

Vertical Reference Framework – Submitted by the IHB

IAG – International Association of Geodesy

The final report of the IAG inter-commission project ICP1.2 on vertical reference frames which was submitted to the IAG Congress was accepted (*Report was circulated by email and is available from Steve Shipman on request*) The IAG has reconvened this project with revised Terms of Reference which are annexed to this paper. Steve Shipman (IHB) will continue to participate in the work of this group.

FIG – International Federation of Surveyors

Steve Shipman (IHB) attended the annual FIG Working Week, WW2008, entitled “Integrating Generations” in Stockholm, Sweden from 14 – 19 June 2008. Mr Svante Asterno, former Hydrographer of Sweden and Chairman of the FIG/IHO/ICA Advisory Board of Standards of Competence was Chairman of the Organising Committee / Conference Director. WW2008 which was held jointly with a UN-Habitat Seminar was attended by almost 1000 delegates from 95 countries. The Opening ceremony included Keynote Addresses by Mr Andreas Carlgren, Swedish Minister for the Environment and Climate; Dr Anna Tibaijuka, Executive Director of UN-Habitat; Dr Ashraf Ghani, Chairman of the Institute of State Effectiveness (Afghanistan); and Professor Stig Enemark, President of FIG.

Commission 4 “Hydrography” held their annual meeting during which Gordon Johnston, current Chairman of the FIG/IHO/ICA Advisory Board on Standards of Competence reported on the outcome of the 2008 Board meeting. Steve Shipman reported on the recent issue of the 5th Edition of IHO publication S-44. Two Working Groups of Commission 4 reported on the activities with respect to “A Marine Cadastre” and “Promoting the economic benefits of Hydrography”. It was agreed that this WG would prepare a leaflet on the “Economic Benefits of Hydrography” for release during the next FIG Congress. The IHB will assist in the preparation of this leaflet. Further details and a full report will be available from the FIG website www.fig.net. Commission 4 organised 3 sessions on “Coastal Zone Administration”; “Hydrographic Information Management”; and “Hydrographic Surveying in Practice”. All papers presented are available from the FIG web site. Commission 4 also organised an interesting visit to the Swedish Maritime Administration’s “Eastern Region’s Vessel Traffic Service” which was led by Ulf Olsson the Swedish member of the Working Group which produced the 5th Edition of S-44.

Dr Michael Sutherland was elected as Chair-elect of Commission 4 and will take over from Andrew Leyzack at the FIG Congress which is being held in Sydney, Australia from 11-16 April 2010.

Inter-Commission Project

ICP1.2: **Vertical Reference Frames**
 Chair: **Johannes Ihde** (Germany)
 (Joint with Commission 2 and IGFS)

Terms of Reference

The IAG Inter-commission Project 1.2 studied during the period 2003 – 2007 the possibilities of the definition and realization of a global vertical reference system (GVRS) based on the classical and modern observations and a consistent modeling of both, geometric and gravimetric parameters.

The results of the work of the Inter-commission Project 1.2 are documented in **Conventions for the Definition and Realization of a Conventional Vertical Reference System (CVRS)**. In the CVRS conventions a general concept for the definition and realization of a unified, global vertical reference system is described. The CVRS conventions are aligned to the IERS 2003 Conventions. Parts of the IERS 2003 conventions are the basis for the CVRS conventions.

Open topics are the establishment of an information system describing the various regional vertical reference frames and their relation to a GVRS, the determination of transformation parameters between regional vertical reference frames and the unified global height system as well as the relationships between an GVRS and the International Terrestrial Reference System

Objectives

- Further development of the CVRS conventions
- Preparation of decision about numerical standards as task in cooperation with International Astronomical Union (IAU) and international hydrological associations.
- Initiation of a pilot project for an IVRS realization on the basis of the IGS TIGA-PP, GGP and IGFS for AG and a CGGM

Program of Activities

- Study of information on regional vertical systems and their relations to a global vertical reference system for practical applications;
- Study of combination procedures of height data sets from different techniques;
- Development of the basic relationships between ITRS and IVRS conventions, parameters, realization, models
- Unification of regional (continental) height systems

- Preparation of a pilot project for the realization of a GVRS.

Membership

Zuheir Altamimi (France),
 Matt Amos (New Zealand)
 Alireza A. Ardalan (Iran)
 Claude Boucher (France)
 Wolfgang Bosch (Germany)
 Carine Bruyninx (Belgium)
 Milan Bursa (Czech Republic)
 Gleb Demianov (Russia)
 Will Featherstone (Australia)
 Bernhard Heck (Germany)
 Johannes Ihde (Germany)
 Rene Forsberg (Denmark)
 Satoru Fukuda (Japan)
 Bill Kearsley (Australia)
 Gunter Liebsch (Germany)
 Teixeira Luz (Brazil)
 Markku Poutanen (Finland)
 Laura Sanchez (Colombia)
 Steve Shipman (UK)
 Marc Véronneau (Canada)
 Viliam Vatrč (Czech Republic)