

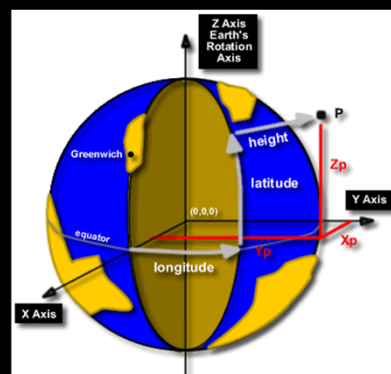
The APREF Project: an Improved Geodetic Infrastructure for Asia and the Pacific (4861)

John Dawson (Australia),
Graeme Blick (New Zealand),
 Manoj Deo, Guorong Hu and Gary Johnston (Australia)

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Reference frames and positioning

- Cornerstone of all geospatial measurements
 - Earth-observation, mapping, positioning, navigation and timing
- Applications
 - mining, agriculture, construction
 - emergency, land, utility and asset management
 - science e.g., hazard assessment, sea-level change, crustal dynamics



Reference frames: global

- International Terrestrial Reference Frame
 - Global, consistent, accurate, dynamic
 - Determined using GPS, SLR, VLBI, DORIS
 - Continuously refined
- **Densification of ITRF occurs on a regional basis e.g., EURREF**

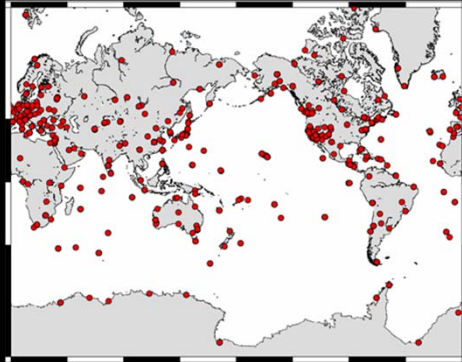


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Asia-Pacific (AP) Region

- Significant component of the Earth's
 - Area, population and economic output
- Access to high quality positioning infrastructure is essential for effective competition with the other regions, including Europe and the Americas
- Coordination of regional geodetic activities not well developed in the AP



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Efforts to establish an Asia/Pacific Regional Reference frame – episodic surveys

- **Permanent Committee for GIS infrastructure, Asia-Pacific (PCGIAP)** – aim to establish and maintain a precise geodetic network across region supporting geodetic activity
- International Association of Geodesy (IAG), Commission 1 (reference frames)



