

Report of UN-GGIM-AP WG1 - Geodetic Reference Frame

UN-GGIM-AP Executive Board Meeting
03 July 2020



UN-GGIM

United Nations Initiative on
Global Geospatial Information Management

"Positioning geospatial information to address global challenges"

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UN-GGIM-AP Working Group 1 - Geodetic reference frame -

Chair

Mr. Basara Miyahara, Japan

Vice Chairs

Dr. John Dawson, Australia

Dr. Yamin Dang, China

Mr. Shyam Veer Singh, India

Dr. Mohd Yunus Bin Mohd Yusoff, Malaysia

Ms. Dalkhaa Munkhtsetse, Mongolia

Mr. Graeme Blick, New Zealand

Dr. Sangoh Yi, Republic of Korea



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UN-GGIM-AP Working Group 1 – Focus 2018 - 2021

**UN-GGIM
Geodesy**



**Regional
Reference Frame
(APREF, APRGP)**

**Regional Height
System
Unification**

**Regional
Capacity
Building**



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UN-GGIM GGRF Subcommittee on Geodesy

- Established in August 2017
- Working on sustainable the **Global Geodetic Reference Frame (GGRF)**
- Co-chairs: Nick Brown (Australia)
Alexey Trifonov (Russia)
- Working Groups:
 - Geodetic Infrastructure (Zuheir Altamimi, France)
 - Policy, Standard and Convention (Nick Brown, Australia)
 - Education, Training Capacity Building (Mikael Lilje, Sweden)
 - Outreach and Communication (Anne Jørgensen, Norway)
 - Governance (Laila Løvhøiden, Norway)



UN-GGIM GGRF Subcommittee on Geodesy

- The SCoG membership includes:
 - 40 voting members nominated by the regional UN-GGIM Executives, ensuring geographically distributed membership
 - Associate Members (non-voting) including IAG, FIG and other Member States not included in the 40 above
 - Observers (non-voting)
- Asia-Pacific members:
 - Australia, China, Fiji, Islamic Republic of Iran, Japan, Kyrgyzstan, Malaysia, New Zealand, Philippines, and the Republic of Korea**
- While these 10 countries are the official members, all other Asia Pacific Member States are invited and encouraged to participate in committee activities as associate members.



UN-GGIM GGRF Subcommittee on Geodesy

- The 1st meeting in Mexico City on November 2017.
- The 2nd meeting in China on November 2018.
- The 3rd meeting, planned for April 2020, was held online on June 18.
 - ✓ Discussion on SCoG report to UN-GGIM 10th session
 - Draft Position Paper on Sustaining the Global Geodetic Reference Frame
 - Draft Concept Paper on Establishing a Global Geodetic Centre of Excellence



