



## **Report on References Frame in Practice Seminar Operational Aspects of GNSS CORS Suva – Fiji**

The FIG Asia Pacific Capacity Development Network (AP CDN) convened another seminar of the Reference Frame in Practice series in Suva, Fiji 18-20 September 2018. The event was a result of discussions held at the FIG Congress in Istanbul (Turkey) at the AP CDN open meeting. Since then development partners of the network namely, the Fijian Government - Ministry of Lands and Mineral Resources, Pacific Geospatial and Surveying Council (PGSC), the UN GGIM AP, FIG Commission 5, and the Pacific Geospatial & Surveying Partnership Desk – Pacific Community, prepared a technical program based on the needs of geospatial and surveying professionals in the region.

The seminar was officially opened by Fijian dignitaries –

- Reverend Raki Tigarea – Lecturer, Pacific Theological College
- Dr. Andrew Jones – Director, Geoscience, Energy & Maritime Division - Pacific Community
- Mr. Malakai Finau – Permanent Secretary, Ministry of Lands and Mineral Resources
- Ms. Meizyanne Hicks – Vice Chair, PGSC

The theme and objectives of the seminar was to provide perspectives and case studies on technical matters relating to the “Operational Aspects of GNSS CORS” infrastructure. Presenters also delivered content on the - “what, why and how” to build a sustainable and modernised geodetic reference frame and datum; challenges faced in the Pacific in relation to geospatial information management and data sharing; legal, policy, and codes of practice (including standards); and the issues pertaining to developing the capacity of surveyors in the discipline of geodetic surveying.

There were 23 presentations and 2 exploratory “question and answer” workshops over the 3 day event. The quality of all presentations was of a high standard, which often stimulated involvement and interaction amongst the seminar delegates. The registrations and attendance to the event totalled just below 100, comprising of surveyors, engineers, town planners, students and geospatial experts from 14 different countries in the region. To view the technical program and presentations please navigate to the website location - [http://fig.net/resources/proceedings/2018/2018\\_09\\_rfip.asp](http://fig.net/resources/proceedings/2018/2018_09_rfip.asp)

At the conclusion of day 1 and the last day of the seminar participants debated and workshopped the key takeaway messages, opportunities, challenges and solutions to issues that evolved from the seminar. These discussions led to how they could now move forward on the main points raised during the exploratory workshops. It was decided that a resolution, based on discussions and findings from the seminar, outlining the challenges and related actions to resolve such challenges be

prepared. This resolution was circulated to reach a consensus view from the participants. To review the seminar resolution please refer to Attachment A.

On the final afternoon of the seminar all delegates were invited to attend the commissioning of the Suva GNSS CORS located at the Geoscience, Energy & Maritime - Pacific Community offices Mead Road, Nabua. This GNSS CORS is the one of nine (9) new facilities that will be constructed through the islands of Fiji, over the next few years. The ceremony was attended by honorary guests Mr. Malakai Finau (Permanent Secretary Lands and Mineral Resource), Mr John Feakes (Australian High Commissioner) and Dr Andrew Jones (Director Geoscience, Energy & Maritime Division - Pacific Community).

The RFIP seminar was also evaluated by the delegates. Overall the feedback was very positive as participants agreed the event was well organised, had relevant and quality technical content, the atmosphere and communication was friendly, very open and respectful, and also mentioned similar events should be held in the future. FIG and development partners recognised that responses of this nature are attributed to the support and assistance provided. Consequently special thanks are expressed to the staff from Fijian Government - Ministry of Lands and Mineral Resources, staff from the Pacific Geospatial & Surveying Partnership Desk – Pacific Community, to Leica Geosystems for their financial support, and also local organisers Mr Andrick Lal and Fiji Surveyor-General – Mr Asakaia Tabua for their time, efforts and wonderful hospitality.

To view the Photo Gallery please navigate to the website location – <https://www.flickr.com/photos/132951677@N02/albums>



## Resolution “Operational Aspects of GNSS CORS” - Reference Frame in Practice Seminar

18-20 September 2018 - Suva, Fiji

### *The Seminar,*

**Reaffirmed** the United Nations (UN) General Assembly Resolution (A/RES/69/266) on the Global Geodetic Reference Frame (GGRF) for Sustainable Development.

**Reaffirmed** the significance of Geodetic (and geospatial) Infrastructure; Policies, Standards and Conventions; Education, Training and Capacity building; Appropriate Governance; and Outreach and Communication to achieving an accurate, sustainable and accessible GGRF to support science and society.

**Reaffirmed** the GGRF underpins satellite positioning technology, provides the framework for all geospatial activity and is a key enabler of - spatial data integration and interoperability; disaster risk mitigation, organisation and response; responsible land and water administration, management and governance; and supports the monitoring and measurement of the UN Sustainable Development Goals.

**Recognised** the important role of GNSS CORS infrastructure to deliver a quality modernised GGRF and geodetic datum, as well as providing quality geospatial and surveying services to government, industry and the community.