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Complications: deformation

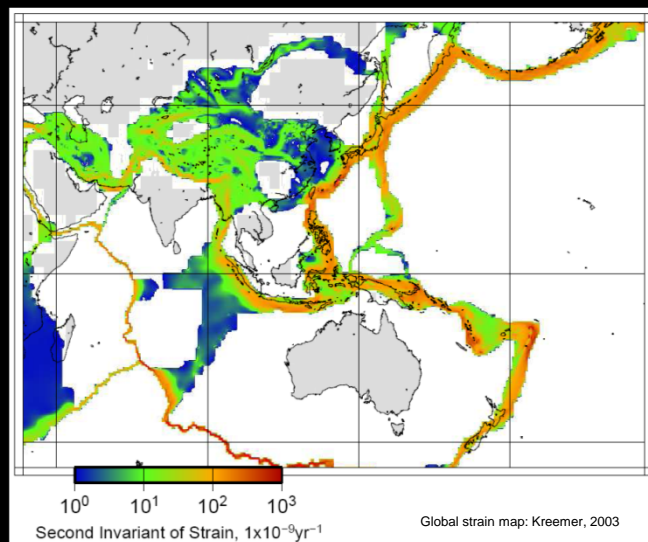
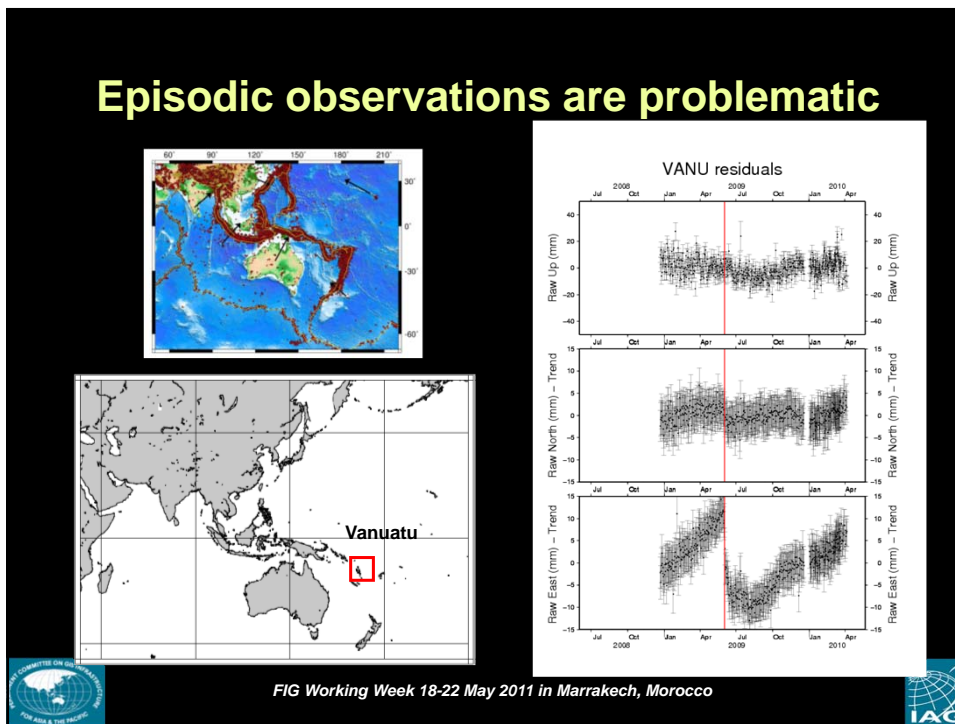
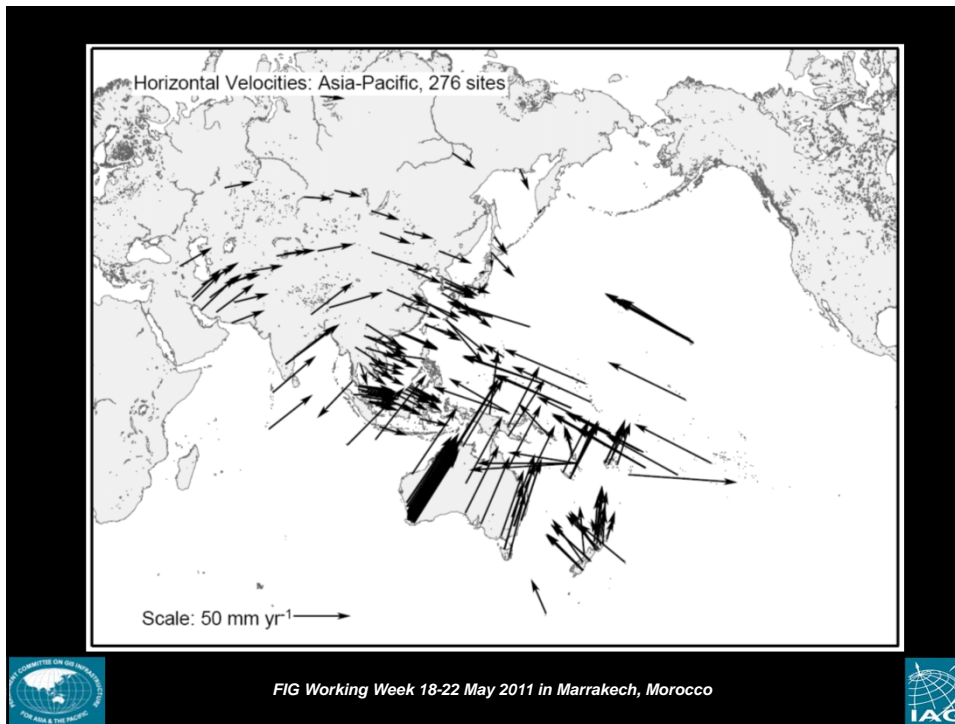


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Episodic observations are problematic

