



# **International Global Navigation Satellite Systems (IGNSS)**

**2008/2009 Workshop Series**

## **Case Study 5 – GNSS for Aviation**

Queensland is fast becoming known as an internationally significant centre for application development based on Global Navigation Satellite Systems (GNSS) such as the Global Positioning System (GPS) and the emerging Galileo system.

The Queensland Government supports the growth of the GNSS industry and its many members. V-TOL Aerospace is just one of the innovative Queensland companies which form the GNSS industry in the State.

## GPS in Queensland

Over the last decade Queensland has developed a strong international reputation for GPS innovation to improve safety and productivity in transport, surveying, mining, civil engineering, agriculture and other sectors. To serve these industries, a globally significant concentration of companies developing GPS systems has evolved in Southeast Queensland.

Queensland has more than 20 companies developing GPS products and systems for machines, vehicles and aircraft. In addition there are 12 research entities with strengths in GPS, precise positioning and synergistic research fields such as spatial information, autonomous systems, intelligent transport and intelligent vehicles.

As the United States GPS is joined by additional satellite systems from Russia, the European Union, China, Japan and India, a new era of GNSS will emerge with the promise of an enhanced worldwide position, navigation and timing (PNT) utility.

There are significant opportunities for Queensland in embracing GNSS. The potential by 2011 is:

- o \$1.25 billion in GNSS goods and services
- o productivity increases of between 10-30 per cent for key economic sectors such as civil engineering, mining and agriculture
- o up to 2,700 full-time equivalent employees involved in the sector.

The Aviation community is at the forefront of GPS and GNSS adoption



globally with Australia actively involved through the Civil Aviation Safety Authority (CASA) and Airservices Australia.

The Queensland aviation sector action plan recognizes the importance of this industry sector to the state economy and builds on actions contained in the 2002 aerospace industry development Plan.

A good example of Queensland's aerospace industry development is the Australian Research Centre for Aerospace Automation (ARCAA), a collaboration between the CSIRO ICT Centre, Autonomous Systems Lab, and the School of Engineering Systems at the Queensland University of Technology. ARCAA includes GNSS research as an important part of their sensors and advanced flight systems theme.

GNSS is also increasingly used for aerospace application development within the private sector in Queensland, including: the development of ADS-B GPS based surveillance and navigation equipment; information systems for flight following and management; and incorporation into locally built unmanned airborne systems (UAS).

# Aerospace innovation

## Robotic Airborne Intelligence

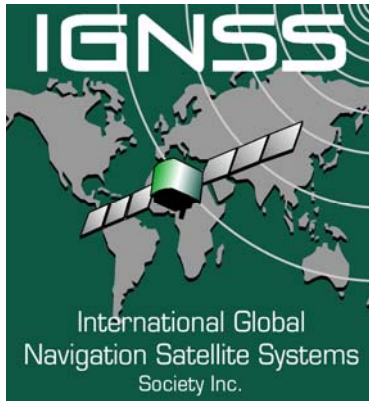


Situated in Brisbane, Queensland, V-TOL is a wholly owned Australian SME with key skills and focus in the development of unmanned aerial systems (UAS) and the commercial provision of UAS flight services operating under its CASA UAS Operating Certificate 1-31RFZ-02. To support its prime focus V-TOL also has skills in secure wireless LAN data-links, GNSS, UAS mission support systems, and airborne monitoring and remote sensing applications.

Operating primarily in the commercial market, V-TOL use their in-house expertise combined with technology partnerships to deliver a range of UAS, training and certification solutions. This expertise is required to deliver UAS applications as diverse as asset, marine and environmental management. UAS flight testing and training is conducted at V-TOL's Haigslea 40km<sup>2</sup> flight operations area within RAAF Base Amberley controlled airspace.

V-TOL has strong working relationships with Queensland Government through the Department of Employment, Economic Development and Innovation. Other important relationships include QBE Aviation, The University of Queensland, Queensland University Technology (ARCAA), The University of New-England, the Unmanned Vehicle Systems International (UVSI), New Zealand Australia (UVS-NZA) association, UATAR Working Group members ([www.uatar.com](http://www.uatar.com)) and membership of 43PL and the cooperative research centre for spatial information (CRC-SI).

For further information [www.v-tol.com](http://www.v-tol.com)



[www.ignss.org](http://www.ignss.org)

## **IGNSS 2008 Workshop Series**

- Workshop 1 - GNSS for Infrastructure Development
- Workshop 2 - GNSS in Agriculture

## **IGNSS 2009 Workshop Series**

- Workshop 3 - GNSS in Spatial Sciences
- Workshop 4 - GNSS in Mining
- Workshop 5 - GNSS in Aviation
- Workshop 6 - GNSS in Transport

The case histories for each workshop are accompanied by visual presentation materials which can be supplied on request. The development of GNSS case histories is supported by the Queensland Government's Information Industries Bureau (IIB). The IIB is the ICT sectoral development unit of the Department of Employment, Economic Development and Innovation.



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