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Australia and India Launch Joint Initiative to Enhance Undersea Surveillance

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Australia and India have embarked on their first joint science and technology project arrangement, focused on advancing the detection and tracking of submarines and autonomous underwater vehicles. This collaboration, announced by Australia's Department of Defence, is poised to significantly strengthen defense ties in critical undersea surveillance technologies.

The three-year joint research project will unite expertise from **Australia's Defence Science and Technology Group (DSTG)**, specifically its Information Sciences Division, and **India's Defence Research and Development Organisation (DRDO)**, through its Naval Physical and Oceanographic Laboratory.

The core of this cutting-edge research involves exploring the application of **Towed Array Target Motion Analysis (TMA) technology**. This will improve the reliability, efficiency, and interoperability of current surveillance capabilities.

Ms. Amanda Bessell, Discipline Leader in DSTG's Information Sciences Division, explained that TMA encompasses target tracking algorithms developed to estimate the state of moving targets. "Target Motion Analysis is crucial for maintaining platform situational awareness, especially when passive operations are required," Ms. Bessell noted.

This unique research project will leverage a towed array-based signal processing system. Dr. Sanjeev Arulampalam, DSTG Senior Researcher, detailed that a towed array comprises a long linear array of hydrophones towed behind a vessel, which collectively listen to the undersea environment. "The sound signal is processed to analyze, filter, and detect underwater acoustic signals from maritime targets," Dr.

Arulampalam added. The integration of TMA with the towed array system aims to manage noise interference and explore performance enhancements.

This joint endeavor will test novel algorithms, harnessing the combined strengths and shared knowledge of both nations. “The project arrangement will involve the exchange of ideas, investigative trials, algorithm demonstrations, and performance analysis,” Dr. Arulampalam stated.

As the underwater battlespace evolves with increasing use of autonomous vehicles, enhancing surveillance capabilities is a top priority. Dr. Suneel Randhawa, Chief Information Sciences Division, emphasized, “The output of this research program has the potential to guide the development of future algorithmic directions for our undersea combat system surveillance technologies.”