

CASE STUDY | CHINA'S FIRST NEGATIVE ION TRIAL

Ground-Based Proof

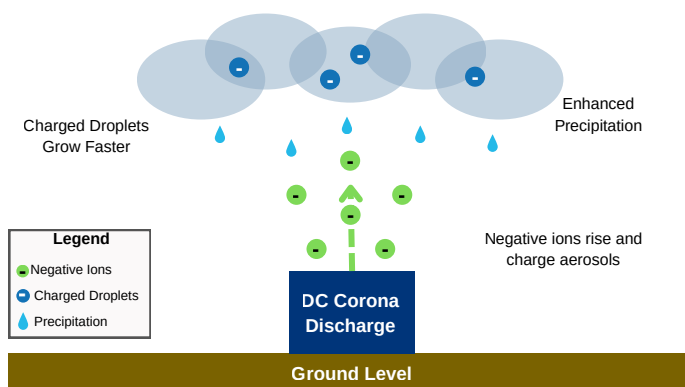
China's Pioneering Negative Ion Trial Validates Ionization Technology

When China—a global leader in weather modification research—conducted its first-ever negative ion-based cloud seeding trial, the world's scientific community took notice. This wasn't just another incremental study; it represented a fundamental shift in how one of the world's most water-stressed nations approaches precipitation enhancement.

The trial, conducted in 2020 and published in the peer-reviewed journal *Water* in 2021, used ground-based DC corona discharge systems to generate negative ions—the exact same principle that Rain Enhancement Technologies deploys in its operational systems. Unlike traditional cloud seeding methods that require aircraft or rockets to deliver chemical agents, this approach harnesses the natural atmospheric electrical environment to enhance precipitation formation from the ground.

Why ground-based matters: Aircraft-based weather modification is expensive, weather-dependent, and limited in operational duration. Ground-based ionization systems operate continuously, cover larger areas, require no flight operations, and deliver the enhancement effect 24/7 during suitable atmospheric conditions. China's decision to invest in this technology validates what Rain Enhancement Technologies has been developing—a cost-effective, scalable approach to water resource enhancement.

HOW GROUND-BASED IONIZATION WORKS



FIRST

Negative Ion Trial in China

Ground

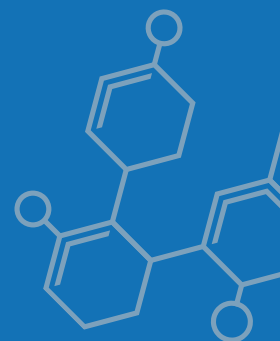
Based DC Corona Discharge Systems

10+

Years of Training Data (2008-2018)

2020

Trial period with Randomized Controls



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Why China Chose Ground-Based Ionization

As one of the world's most active weather modification programs, China has extensive experience with traditional cloud seeding methods. Their decision to pioneer negative ion technology represents a strategic shift toward more sustainable, cost-effective, and scalable approaches to water resource management.

The research team's focus on ground-based DC corona discharge systems aligns with global trends toward technologies that can operate continuously without the logistical complexity of aircraft operations. This is the same ionization approach that Rain Enhancement Technologies has refined for deployment in water-stressed regions worldwide.

24/7

Continuous Operation
Capability

Zero

Flight Operations
Required

Scalable

Network
Deployment

Key Research Findings

- Target areas exposed to negative ion generation showed measurably higher precipitation compared to control areas
- Charged particles demonstrated ability to serve as effective cloud condensation nuclei, supporting the theoretical mechanism
- Ionization improved the efficiency of droplet collision and coalescence, the critical process for raindrop formation
- Randomized on/off design provided statistical framework to isolate ionization effects from natural variability
- Study demonstrated that ground-based systems can be deployed and operated effectively in complex mountainous terrain

WHY THIS RESEARCH MATTERS

- **Ground-Based Technology:** DC corona discharge generates negative ions from surface systems—the same approach RET deploys
- **International Validation:** China's investment provides independent verification of ionization technology potential
- **Systematic Randomization:** On/off periods and control comparisons ensure robust statistical analysis
- **Peer-Reviewed Publication:** Published in *Water* (2021) with independent expert review of methodology
- **Cost-Effective Operations:** Ground systems eliminate aircraft costs, fuel expenses, and flight restrictions

THE RET CONNECTION

- **Same Core Technology:** RET's systems use the identical DC corona discharge principle validated by China's research
- **Proven Deployment Experience:** RET has operational experience deploying ground-based ionization in diverse climates and terrain
- **International Validation:** China's independent research confirms the scientific foundation of RET's technology approach
- **Scalable Solutions:** RET specializes in designing ionization networks optimized for specific regional conditions and water resource goals

*Source: Zheng, X., et al. (2021). Evaluation of the First Negative Ion-Based Cloud Seeding and Rain Enhancement Trial in China. *Water*, 13, 2473. <https://doi.org/10.3390/w13182473>



**RAIN ENHANCEMENT
TECHNOLOGIES**

Learn How Ground-Based Ionization Can Work in Your Region

International research validates the technology. RET deploys it operationally.

Contact: info@rainenhancement.com

Web: www.rainenhancement.com

NASDAQ: RAIN

