

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

UN-GGIM-AP 12th Plenary Meeting
Bali, Indonesia
November 9, 2023



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"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. Guorong Hu, Australia

Dr. Yamin Dang, China

Mr. Asakaia Tabu, Fiji

Mr. Upendra Nath Mishra, India

Mr. Sidik Tri Wibowo, Indonesia

Mr. Seyed Abdoreza Saadat Mirghadim, Islamic Republic of Iran

Mr. Ahmad Sanusi bin Che Cob, Malaysia

Ms. Dalkhaa Munkhtsetse, Mongolia

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UN-GGIM-AP Working Group 1 – Focus 2022 - 2024

**UN-GGIM
Geodesy**



**International
Height Reference
Frame (IHRF)**

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

**Regional
Capacity
Building**



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UN-GGIM GGRF Subcommittee on Geodesy

- Established in August 2017
- Working on sustaining the UN General Assembly Resolution, **“the Global Geodetic Reference Frame (GGRF) for sustainable development”**
- The 3rd meeting in Bonn, Germany on 29 - 31 March 2023
- In conjunction with Opening Ceremony of the United Nations **Global Geodetic Centre of Excellence (GGCE)** on 29 March 2023



<https://un-ggim-europe.org/news/important-milestone-in-the-journey-for-global-geodesy/>



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UN-GGIM GGRF Subcommittee on Geodesy

- Co-chairs: Fernand Bale (Côte d'Ivoire) <- Nick Brown (Australia)
Johannes Bouman (Germany)
- Nomination of SCoG members from UN-GGIM-AP
 - ✓ Australia, China, India, Indonesia, Japan, Russian Federation, Fiji, New Zealand, Mongolia, Republic of Korea
- Restructuring of Working Groups:
 - ✓ Global Geodesy Needs Assessment (Zuheir Altamimi)
 - ✓ State of Geodesy Report (Cahir Laila)
 - ✓ Capacity Building and Education



UN Global Geodetic Center of Excellence (GGCE)

- Head: Nick Brown
- Staff members: Sarah Kowal, Jan Dostal (Germany), Anne Jorgensen (Norway, virtual) ...
- Start consultation with countries and geodetic community
 - ✓ **“Listening World Tour”**, virtual meeting with stakeholders to understand how GGCE can assist people
 - ✓ With IAG, November 28th 2023
 - ✓ With **UN-GGIM-AP**, January 24th 2024 ...
- Future meetings:
 - ✓ International Advisory Committee of the UN-GGCE in Bonn, March 2024
(probably with the 4th Subcommittee meeting)

Please keep the date!



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Asia Pacific Reference Frame (APREF)

- Regional geodetic reference frame
- Realized by continuous GNSS observation of over **700 stations**
28 countries
- Densify ITRF and improve access to ITRF
- Data are routinely processed by three Local Analysis Centres*
- Station coordinates made available publically
- Report on APREF available at
<https://www.un-ggim-ap.org/wg/working-group-1-geodetic-reference-frame>

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



Asia Pacific Reference Frame (APREF)