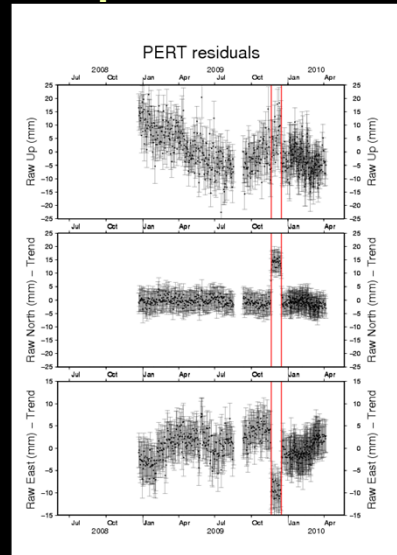
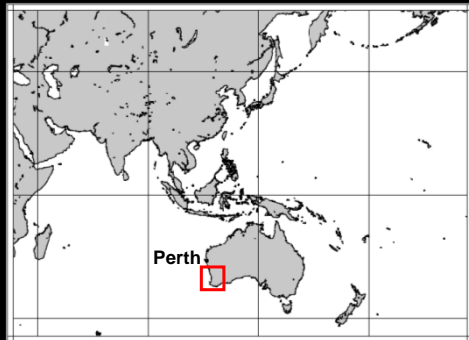


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Joint IAG and PCGIAP Initiative

- Asia-Pacific Reference Frame (APREF)
- Call for Participation: 1 March 2010
- Endorsed by the FIG and IGS



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Asia-Pacific Reference Frame Project

- The broad objective of APREF is to
 - Create and maintain an accurate and densely realised geodetic framework, based on **continuous observation** and analysis of GNSS data
- Major benefit for participants
 - Continuous link between national datums and CORS networks to the ITRF



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Asia-Pacific Reference Frame Project

- Open to all organisations involved with CORS data collection and/or analysis
 - Government, research, private
- Responding organisations must be able to make a long-term commitment
 - 2+ years
- APREF will provide an opportunity and a forum towards improving the regional geodetic infrastructure
 - Next generation geodetic infrastructure



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APREF: structure

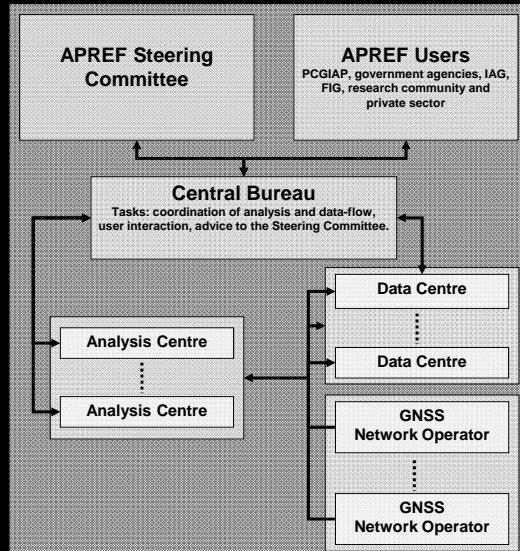


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APREF Network

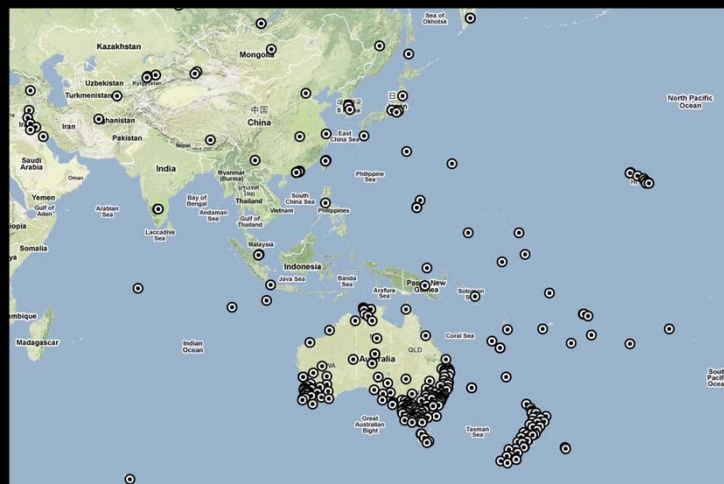


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APREF Products

- APREF combined weekly SINEX and summary files
 - <ftp://ftp.ga.gov.au/geodesy-outgoing/gnss/solutions/apref>
- GA APREF weekly SINEX and summary files
 - <ftp://ftp.ga.gov.au/geodesy-outgoing/gnss/solutions/final/weekly/>
- GA APREF network and time-series plots
 - <http://192.104.43.25/status/solutions/analysis.html>



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Final Remarks

- APREF network
 - ~300 stations
- 2 active analysis centres
 - Geoscience Australia
 - Curtin University
- 1 analysis centre in final assessment phase
 - University of NSW



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For more information, APREF Central Bureau
– john.dawson@ga.gov.au



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