

GPSnet: A Continually Operating Reference Station (CORS) Network

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Global Navigation Satellite System (GNSS) Continuously Operating Reference Stations (CORS) are now accepted as a part of the fundamental positioning infrastructure for the spatial sciences. The challenge is to ensure that high accuracy real time positioning based on CORS networks is accessible to new audiences and deliver quality services that ensure a sustainable future.

Vicmap Position – GPSnet managed by the Victorian State Governments Department of Environment and Primary Industries (DEPI) provides high accuracy positioning services state wide with availability and reliability that meets demanding use such as 24/7 operations for precision farming applications. To capture a broader selection of users such as asset managers of critical infrastructure and machine control applications, Vicmap Position has a robust design and efficient delivery model. This presentation will review high accuracy positioning infrastructure in Victoria and discusses technical aspects as well as economic and environmental benefits to agriculture, mining and construction industries using Controlled Traffic Farming as a case example.

Australia's resource-based economy requires continual productivity improvements to remain competitive in the international market place. Studies have shown that recent developments in machine automation demonstrate increased operational efficiencies, reduced costs and have improved safety systems. GNSS is a primary component used for autonomous machine control applications in the agriculture, construction and mining industries, where accuracy, reliability and integrity are critical 24 hours per day all year long.

The Asia Pacific region is well placed to benefit from new GNSS developed by Japan and China. To provide high-accuracy positioning across a vast continent with sparse infrastructure and a small but concentrated population like Australia, poses many challenges. To understand these challenges, a case example is provided from the state of Victoria in Australia, where a co-operative approach between industry, research and government proposes to leverage a CORS network for testing and validation of new multi-GNSS algorithms, methodology and delivery systems.