**Recognised** that improved geospatial and geodetic data sharing amongst Pacific Islands Countries and Territories (PICTs), sectors of government, industry and the wider community will support - datum determination and modernisation; unification of height systems; measurement of Earth dynamics; integration and interoperability of fundamental datasets; monitoring of sea level change, and the effects of other natural phenomena such as tsunamis, earthquakes, storm and flooding events, and volcanic activity; and

**Noted** further the additional benefits of sharing geospatial and geodetic data include more effective, responsive and accountable government, research outcomes, innovation, asset management, service delivery, and also address the social and environmental challenges and impacts associated with urbanisation, and disruptive technologies.

**Recognised** the challenges of geospatial information management, and geodetic surveying in the Pacific region, in particular – the diversity of capability across the PICTs; establishing and maintaining geospatial and geodetic infrastructure and systems with often limited and finite resources both financial and human; data sharing, availability and accessibility; treatment of data security, privacy and sensitivity; financing and commercialisation of data and infrastructure; and

**Noted** the need to modernise relevant legislation (acts and regulations), policies, standards and practices in the context of geospatial, surveying and geodetic infrastructure (i.e. GNSS CORS), systems and data; and

**Noted** also other challenges such as accessing reliable communications; the lack of awareness of the value and importance of geospatial and geodetic information; gender diversity of the industry; and the present limited availability of qualified young geospatial and surveying professionals in the region.

**Acknowledged** the crucial the role and the function of the Pacific Geospatial and Surveying Council (PGSC) as the principal representative body of geospatial and surveying professionals in the PICTS.

**Acknowledged** the ongoing administrative support and technical operations of the Pacific Community - Geoscience, Energy & Maritime Division and Pacific Geospatial & Surveying Partnership Desk.

**Recommends** that members, representatives and supporters of the PGSC, as well as the geospatial and surveying profession and community-

- a) Advocate, promote and communicate the profile, value, importance, benefits (including economic and social) and opportunities of geospatial and geodetic survey infrastructure and information to government, decision makers, industry and the wider community. Furthermore, that such activity should be through various methods including digital and social media, active participation at various related Pacific forums, and outreach initiatives.
- b) Encourage and facilitate technical capability development through training, workshops, and cooperation in GNSS CORS densification; GNSS data processing; geodetic datum determination; geodetic datum transformations; geospatial data management integration, interoperability and systems; the use of geodetic software; and geoid derivation and vertical reference frames / datum.
- c) Adopt the globally accepted principles for geospatial and geodetic data to ensure it is available to share, current, authoritative, accessible, usable and interoperable.
- d) Encourage the development, and implementation of geospatial and geodetic data strategies and policies, and ensure alignment with the UN-GGIM Working Group on Legal and Policy Frameworks for Geospatial Information Management.
- e) Promote and share geodetic data to support the International Terrestrial Reference Frame (ITRF); regional geodetic programmes such as the Asia-Pacific Regional Reference Frame (APREF) and the Asia Pacific Regional Geodetic Project (APRGP); Pacific Sea Level and Geodetic Monitoring Project; modernisation of national geodetic datums in the Pacific; and the unification of height systems.
- f) Consider also sharing real-time GNSS observations to support disaster and emergency management, and risk reduction including tsunami and earthquake early warning systems.
- g) Encourage active involvement at the international, regional and national levels with respect to geospatial and surveying standards and practices and the related networks and frameworks.

- h) Engage in multilateral collaboration to review, evaluate and modernise legal and relevant institutional arrangements pertaining to administering geospatial and geodetic data and infrastructure. This includes appraisal, and re-engineering or development of acts, regulations, policies, standards and practices, and organisational frameworks associated with geodetic datum; coordinates; GNSS CORS; field and office practices with respect to data collection, validation, analysis, processing and distribution; calibration and testing; specifications and formats; geospatial and survey data management and metadata etc.
- i) Engage with the relevant Academic community to participate in appropriate geospatial or survey training or workshops and operations.
- j) Engage with the relevant Commercial or Private Sector community to participate in appropriate geospatial or survey training or workshops and operations.
- k) Provide opportunities to develop and exchange technical knowledge through internships and short term attachment programs for geospatial and geodetic survey professionals.
- l) Encourage and support PGSC members and nominated representatives, geospatial and geodetic surveying experts, and decision makers to attend appropriate regional forums, capacity development workshops and meetings.
- m) Build geospatial and geodetic surveying capability through engagement with relevant international and regional experts.
- n) Encourage greater gender diversity and succession planning through awareness campaigns, good news stories, mentoring, professional development and regular engagement with educational institutions.
- o) Prepare relevant national (or agency) strategic, implementation and operation plans for relevant geospatial and geodetic survey initiatives or activities, and ensure alignment with the *PGSC Strategy 2017-2027 – Positioning the Pacific Islands Countries and Territories for the Future*.
- p) Create a body of knowledge database or system, and contribute information to allow sharing of experiences, documents, presentations, papers, articles, business cases, plans etc. regarding geospatial and surveying development in the Pacific.
- q) Work closely with the International Federation of Surveyors (FIG), in particular the FIG Asia Pacific Capacity Development Network (AP-CDN) and Commission 5; the UN-GGIM Asia Pacific WG1 Reference Frames; UN-GGIM Sub-Committee on Geodesy - Education Training and Capacity Building; and other relevant organisations such as Geoscience Australia, Land Information New Zealand, National Geodetic Survey – NOAA, to invest in geodetic capability.