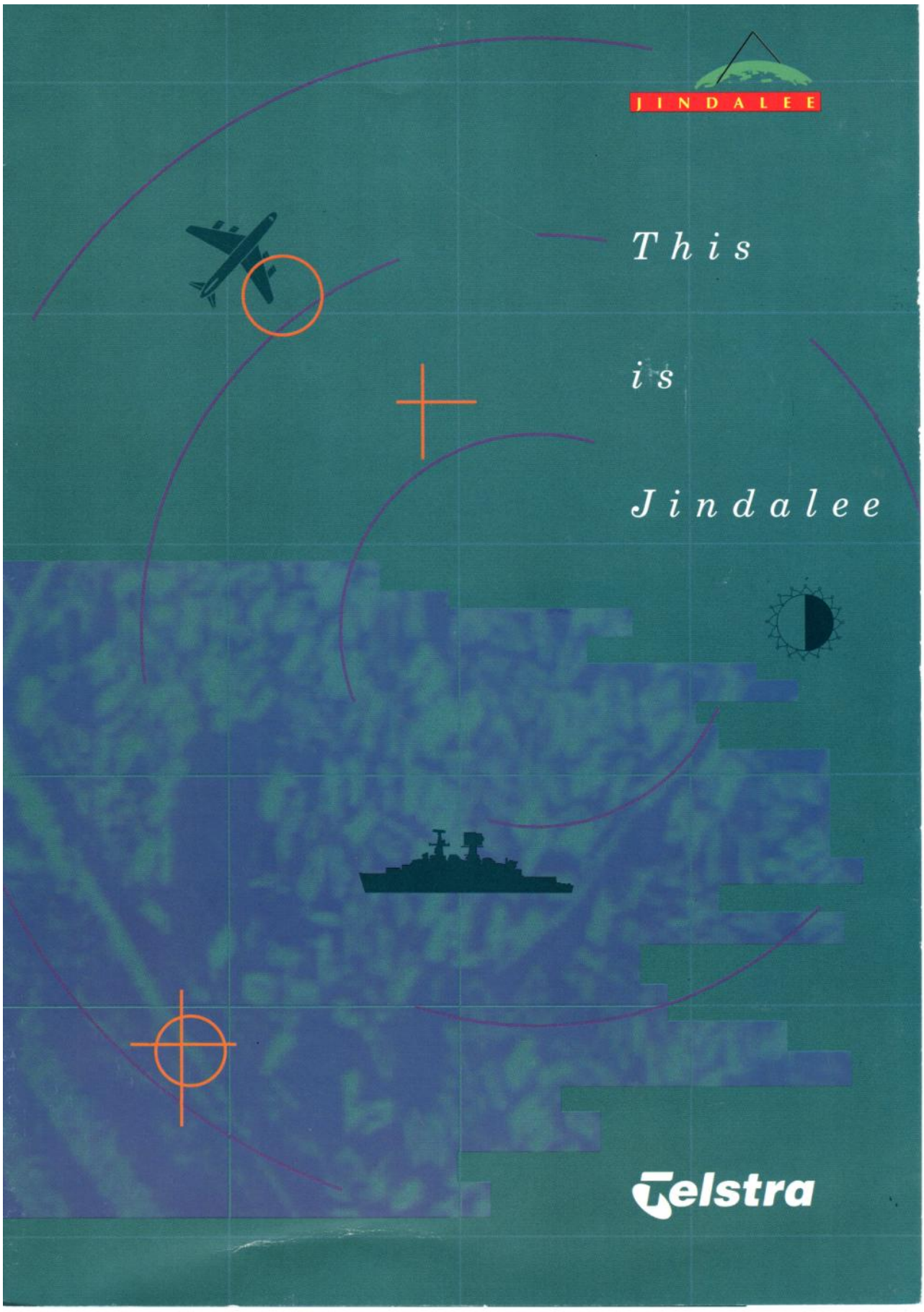
JINDALEE
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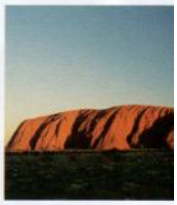
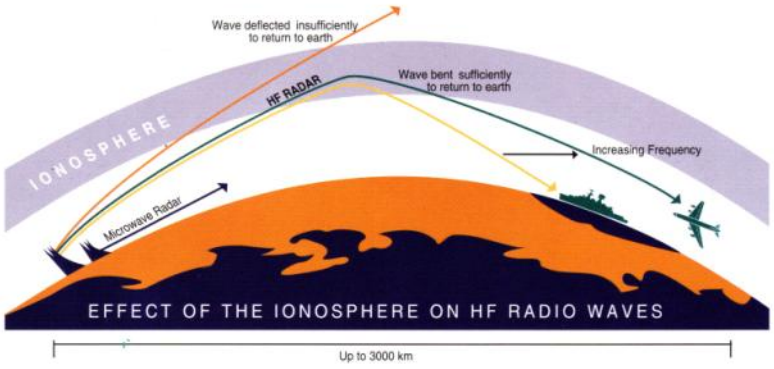
The Jindalee Operational Radar Network (JORN) is a vital element of Australia's policy of defence self-reliance that looks to the end of this century and beyond. It will monitor Australia's northern coastline - one of the longest, least inhabited in the world. In addition to its defence role, Jindalee will help detect air or seaborne incursions of interest, such as those by drug smugglers or illegal immigrants. And it will provide meteorological data on surface-winds and sea wave heights enabling early-warning weather alerts and cyclone tracking.

