

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Assessing and Mitigating the Global Freshwater Crisis (6)

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ADVANCING ARTIFICIAL INTELLIGENCE FOR PRECISE WATER LEAK DETECTION USING
L-BAND SAR

Abstract

According to the American Water Works Association, hundreds of billions of gallons of water are lost annually due to leaks in water utility systems in the United States alone (. With water being one of Earth's most valuable resources, a significant amount disappears every day. This lost water is typically called Non-Revenue Water (NRW) and it mainly comes from pipeline leaks. These leaks can damage critical infrastructure and put communities in danger, as well as lead to substantial unplanned expenses and wasted resources. Earth observation data and technology have outstanding potential at tackling this challenge by offering reliable insights into subsurface leak identification. ASTERRA Recover (ASTERRA's satellite-based leak detection solution) leverages the capabilities of L-band synthetic aperture radar (SAR) sensors to efficiently identify water leaks. Through a patented machine learning framework, the system discerns drinking water signatures from SAR data, enabling the swift identification of probable leak locations to a high level of precision. When artificial intelligence (AI) technology was integrated into this solution, ASTERRA's precision increased by 500