

# Case Study: North Dakota Cloud Modification Project (NDCMP)

- **Public program:** Operates in western North Dakota with **public funding** and **public oversight**.
- **Long-running operations:** Conducted **annually since 1961**, often described as the longest-running **aerial hail-suppression** program.
- **Season & approach:** Runs **June–August**; aircraft release seeding particles aimed at **reducing hail size** (and potentially increasing rainfall).
- **Why it matters:** Hail drives **economic loss** and **safety risks** (including impacts on aircraft on the ground).

## North Dakota Cloud Modification Project

The North Dakota Cloud Modification Project (NDCMP) is an operational program that seeds clouds for hail damage reduction and rain enhancement in western North Dakota. Counties participating in the program include Bowman and part of Slope.



NDCMP Areas

# NDCMP: Why the program faces conflict?

## NDCMP 2025 operations footprint (reduced program):

- **Active area: Bowman County (full) + Slope County (partial)**
- **Focus:** selected townships in **southwestern North Dakota**
- **2025 reduction:** footprint decreased after withdrawal of **Williams, McKenzie, and Mountrail** counties

## Link to sociological issues:

- The same questions show up: **trust, fairness, evidence, regulation, liability.**
- When public money + shared risk are involved, **perception and narratives can outweigh technical nuance.**

## North Dakota considers ending longstanding weather modification program

By Daniel Miller | Published February 3, 2025 1:31pm CST | Environment | FOX TV Stations | [➔](#)

March 4, 2025

“Money train” or needed rain? Watford City resident calls for end to cloud seeding program

M.K. French

Farmer Staff Writer

“Wrong is wrong. Right is right. And this is wrong.” Travis Bateman, a Watford City resident and trained weather spotter, isn’t mincing words when it comes to his opposition to McKenzie County’s cloud seeding program. Following informational meetings held on February 26, where Bateman voiced his concerns, the future of the program hangs in the balance as county commissioners consider its fate.

## McKenzie County ends weather modification program



McKenzie County ends weather modification program

# NDCMP is “Sociological Issues in Real Life”

- **Mistrust / civil liberties:** “controlling our weather” concerns
- **Values framing:** “nature / God” narratives
- **Proof vs evidence:** “does it work?” debates
- **Regulation & liability:** calls for bans, oversight, accountability
- **Public perception rules:** narratives can outweigh technical nuance

# Exercise: Apply Critical Thinking — Design a Solution for NDCMP

**Step 1 (Pick ONE issue):** *Trust | Fairness | Evidence | Regulation | Liability*

**Step 2 (Fill this 5-line template):**

1. **Goal:** Improve \_\_\_\_\_.
2. **Action:** NDCMP should \_\_\_\_\_ (one concrete step).
3. **Evidence:** We will measure \_\_\_\_\_ (one metric/data).
4. **Stakeholder:** This matters most to \_\_\_\_\_.
5. **Decision:** If results are good → \_\_\_\_\_. If not → \_\_\_\_\_.

# Exercise: Design a Solution for NDCMP (examples)

## Trust

- Goal: increase trust
- Action: monthly update + Q&A
- Evidence: trust survey + questions answered
- Stakeholder: taxpayers/counties
- Decision: if trust stays low → add independent review panel

## Regulation

- Goal: improve oversight legitimacy
- Action: clear protocols + annual public review of methods/changes
- Evidence: compliance checklist + posted revisions
- Stakeholder: legislators/regulators

Decision: if rules unclear → tighten reporting and oversight schedule

# My Solution (UND Research Project): How we Strengthen Evidence and Transparency for NDCMP

1. **Goal:** Improve **evidence quality and transparency** for public decision-making.
2. **Action:** Deliver a reproducible evaluation with **operations-relevant hail metrics** + public-facing reporting.
3. **Evidence:** study how cloud seeding affects hail in western ND: Seeded vs unseeded comparisons reported as **effect sizes + confidence intervals**. Approach: radar + satellite + AI + Weather models outputs to deliver clear, usable metrics
4. **Stakeholder:** County decision-makers + public (funding/oversight).
5. **Decision:** If effect sizes show consistent benefit within uncertainty → continue/optimize; if not → revise targeting and clearly communicate limits.

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## ND researchers look to skies, data on hail mitigation

By Mike Moen - Producer  
Dec 30, 2025

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Prairie News Service



University of North Dakota

December 17, 2025

Can cloud seeding really reduce hail damage in North Dakota?

UND researchers are taking a data-driven look at a question farmers, communities and lawmakers have been asking for decades. A new UND-led project will use weather radar, satellite data and interpretable AI models to study whether cloud seeding is helping reduce the size and impact of hailstorms in western North Dakota.

By analyzing nearly a decade of storm data, the team aims to provide clear, county-level evidence on how seeding affects hail — information that can help protect crops, businesses, homes, aircraft and critical infrastructure across the state.

This research builds on UND's long-standing partnership with the North Dakota Cloud Modification Project and supports informed decisions about public investment and weather resilience.

Read the full story to learn how science, technology and real-world impact come together in this work. [Article link in the comments!](#)

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