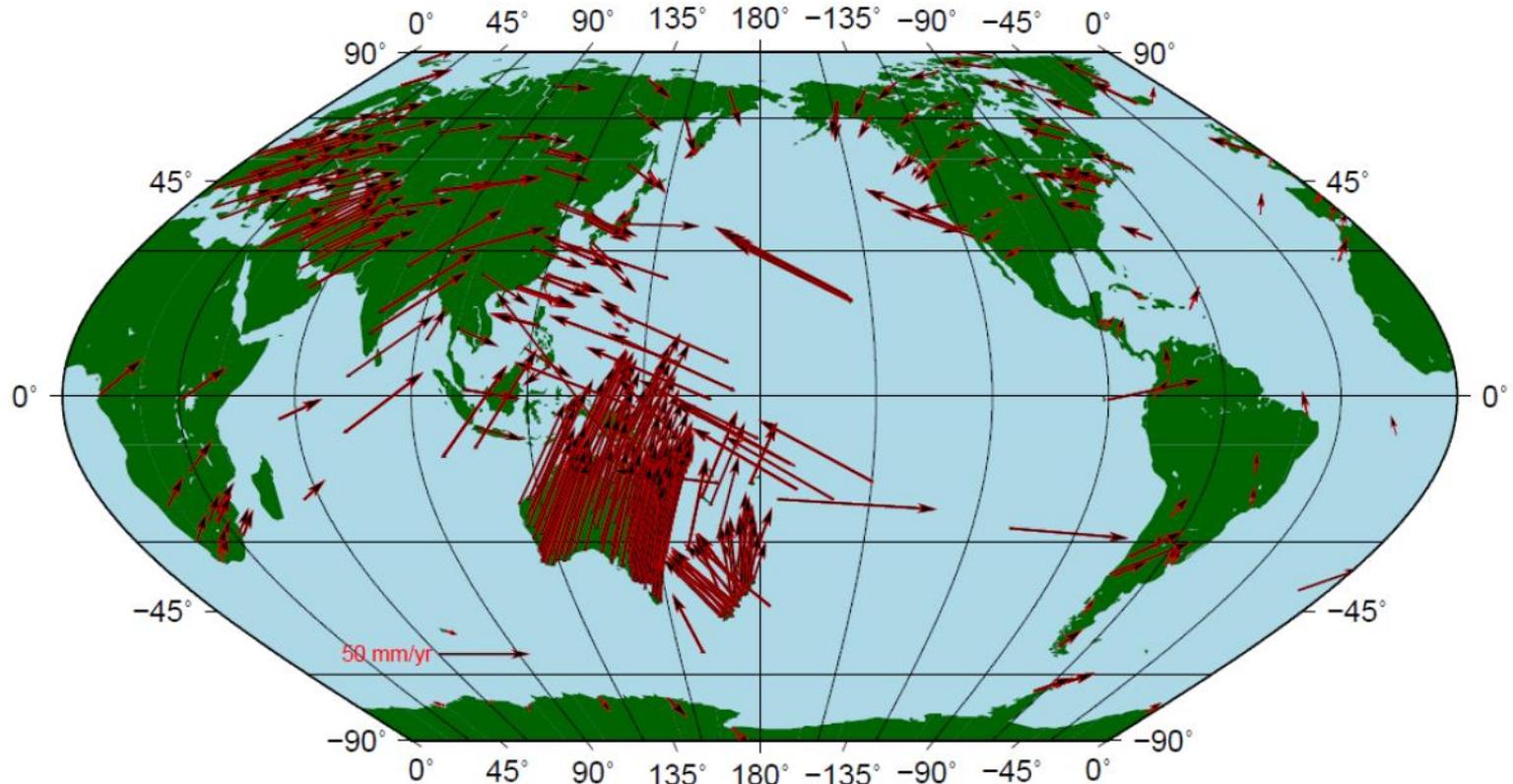


Figure 1. The distribution of APREF CORS network along with the IGS core stations. The arrows represent the GPS-derived velocity field.

G. Hu, M. Moore and J. Dawson (2019): Report on the Asia Pacific Reference Frame (APREF) Project



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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 2022:** 11 to 18 September 2022
- Under processing by Guorong Hu, Geoscience Australia
- Final report will be available at UN-GGIM-AP website
<https://www.un-ggim-ap.org/wg/working-group-1-geodetic-reference-frame>

- **APRGP2023:** 10 to 16 September 2023
- Under processing by Guorong Hu, Geoscience Australia
- Data submitted by Korea (Republic of), Laos, Mongolia, Singapore, and Vietnam so far



