An Introduction to SouthPAN

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ABSTRACT

As part of the Positioning Australia program, Geoscience Australia is progressing with the delivery and operations of SouthPAN, the Southern Positioning Augmentation Network. SouthPAN is a Satellite-Based Augmentation System (SBAS), which includes a system of space and ground infrastructure that augments positioning signals provided by the Global Positioning System (GPS) and other Global Navigation Satellite Systems (GNSS) to significantly improve positioning accuracy and reliability. SouthPAN delivers positioning data to users via satellite and is a partnership between Geoscience Australia and Toitū Te Whenua Land Information New Zealand (LINZ) under the Australia New Zealand Science, Research and Innovation Cooperation Agreement. SouthPAN is a 'next-generation SBAS', currently delivering the following open services: (1) L1 SBAS augmenting the GPS L1-C/A navigation signal, (2) L5 Dual-Frequency Multi-Constellation (DFMC) augmenting the GPS L1-C/A and L5 navigation signals as well as the Galileo E1 and E5a navigation signals, and (3) L5 Precise Point Positioning (PPP) via SouthPAN. The SouthPAN broadcast signals went live on 26 September 2022 and will operate for 19 years with Safety of Life SBAS services commencing in 2028. We are providing Australia and New Zealand world-class access to positioning services that will improve accuracy from 5-10 metres to as little as 10 centimetres on land and sea without the need for mobile or internet coverage. SouthPAN is the first SBAS service in the southern hemisphere and estimated to generate at least $7.6 billion in benefits to the Australian and New Zealand economies over 30 years. This presentation provides an introduction to SouthPAN, along with a progress update of project and service delivery and the benefits to users.

KEYWORDS: *Positioning Australia, SouthPAN, SBAS, PPP.*