

NAIWMC - POTENTIAL IN THE SOUTHWEST

by

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ABSTRACT

The North American Interstate Weather Modification Council was formed to coordinate intrastate, interstate and possible international weather modification activities. The main purpose of this organization is to achieve and maintain state and local control of such activities while endeavoring to attain a high degree of legislative uniformity and an effective information exchange mechanism.

The need, goals and objectives of the newly created Council are summarized. A summary of the Council's progress at performing the purposes of the Council are presented in this paper. The potential use of this Council in the Southwest is described in relation to existing programs in weather modification in the area.

INTRODUCTION

Governor Richard F. Kneip of South Dakota invited the Governors in the United States to attend or be represented at a June 10-12, 1974, conference in Sioux Falls, South Dakota on "Weather Modification in the United States -- Potential and Problems for Interstate Action." Governor Kneip recognized the need for the prudent design and critical analysis of all weather modification efforts. He pointed out that interstate cooperation is particularly needed in view of the growing importance of agricultural production to the economy and well-being of the people of all states, and the tendency to develop individual state weather modification programs (Kneip, 1974)

All fifty states were invited to attend the Sioux Falls conference, in which some twenty-three states were represented, as well as the Province of Alberta, Canada. At the end of the successful working conference, those present selected representatives from six states--California, New Mexico, North Dakota, South Dakota, Texas, and Washington and the Canadian Province of Alberta to serve on an Ad Hoc Committee to:

- (1) Investigate possible organizational needs, i.e., participation, goals, funding, affiliation, etc.
- (2) Plan a second conference on interstate weather modification cooperation and coordination within one year.
- (3) Study the Sioux Falls working committee reports and develop these suggestions into recommendations to be presented at the next interstate conference on weather modification.

The remainder of this paper defines the Ad Hoc Committees recommendations for the formation of the North American Interstate Weather Modification Council, the formation and accomplishments of the Council, and the potential use of the Council in the Southwest.

NEED, GOALS AND OBJECTIVES

The Ad Hoc Committee met in Seattle, Washington on October 2, 1974. Since the June Conference showed an expanding awareness of state's role in weather modification activities, the main mission of the Ad Hoc Committee was to establish a proper forum for interchanging and coordinating specific information of interest primarily to state officials in the operations phase or in the regulatory phase of weather modification (Carr, 1975).

Sub-committees of the Ad Hoc Committee prepared statements on membership qualifications; affiliation; needs, goals and objectives of the Council; organizational structure; and resolutions to be adopted at the next interstate conference on January 16-17, 1975.

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BASES FOR CONCERN

After pointing out the need for an organization to coordinate intrastate, interstate and possible international weather modification activities, the important bases (needs) for concern were:

- (1) Substantial but fragmental local, state, and federal activity in deliberate and inadvertent weather modification has taken place in the past twenty years.
- (2) Weather modification effects do not respect internal or national boundaries and no compacts or agreements exist regarding the effects.
- (3) States require a measure of control over weather modification activities and effects within their boundaries.
- (4) No effective mechanism presently exists for interstate cooperation in weather modification and the states do not have a coordinated approach for atmospheric resources decision making.
- (5) Minimal public involvement in weather modification decision making has been solicited in the past.
- (6) Lack of uniformity exists in most state statutes concerning weather modification operations, qualifications, and regulating weather modification activities, including environmental effects.
- (7) Little exchange of information among states has taken place concerning environmental relations and reports.
- (8) Weather modification decision making must be responsive to local, state and interstate concerns.
- (9) Weather modification activities in response to emergency drought conditions would be most effective through an interstate organization of state representatives knowledgeable in local needs and conditions.

SPECIFIC OBJECTIVES

The Ad Hoc Committee suggested that the overall objective of the Council must be to serve as the focal point and clearing house for interstate weather modification activities. Specific objectives outlined by the Ad Hoc Committee included:

- (1) Serve as the official spokesman for states' needs and views of weather modification.
- (2) Provide the organization through which funding of multistate assistance programs can be accomplished.
- (3) Provide a forum for developing interstate agreements and understanding.
- (4) Develop and promote the adoption of compatible state regulatory activities.
- (5) Develop and provide information for public use.
- (6) Exchange information and provide assistance in environmental and societal relations.

PURPOSE AND GOALS

The purpose of the NAIWMC, as stated in the adopted By-Laws, has been divided into six categories.

Operations. The Council shall assist governmental and private organizations in planning, design, implementation, coordination, and assessment of on-going, temporary, and emergency weather modification operations which are planned with the intent or conducted with the effect of causing international, national, interstate, or intrastate consequences. The Council shall promote effective partnerships among various agencies conducting weather modification operations, and shall assist in integrating weather modification operations with water resources development and other activities affected by weather modification activities. It shall make appropriate recommendations in order to promote these purposes.