Jindalee Over The Horizon Radar (OTHR) technology employs a high level of leading-edge expertise developed by Australia's Defence Science and Technology Organisation (DSTO) over more than two decades of research. In 1991, as the result of competitive tendering, the Department of Defence contracted Telstra to develop and build the Jindalee Operational Radar Network. This will consist of two transmitter-receiver radars, one in Queensland and one in Western Australia, linked to a network coordination centre at the Edinburgh Airforce base in South Australia.

Telstra is taking the lead with major projects in Australia, particularly those involving the research and development of unique solutions. As prime contractor, Telstra has sub-contracted some of the world's best specialists. GEC-Marconi is providing state-of-the-art developments in radar and digital-signal processing and technology transfer to allow future development and maintenance within Australia. Radio Frequency Systems is responsible for the design, manufacture and installation of antennas and DEC for computer hardware. Telstra with Lockheed Missiles and Space Company has formed a joint-venture company, Telstar Systems, which will develop about 90% of the computer software for the Jindalee Project.





HOW IT WORKS

Jindalee is an early-warning radar surveillance system of extraordinary sophistication. Jindalee's high frequency (HF) signals will reach across more than 3,000 km of airspace and ocean with a single installation blanketing more than 5 million square km. Conventional ground-based microwave radar operates in a direct line and therefore is limited by the horizon. Objects over the horizon are undetectable.

Jindalee OTHR sees over the horizon by transmitting radar signals upwards. They are refracted by the ionosphere, about 200-500 km above the earth's surface, downwards to illuminate a target, whether aircraft or ship. The target's echo travels by a similar path back to a receiver. Received data is processed by high-powered computers and turned into useable tracking information in "real time" - as the events happen.

Digital receivers, fixed beacons and mini-radar reference information are used to enhance tracking accuracy.

Until recently, "backscatter" echoes from the earth's surface could obscure the target but advances in signal processing have reduced this problem to acceptable levels.

APPLICATIONS

Telstra and its major team partners, GEC-Marconi and Lockheed, are conducting continuing research and development programs to expand and enhance Jindalee OTHR capabilities so that they embrace the widest possible range of applications. These include: fully networked military and civilian surveillance capability, aircraft and ship detection and tracking, cost-effective weather surveillance, including sea-state sensing and cyclone detection and tracking. Jindalee OTHR can be custom-designed to meet any combination of these applications that a user may require.

COST EFFECTIVENESS

A single 90° Jindalee skywave radar can continually cover more than 5 million square km. The life-cycle cost of providing such wide-area surveillance is unmatched by any other form of technology.

Jindalee not only offers distinct advantages over other surveillance techniques and technologies but also allows real-time monitoring in all weather conditions.

JINDALEE

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