Asia Pacific Regional Geodetic Project 2022

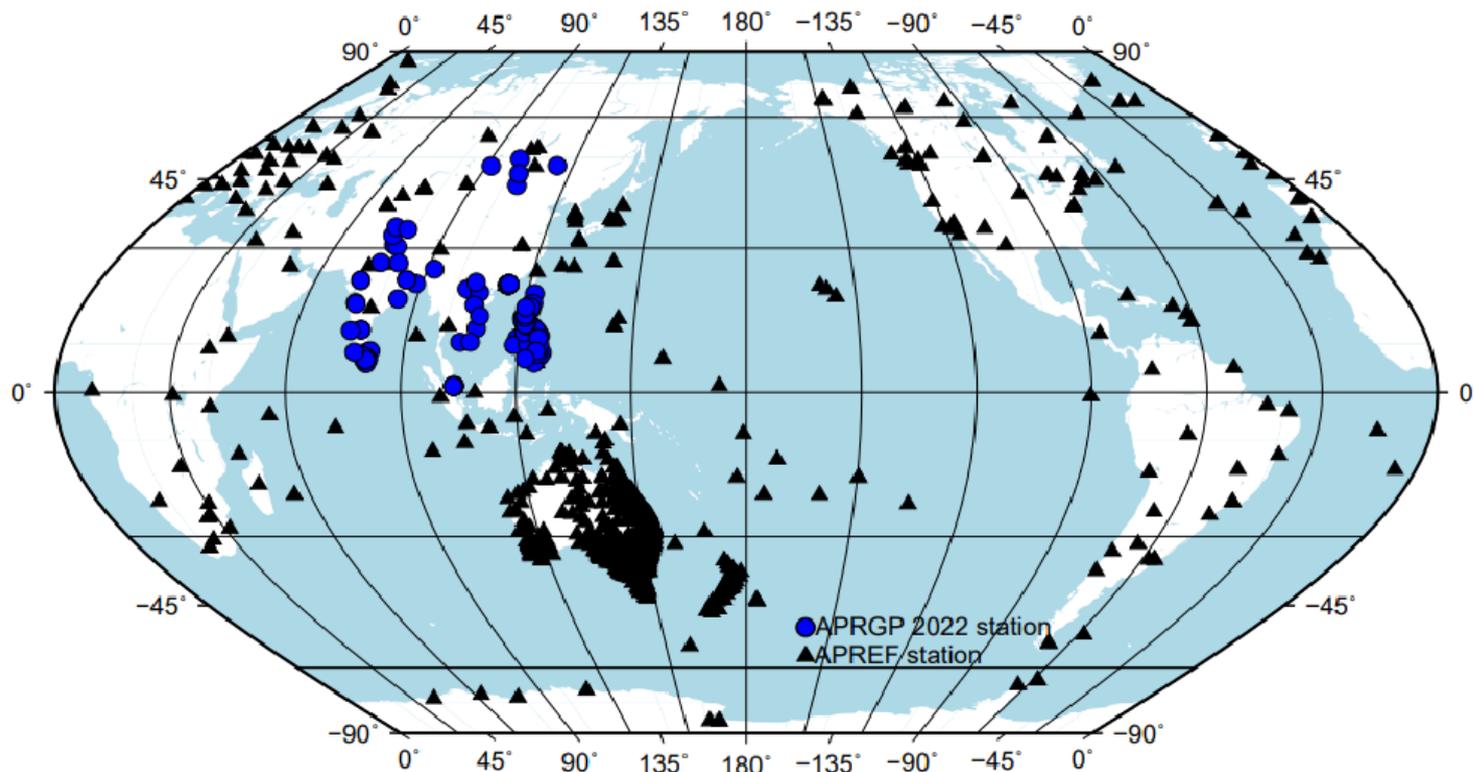


Figure 1 APRGP stations in the APRGP 2022 GPS campaign analysis along with the APREF stations and IGS stations, blue circles are APRGP campaign sites, and black triangles are APREF stations.

G. Hu: Report on the Analysis of the Asia Pacific Regional Geodetic Project (APRGP) GPS Campaign 2022



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International Height Reference Frame (IHRF)

- Global Geodetic Observing System (GGOS) Focus Area: Unified Height System has been working to establish International Height Reference Frame (IHRF)
- Evaluation of IHRF has been completed by international geoid evaluation, “Colorado Experiment”
- The first operational product center of IHRF will be launched
- IHRF related geodetic capacity development such as sharing of knowledge and expertise could be one of focus of WG1 in this term



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Capacity Building Opportunities in 2023-

- UN-GGIM-AP/IAG/FIG/BIG Workshop on Geodetic Reference Frames and Applications for Disaster on November 7th 2023 in Bali, Indonesia
- WG1 annual session at the UN-GGIM-AP 12th Plenary on November 9th 2023 in Bali, Indonesia
- FIG seminar “Reference Frame in Practice” at FIG2023?
- PGSC meetings (ex. GETWS Oceania meeting in Suva, 2024)
- Subcommittee on Geodesy and Global Geodetic Center of Excellence in Bonn, Germany on March 2024
- Other opportunities?



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**Thank you for
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