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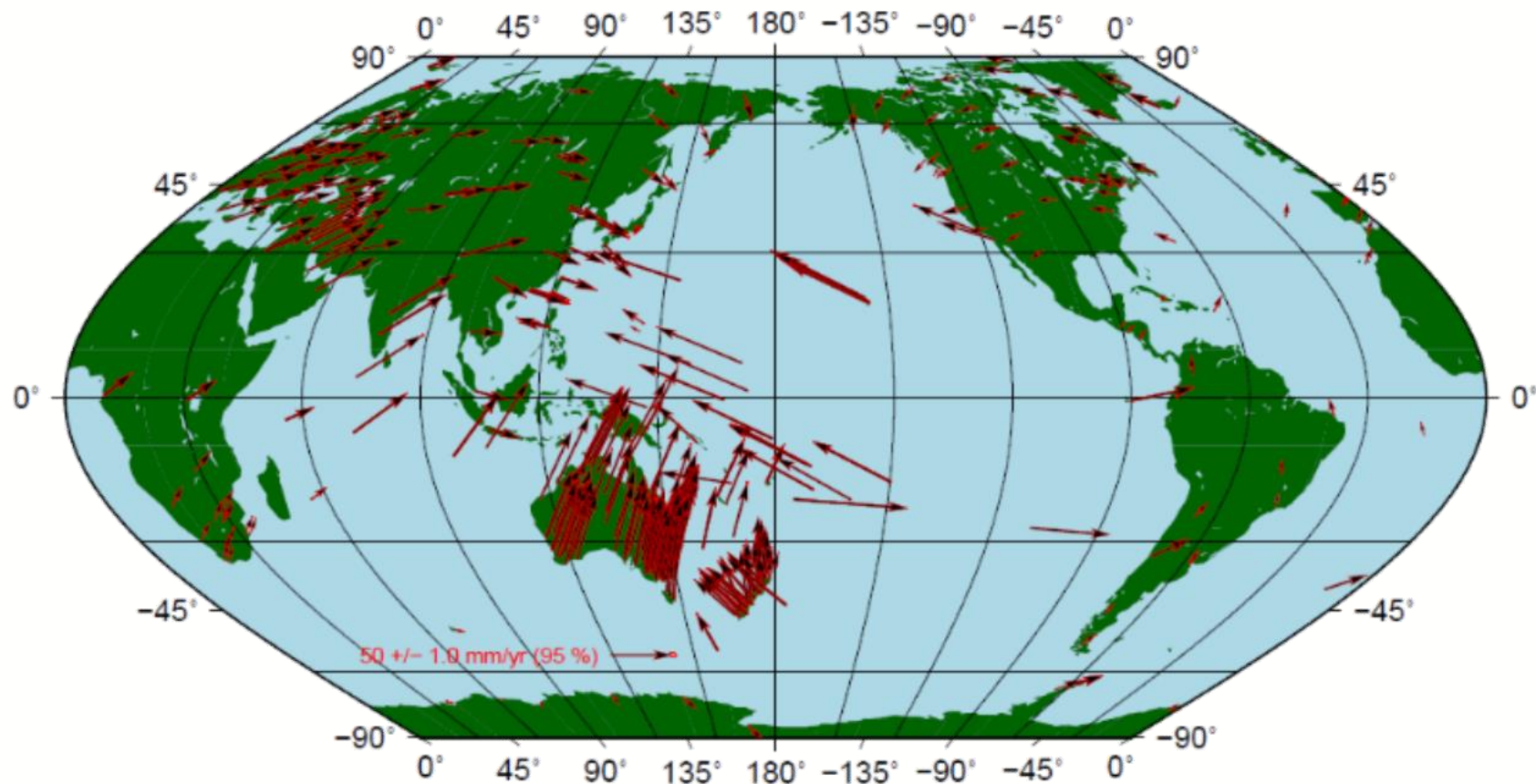
Asia Pacific Reference Frame (APREF)

- Regional geodetic reference frame
- Realized by continuous GNSS observation of over 600 stations
- 28 countries
- Densify ITRF and improve access to ITRF
- Data are routinely processed by three Local Analysis Centres*
- Station coordinates made available publically

* Geoscience Australia
Office of Surveyor-General Victoria, Australia
Institute of Geodesy and Geophysics, Chinese Academy of Sciences



Asia Pacific Reference Frame (APREF)



The velocity field for the APREF CORS network

G. Hu, M. Moore and J. Dawson (2016): An Update on the Asia Pacific Reference Frame (APREF)



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Asia Pacific Regional Geodetic Project (APRGP)

- Annual GNSS campaign
- Densify ITRF and improve access to ITRF
- Data are analysed by Geoscience Australia
- Analysis report is distributed each year

- **APRGP 2019:** 15 to 22 September 2019
- Participation from 16 countries and regions: Armenia, Bangladesh, Bhutan, Brunei, Cambodia, Hong Kong, India, Indonesia, Japan, Lao, Mongolia, Myanmar, Philippines, Singapore, Tonga and Vietnam
- Processed by Dr. Hu Guorong, Geoscience Australia

- **APRGP2020:** planned for September 2020
- A Call for Participation is being prepared



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Regional Height System Unification (APRHSU)

- Questionnaires on current height system of each member countries
- Analyse the answers to understand current situation
- Planning next actions based on analysis
 - Ex. Evaluate difference in height system among Asia-Pacific countries
 - Compute averaged height reference surface among Asia-Pacific countries



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Capacity Building Workshops

- Hosting and participating in capacity building workshops on geodetic reference frame, positioning and other geodetic challenges in Asia-Pacific
- Collaboration with International Federation of Surveyors (FIG) Asia Pacific Capacity Development Network (AP CDN) and Commission 5, International Association of Geodesy (IAG), UN-GGIM Subcommittee on Geodesy (SCoG) and other organizations
- Pacific Geospatial and Surveying Council (PGSC)



Capacity Building Events in 2020

- Following events were planned but postponed due to the COVID-19 pandemic.
- UN-GGIM WG-Disasters Conference 2020 in Tokyo, Japan, February 2020
- UN/Mongolia Workshop on the Applications of Global Navigation Satellite Systems in Mongolia, April 2020
- FIG Working Week 2020 in Amsterdam, May 2020
-> 2021
- Workshop on GNSS tsunami early warning and Geodesy4Sendai in Sendai, Japan, June 2020
-> 2021

