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Two stars for successful sensing system

After a highly successful year of commercial application of Star-1, a type of airborne imaging technology, the two Canadian companies that developed it, Intera Technologies Limited of Calgary, Alberta and MacDonald Dettwiler and Associates Limited of Vancouver, British Columbia, have signed a production agreement to produce an improved version of the system, Star-2.

Development of the high resolution remote sensing system, Star-1, by Intera for commercial purposes began in 1977. The system, designed for use in mapping ice conditions to support Arctic off-shore exploration and drilling, was based on the best airborne synthetic radar (SAR) available, SAR 580, developed by the Environmental Research Institute of Michigan, and subsequently purchased for testing by the Canada Centre for Remote Sensing for experimentation and analysis. SAR systems are an advanced technology version of Side Looking Airborne Radar (SLAR).

MacDonald Dettwiler, an electronics firm with a background in satellite technology, was instrumental in manufacturing the real time processing hardware for Star-1 and has been commissioned to build the radar equipment for Star-2.

The Star system, which stands for Sea-Ice and Terrain Assessment Radar, is one of only two synthetic aperture radar systems in the world available for commercial use, and according to Intera president Brian

Bullock, "the other system is technically out of date and configured in a large, expensive to operate aircraft. The exciting thing about Star-1 is that it produces a better product at about half the cost".

Arctic operations

Following six years of research, the Star-1 system was launched in November 1983 in the Beaufort Sea for Canadian Marine Drilling Limited (CANMAR), a subsidiary of Dome Petroleum Limited. Over the past year, Star-1 has operated primarily in the



Star-1 synthetic aperture radar image of ice fields in the Beaufort Sea made from more than 9 000 metres above and transmitted to a ground station by digital data downlink shows ice types, small multi-year ice hazards, pressure ridges, ice breaker tracks and drilling vessels.

Arctic, performing daily ice surveillance tasks in support of off-shore drilling operations and petroleum exploration for clients such as Dome, Gulf, Exxon, ARCO, Amoco, Shell, and others.

Installed in a Cessna Conquest 441 a lightweight turboprop aircraft, the Star-1 has averaged one, six-hour mission a day and has flown 2 000 hours in its first year of service across the ice covered drilling areas from the

operations base in Inuvik, Northwest Territories. The radar equipment scans a 25- to 50-kilometre wide swath of surface, recording the status of the ice.

The on-board recording is via full band width high density digital equipment. From the recording equipment, hardcopy images may be processed either by an on board high resolution laser beam system using heat sensitive paper, or by a high resolution wet chemical system based in Inuvik.

During the month of July, only two issues of *Canada Weekly* will be published. They will appear on July 10 and 24.



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