOA (Jorge)
15:15	16:00	Data transfer in details	VLIZ (Bart)
16:15	17:30	Data transfer planning	VLIZ-PTWC
Start	End	Topic	Commen
09:00	09:30	Data transfer practical work: GTS Practical Test Part II	VLIZ-PTWC
09:30	10:15	Data transfer practical work: GTS Practical Test Part III	VLIZ
10:30	11:30	Telemetry options and data format constraints	SHOA – VLIZ
11:45	13:30	Achieving Data transfer redundancy	SHOA (Jorge)
14:30	16:00	Data transfer practical work: Webservices Practical Test Part I	VLIZ – SHOA - PTWC
16:15	17:00	Data transfer practical work: Webservices Practical Test Part II	VLIZ – SHOA - PTWC
Start	End	Topic	Comment
09:00	09:30		
09:30	10:00	Overview of Low Cost Tide Gauge Hardware	SHOA - UNESCO
10:00	10:30	Overview of Tide Gauge Hardware: PTWC's experience	
10:45	11:15	Overview of Tide Gauge Hardware: SHOA's experience	

SEA LEVEL STATION MONITORING FACILITY

Getting data into the IOC-SLSMF

Bart Vanhoorne, Francisco Hernandez

Flanders Marine Institute (VLIZ)
Belgium

www.ioc-sealevelmonitoring.org

2021 2030 Decenio de las Naciones Unidas de las Ciencias Oceánicas para el Desarrollo Sostenible

C O N T R I B U C I Ó N


ARMADA DE CHILE


00:00