Research and Development. The Council shall assist governmental and private organizations in planning, design, implementation, coordination, and assessment of weather modification research and development. It shall promote common research concerning weather modification activities and their environmental and societal consequences. The Council shall provide a forum for the exchange of experience, data, and information about weather modification.

Public Involvement. The Council shall seek to provide information for and engage in the discussion with a) public officials, b) persons involved in weather modification activities or who demonstrate an interest in the effects of weather modification, and c) the general public. It shall serve as spokesman for the needs and views of the member jurisdictions, and it shall develop public education programs.

Legislation. The Council shall assist national governments, state or provincial governments, and groups of state or provincial governments in preparation, review, and alteration of treaties, statutes, compacts, and administrative rules and regulations. It shall seek to obtain legislation which is responsive to local, state, interstate, national, and international concerns.

Regulations. The Council shall assist regulatory agencies in maintaining a high level of integrity and professional competency among weather modifiers. It shall assist regulatory agencies in coordination of their professional licensing and operational permit issuing functions. It shall serve as a clearinghouse for environmental impact statements relating to weather modification and for such other data as will assist regulatory agencies.

Miscellaneous. The Council shall serve such other purposes relating to the development, operation, and control of weather modification as are consistent with those purposes expressly named in this article. Such purposes shall be stated by resolution adopted at annual, regular, or special meetings of the Council.

Amendments to the By-Laws purpose may be proposed by the Committee on By-Laws, the Executive Committee, the Board of Directors, or delegates or alternates representing one-third of the regular members registered as attending the annual meeting prior to the time of presentation of the proposals.

FORMATION OF THE COUNCIL

John A. Donnan, the second Chairman of the Ad Hoc Committee, organized the second conference to be held in Denver, Colorado on January 16-17, 1975. The meeting entitled, "Conference on Weather Modification - A Useable Technology, Its Potential Impact on the World Food Crisis," was supported by the Ad Hoc Committee and was to formulate the North American Interstate Weather Modification Council.

ADOPTION OF BY-LAWS

During the Denver conference, discussion of the Ad Hoc Committee's recommendations to the participants of 25 states of the United States, 3 provinces of Canada, and Mexico were formulated into by-laws which organized the Council on January 17, 1975. A short summary of the by-laws, which were drafted by Ray Jay Davis of the University of Arizona, have been summarized by Keyes (1976).

MEMBERSHIP AND DUES

Regular membership in the Council is available to all states of the United States of America, to Mexico, and to all provinces of Canada. Each jurisdiction electing to become a member of the Council shall affirm its decision by informing the Council of its support, by appointment of a delegate to the Council and an alternate, and by payment of dues to the Council. The Board of Directors shall establish classes of regular members for dues purposes and set the annual dues for each class of members. Permanent regular members are presently paying annual dues in the amount of \$1,500 (U.S.). Temporary regular membership status has been extended by the Board to some states for a single two-year period at \$500 per year.

Affiliate membership in the Council is available to national agencies and to political sub-divisions within states or provinces. Professional organizations and scientific societies may also become affiliate members. Affiliate members shall pay annual dues in such amounts as are established by the Board of Directors. For this purpose, the board may create different classes of affiliate members and establish different rates for each class.

BOARD OF DIRECTORS

The officers of the Council consist of the Executive Committee (Chairman, Vice-Chairman, Secretary-Treasurer) and ten other members of the Board of Directors. Consistent with the by-laws and resolutions of the Council, the Board of Directors shall establish the policies of the Council and act on its behalf. The Board may propose by-laws and resolutions for adoptions by delegates to the Council. It may also employ an Executive Secretary for the Council, and may delegate to him such functions as it deems appropriate, including the authority to select and supervise employees of the Council.

ACCOMPLISHMENTS TO DATE

RESOLUTIONS IN JANUARY 1975

Resolutions that were adopted on January 17, 1975, in Denver, Colorado, pertained to items that had or would affect the weather modification projects which are supported by many state governments.

The unanimous decision of the NAIWMC was to inform all federal legislators of the existence of the Council and of the interest and willingness of the organization to assist in the preparation and review of existing and proposed Federal legislation. Further, since several of the states do have successful legislation in effect and some of these states have had considerable experience in implementing their laws, the Council felt it was appropriate for this organization to offer the expertise of its members to assist other states in preparing and developing weather modification legislation.

