

Online GPS processing with AUSPOS in ITRF2020

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SUMMARY

The online GPS processing service – AUSPOS - is an indispensable tool for geospatial professionals and has recently undergone a significant enhancement with its alignment to the International Terrestrial Reference Frame 2020 (ITRF2020). This upgrade marks a pivotal moment in the service's evolution, offering users improved accuracy and reliability in their coordinate determinations. By transitioning to ITRF2020, AUSPOS ensures alignment with the latest global standards, facilitating more precise measurements and better integration with international datasets. □□Recommended by the Intergovernmental Committee on Surveying and Mapping (ICSM) for control surveys by GNSS in the Australian region, AUSPOS continues to uphold its reputation as the trusted provider of analytic products and services. As its developer, Geoscience Australia remains committed to enabling accurate and reliable positioning not only in Australia but also across the globe by maintaining AUSPOS in alignment with the best available reference frame. □□The ITRF2020 was released in October 2022 by the International Earth Rotation Service, which was followed by the International GNSS Service realisation using modernised products and analysis, called IGS20. In the Australian region, the Geocentric Datum of Australia 2020 (GDA2020) is the most widely used datum for a diverse range of positioning applications, and GDA2020 is aligned to the previous iteration of the ITRF – ITRF2014/IGb14. This presentation will outline the adoption of ITRF2020/IGS20 in the AUSPOS services, which includes the introduction of a two-step transformation strategy to ensure the new AUSPOS system is providing accurate and reliable access to GDA2020. □□The AUSPOS upgrade process involved meticulous calibration and validation efforts, to ensure the system meets the high standards required for geodetic applications. This presentation will detail the methodology employed in the upgrade, including the software enhancements and the incorporation of the latest geophysical models. Additionally, we will present a comparative analysis of the performance improvements observed with the new system, highlighting the benefits for various applications such as land surveying, mapping, and scientific research.