New Zealand's role in the global geodesy supply chain through collaboration and innovation.

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SUMMARY

New Zealand plays a pivotal role in the global geodesy supply chain through its strategic location and collaborative efforts. Positioned in the southwest Pacific, New Zealand is uniquely situated to monitor tectonic activity and sea level changes and provide data critical to the global geodesy community.

Over the decades, New Zealand has contributed to and supported many global geodetic initiatives. These include operating the VLBI station at Warkworth, supplying GNSS data from our PositioNZ network to the IGS, hosting a DORIS/REGINA station on the Chatham Islands, supporting absolute gravity campaigns, and sharing our data to contribute to global geoid models. These efforts highlight our commitment to international collaboration.

However, as is common within the global geodesy supply chain, our infrastructure is aging, and the global, regional, and even local benefits of such systems are not widely known or appreciated. Addressing these challenges requires innovation to develop new solutions and maintain our contributions.

Geodetic infrastructure within New Zealand came to the forefront of the geodetic community's concerns in late 2022 when the Warkworth VLBI came under threat of closure. With support from the international community, New Zealand Government moved swiftly to find a new supplier, SpaceOps NZ, so that the supply chain has remained intact. This situation demonstrated our resilience and ability to adapt quickly to ensure continuity. With the help of the international community, we have advanced through steep learning curves of VLBI operation and the more technical aspects of the VLBI

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contract.

However, this is only a small piece of a much larger problem. The VLBI at Warkworth is approaching its 20-year anniversary, and it is an opportune time to develop a strategy to ensure the continuity of VLBI measurements in New Zealand for the next few decades. This includes improving the resilience of the station, an issue highlighted in late 2024 when a failure of two parts resulted in an outage of several months as replacement parts were sourced.

New Zealand's strategic location and long-standing commitment to global geodetic initiatives demonstrate our commitment to maintaining and advancing geodetic infrastructure. As we face the challenges of aging infrastructure and evolving operational needs, it is crucial to continue fostering international partnerships and combining resources to invest in innovative solutions. By doing so, we can ensure that New Zealand remains a vital contributor to the global geodesy supply chain, providing critical data for the benefit of our communities.