Recently some regional supervisors of the United States Forest Service have required land and water use permits if any proposed weather modification activities are expected to have any effect or impact on any National Forest or National Grassland areas. These requirements have been based upon the Organic Administration Act of 1897 (Act of June 4, 1897, 30 Stat. 34, 35, 36, 16 U.S.C. 475). It was the unanimous decision of the NAIWMC to oppose this action by personnel of the United States Forest Service because:

- (1) Federal legislation has specifically established another Federal agency to monitor and exercise certain regulatory (reporting) functions over non-federal weather modification activities.
- (2) The applicability of the Organic Administration Act of 1897 is in question in light of more recent legislation specifically directed toward weather modification.
- (3) It is apparent that the Forest Service regulatory interpretation is being applied to existing laws in order to control weather modification activities.

The NAIWMC strongly recommended that both Federal and State officials and agencies address this problem--one which could have far-reaching ramifications beyond the question of autonomous weather modification regulation and control.

Because of existing and continuing drought conditions which persist over much of the Great Plains and Corn Belt areas of the North American Continent, it is anticipated that the Federal governments may well implement weather modification activities as a drought relief tool. It is of considerable interest, however, that during recent summer activities the feasibility of drought relief was limited to decision making totally within the Federal agencies. No consultation with officials of potentially affected states was apparently considered. Therefore, it was the decision of the NAIWMC to recommend that appropriate state agencies be consulted and included in the planning, developing and implementing emergency weather modification programs during drought situations.

Another resolution requested the Weather Modification Association to consider supporting the concept of the NAIWMC and to agree to provide a ready and willing reservoir of talent and expertise to the Council and/or the various states, individually or collectively. There were requested to assist in developing weather modification programs in years to come.

The last resolution at the January 1975 meeting strongly supported the concept of utilizing weather modification technology as proposed in S.4028, but further suggested that these concepts be expanded to specifically include a strong organizational structure at the state level, advanced technical planning, the mechanisms for quick reacting financial response, and a strong local input to subsequent field operations. Furthermore, the Council recommended that the bill specify a mechanism for recognizing and anticipating the conditions under which the provisions of the bill would come into play so that relief can be given before a drought becomes advanced and critical.

POSITION STATEMENTS IN JANUARY 1976

On January 15-16, 1976, the NAIWMC met in Kansas City, Missouri at the second conference of the Council. The adoption of position statements on bills in the 94th Congress of the United States was included among the many items of business that were accomplished.

The purpose of S.2705 is to establish a National Weather Modification Commission to investigate and study the need for regulation of weather modification activities, the status of current technologies, the extent of coordination and the appropriate responsibility for operations in the field of weather modification. The NAIWMC adopted the position to strongly support the purpose of this bill and pledged to work with such

a commission if established.

Two other "Bellmon Bills" have been introduced into the 94th Congress. Both dealt with drought prevention programs, one in research and one of operations. The Council elected to adopt no position on these two bills, S.2706 and S.2707, pending action on the National Weather Modification Commission bill. However, the NAIWMC reserved the right to adopt a position on either or both bills at some later date.

The Weather Modification Research, Development, and Control Act of 1975 was introduced to provide for research and development in weather modification and to institute a comprehensive data-gathering system which will assist in the development, administration, and supervision of weather modification in a safe and scientific manner. The Council adopted a position that this bill was premature until such time that a National Weather Modification Commission can indicate the direction which a long range national program of weather modification should take. Furthermore, the NAIWMC strongly suggested that any future regulatory function on the part of the Federal Government should be closely coordinated with the regulatory functions of the various states.

COORDINATION AND COOPERATION TO DATE

Close coordination and cooperation was established with The Council of State Governments and the National Conference of State Legislatures at their weather modification planning session in Denver, Colorado on December 17-18, 1975. The representatives of these two groups suggested greater activity input could be made at their regional and national governor's conferences. Some of the issues that might be faced at these meetings include interstate arrangements for research, operation, and evaluation; providing adequate funding for research and demonstration as well as evaluation; providing the institutional framework to handle funding and trade-offs between various segments of society; and providing better information to the state decision makers, both in executive and legislative branches.

The NAIWMC Directors are the logical chairmen for interstate coordination and cooperation in the areas of their directorship. Also, they should become involved in regional and national legislation and governor's conferences which support the concept of a thorough public education program.

A tentative model law was developed by Professor Ray Jay Davis, College of Law, University of Arizona. This proposed weather modification control act has been supplied to the model law committee of the Council of State Governments. The NAIWMC adopted a resolution in January 1976 to support the Davis draft of the proposed model law on weather modification.

