

Biography – Dr Gordon Frazer

Dr Frazer has made a direct and substantial contribution to the defence of Australia, with technical excellence in High Frequency (HF) radar technology and far-sighted innovative solutions that have maintained Australia's position as a world leader in over-the-horizon radar (OTHR) capability.

Dr Frazer's technical contribution and leadership in HF radar technology have significantly benefited the OTHR capability improvement programs of both Australia and USA.

The Jindalee Operational Radar Network (JORN) was developed over many years as a result of DSTO's research in OTHR technology, beginning in the 1970s. JORN provides wide area surveillance of Australia's strategically important northern approaches. The JORN system has been progressively upgraded and enhanced through DSTO's continuing research efforts and changing operational requirements.

As part of continuous improvement, Dr Frazer has developed a number of major technological advances in techniques, algorithms, software and hardware that have helped to address some significant limitations on High Frequency (HF) radar performance caused by the ionosphere.

His work has advanced our understanding of the requirements for next-generation HF radars and the operational missions associated with those radars. He has developed novel ways of testing HF transmitters that have resulted in a much deeper understanding of how very subtle technical characteristics significantly limit overall performance in an operational system.

He led the research in developing a unique monitoring technology for OTHR that has significantly enhanced Australia's surveillance capabilities and its warfighting edge.

His expertise in signal processing and Radio Frequency systems engineering design illustrate the breadth of Dr Frazer's exceptional technical skills and high professional standards.

He has demonstrated the use of new techniques that will enable an operational radar system like JORN to significantly increase performance against jamming and further increase the already impressive detection capabilities in Australia's northern maritime approaches. Equally, these new techniques can pave the way for major functional improvements in next-generation OTHR systems.

Dr Frazer has led trials in collaboration with the US to demonstrate the viability of OTHR systems for missile defence. His analysis of performance issues and transitioning of technology has led to substantial capability improvements in OTHR radars employed by Australia's allies.

Dr Frazer has played a key role in shaping the US next-generation OTHR development program. His strong advocacy of HF radar was instrumental in the US

Department of Defense reinvigorating efforts to understand the role of HF radar as part of its surveillance network covering the approaches to the continental US. As a result of his efforts and advice, the US has introduced a program of work with Australia aimed at enabling a generational improvement in OTHR capabilities, which will form an integral part of that country's development plan for new OTH radars. This outcome not only demonstrates high international regard for Dr Frazer's expertise but his sound understanding of strategic policy engagement with the US.

Dr Frazer has developed a strategic industry plan based on engaging with industry as full partners and assuring US stakeholders that Australian industry is well placed to be the supplier of choice for substantial aspects of the US next-generation OTHR program. Dr Frazer's IP management, industry licensing and transition strategies have placed Australian industry in a strong position to participate in the US program and exploit the HF radar market in that country.

In July 2009 Dr Frazer was presented with an Award for Excellence by the National Measurement & Signature Intelligence Management Office of the US Department of Defense in recognition of his "invaluable technical expertise and leadership in support of Australia-US OTHR cooperation".