The American Bar Foundation and the American Association for the Advancement of Science sponsored the first symposium of the National Conference of Lawyers and Scientists at Duke University on March 12-13, 1976. The conference theme was, "Legal and Scientific Uncertainties of Weather Modification." The NAIWMC supported the concept of the conference and two individuals connected with the Council participated in the sessions that were designed to increase the availability of scientifically valid and legally acceptable advice on weather modification.

States with membership in the Council have provided testimony at the Minnesota Task Force meetings on weather modification, as well as special subcommittee hearings of the Minnesota Senate.

A draft interstate agreement between states involved with weather modification activities is being prepared for future interstate operations, monitoring, evaluation and research underway in the northern Great Plains.

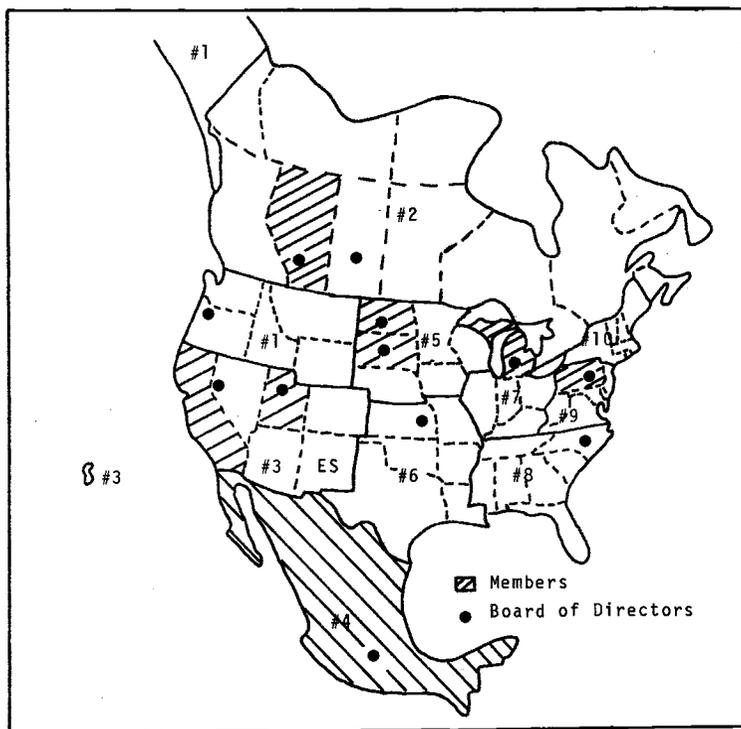
Recent questionnaires have been provided to each state contact in each area under a Board of Director. The comments from the state contacts should provide input to the Council for determining the position, activity and degree of interest in future weather modification activities, coordination and cooperation in each of the areas of the Council.

GRDWITH DF THE COUNCIL

Regular membership by the states has grown from a total of five in 1975 to a total of eight today. Involvement in the Council activities are also provided by some states that presently have no or little weather modification programs. A few Board of Directors are from states that may join the Council at a later date.

Figure 1 shows the areas of the NAIWMC in relation to the membership at the present time. The states which joined the Council since December 1975 have been Mexico, Utah, and Pennsylvania (temporary). The new members of the Board of Directors come from Oregon instead of Montana, Kansas instead of Missouri, and Michigan instead of Illinois. The new affiliate members, dues were established in January 1976, are the Southwest

Figure 1. Location of Member States and Board of Directors.



Water Conservation District and the Water Resources Division of Manitoba.

INVOLVEMENT IN FEDERAL AND STATE LEGISLATION

Since the adoption of the Council's 1976 positions statements, a lot of activity has been carried out by the Board of Directors and the Executive Secretary on many of the bills in the 94th Congress. The Senate Commerce Committee, the House Science and Technology Committee and the House Agriculture Committee have all indicated some awareness of the Council's position on federal weather modification legislation. However, only H.R. 12083 - the "English Bill," has recieved oral testimony from the NAIWMC at this time. Other bills that may be orally addressed by the Council include H.R. 10013 "Hayes Bill" on the National Climate Program Act of 1975 and H. R. 10039 "Evans Bill" on the Weather Modification Research, Development, and Control Act of 1975.

With the adoption of the "Davis Model Law," many states have indicated updating their present weather modification laws. States or political subdivisions thereof that have recently requested assistance in revising their states' weather modification law or development of regulations include: Michigan, Minnesota, Oregon, Pennsylvania, Texas, and Washington.

POTENTIAL USE OF THE COUNCIL IN THE SOUTHWEST

The definition of the Southwest region of the Council's activities is confined to Area #3 in Figure 1. This area of the Council covers the States of Arizona, California, Colorado, Hawaii, Nevada, New Mexico and Utah. The present Board of Director of Area #3 is Professor Joseph A. Warburton of the Desert Research Institute of the University

of Nevada at Reno. Regular membership from this geographic region of the Council presently includes California and Utah and the only affiliate member is the Colorado South-west Water Conservation District.

The NAIWMC Board of Director Area #3 Questionnaire 76-1 was mailed in February 1976. The questions which were answered by all States in Area #3 were:

- (1) Which organizations in your state have the mission of licensing, monitoring, controlling or operating weather modification activities?
- (2) Does your state presently support weather modification programs?
- (3) What weather modification regulation does your state have?
- (4) What positions on weather modification does your state have?
- (5) What about a regional meeting of the NAIWMC in the future? Where? Why? How?

Table 1 briefly expresses my subjective opinion of each state that answered the Area #3 questionnaire. Some objective observations are:

- (1) Only two states have weather modification control outside some Department of Water or Natural Resources.
- (2) Only two states have direct involvement in ongoing weather modification programs.
- (3) Five of the seven states support the concept of funding further research in weather modification.
- (4) All states have a law that deals directly or indirectly with weather modification. Unfortunately, none of the seven laws are very similar in concept or regulation.
- (5) Only three of the states have positions concerning weather modification programs.
- (6) Only the three states that are involved with the Council expressed a desire to hold a regional meeting of the NAIWMC.

TABLE 1. RESPONSES TO NAIWMC BOARD OF DIRECTORS
AREA #3 QUESTIONNAIRE 76-1

Question	Arizona	California	Colorado	Hawaii	New Mexico	Nevada	Utah
Organization of control	Water Commission	Dept. of Water Resources	Dept. of Natural Resources	Dept. of Regulatory Agencies	Weather Control & Cloud Mod. Comm.	Dept. of Conservation & Nat. Res.	Division of Water
Involvement in Weather Modification Programs	Licensing non-federal activities	Observer	Very limited	No involvement since 1970	Not directly	Mainly Research, Desert Research Institute	Yes - Operations
Support of Weather Modification programs	Research efforts of U.S. Bur. of Reclam.	Not as a participant	Degree in the HIPLEX Experiment	Not until the art improves greatly	Funding for Research	Research funding	Yes - Funding
Regulations in the State	Chapter 45-2401 through 45-2405	Sections 400-415 and 235 of the Water Code	Colo. Rev. Stat. Sections 36-20-101 to -126 (1973)	State law, Section 174-5(8)	Sections 75-37-1 to 75-37-15	Sections 544.010 to .240	Sections 73-15-3 to -8
Position on Weather Modification	Agree with conclusions of Westside Study	No Answer	None	None	Applicants have burden of proof	Use Desert Research Institute	No
Regional Meeting of NAIWMC	Meeting was effectively held on 11/20/75 in Denver	Yes (Calif.)	No, unless a firm agenda	No	Not interested	Yes	Yes (Salt Lake City - arrangements available)

SUMMARY AND RECOMMENDATIONS

Expanding awareness of the state's role in weather modification activities has been realized during the past two years. The need for a proper forum for interchanging and coordinating specific weather modification information of interest was determined in June 1974. Serious consideration has been given to the establishment of a viable, dynamic interaction of thoughts and actions taken by State and Province officials involved with weather modification activities across the North American continent. Some states or provinces are aware of the requirement to develop the necessary communication between states to solve problems of interstate weather modification activities, whether deliberate or inadvertent. Other states are well aware of the relationships with federal programs dealing with research and funding of weather modification activities.

Recently the Southwestern states of the Council have responded to a communication effort of the NAIWMC. The objective conclusions have indicated that involvement in the Council is related to the involvement in weather modification activities, whether regulatory or operational. Apparent subjective conclusions may be constructive to form opinions concerning the potential of the NAIWMC in the Southwest. Therefore, the author takes this opportunity to express some food for thought. The NAIWMC will become a viable organization in the Southwest if the states in the area can:

- (1) Express further their concern that weather modification may be a tool for water resources development.
- (2) Support involvement in weather modification research programs, particularly intrastate and interstate winter orographic activities, i.e., the Bureau of Reclamation Program on the Colorado River.
- (3) Work toward uniform state weather modification laws and regulation thereof.
- (4) Determine federal legislation that would benefit their needs and carry out the programs of interest for water resources development.

In conclusion, communication with local water districts and the actual potential users is the most neglected process in defining the responsive means of transferring a new technology such as weather modification to increase our supply of food and water in the Colorado River Basin.

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