

HIGHLIGHTS OF JyS CLOUD SEEDING TECHNICAL ADVISORY GROUP
February 23.2004

This, the first meeting of the TAG, was intended to be primarily organizational. We accomplished a good bit in the way of establishing goals and procedures and defining the area of investigation. In addition, we came up with several substantive ideas for moving the program forward.

It was agreed that in order to involve out-of-town members, we would communicate as follows, at least initially: 1) the Chair will email a draft agenda to all members, 2) members may suggest changes, 3) after the meeting the Chair will email highlights of the meeting, 4) members may email comments to the Chair. The highlights will not be rewritten, but all comments will be part of the record.

The following is an attempt to record the main findings of the meeting, not an effort to record everything that was said. By definition, this document is quite subjective and may, in some instances, not reflect the views of the majority. Therefore, it is important that members respond when they have substantive differences.

Agenda Item 1: Discuss Goals

Lengthy discussion of winter and/or summer seeding led to the conclusion that we need to do more work before we can set specific program goals (see Agenda Item 4 below). Sound scientific work and demonstrable benefits will be essential in getting acceptance of a program. Some felt that meeting the scientific gold standard, arbitrarily set at a 95% confidence level may not be necessary. Cost/benefit ratios may be an acceptable method of justifying a program, provided the benefit can be documented. Statement of goals should take into account credibility, needs, priorities, principal players, beneficiaries and the viability of programs. Assessment, or verification of results is considered a top priority. The Chair is to draft a statement of mission and goals.

Agenda Item 2: Means of Communication

An alternative to the communication scheme outlined above is conference telephone calls. To do this we need a budget for monthly calls. A problem may be getting a significant number of out-of-town members on line at the appointed time. A summary of meeting highlights may still be required.

A web site may be useful in making minutes and reports available 24/7. (James Stalker checked out Yahoo- - <http://smallbusiness.yahoo.com/bzinfo/prod/wh/wh3.php>. The cost is about \$40 per month which provides for 35 email accounts and domain registration. A significant expense may be updating the web page.)

Agenda Item 3: Decide on the Area of Study

The area of pre-program study and perhaps the target area for a pilot project should not be constrained by the area of the JyS study. We should probably be studying both sides of the Sangre de Cristo Mts. from Albuquerque to Taos and all of the Jemez Mts. The Jemez will be looked at critically because 1) Keyes has already documented, with a randomized, 4-year program, the feasibility of winter seeding in the Jemez, and 2) there is concern that high rates of evapotranspiration in the mountains in summer may offset the benefits of a summer seeding program (see Agenda Item 4, first bullet).

Agenda Item 4: Organizing Pre-program Data Collection

- Examine summer evapotranspiration and the relationship between rainstorms and stream runoff in the Jemez and Sangre de Cristo Mts. We need someone to take on this task.
- Hire summer interns to measure and compare absolute moisture (vapor) with precipitation (see Agenda Item 5 below). James Stalker has volunteered to supervise this program pro bono. He will propose the program at our March 22 meeting.
- We should look into atmospheric modeling of cloud processes and transport and dispersion of nucleants which will be critical in the design of a generator network. James Stalker will make a proposal at our March 22 meeting.
- Process and analyze archived satellite imagery for a 3 to 4 year period to get information such as cloud-top temperature and amount of supercooled liquid water. This should give us a good idea of the number of seedable storms each year. Bill Woodley will prepare a proposal to be discussed at the March 22 meeting.
- Obtain aircraft in-situ measurements of storm cloud properties. Three four-hour flights would give us exact climatological data essential to planning the pilot project. Duncan Axisa said a SOAR aircraft could be available within a one-hour flight of Santa Fe. He is to prepare a proposal.

Data from these projects (along with others to be discussed at our next meeting) will be of great value in designing the pilot project for optimum results. Money spent wisely before the project begins can help us avoid serious errors later. Preliminary, off-the-cuff cost estimates of these projects indicated that much of this work could be done for something in the order of \$75,000. Budget figures will be included in the proposals.

An attempt to establish a time line was not entirely successful. After all alternatives for pre-program data collection are agreed on, we may wish to request funds from the ISC, perhaps in April or May. At least six months of data collection and analysis may be required to plan the pilot project. This could put us in position to make a proposal to the Jan./Febr. 2005 Legislative Session. Some useful work might be done in the winter of '04-05, but a summer '05 program seems more likely, if, in fact we choose to conduct a summer program. This process could be accelerated if federal funds are available for pre-program data collection. Representative Udall's office may be interested in supporting this effort.

Agenda Item 5: James Stalker's Suggested Summer Intern Project

James has outlined a program using two summer interns to make moisture soundings for the past five summers and compare those data with precipitation data from SNOTEL rain gages. He may also do a model for verification and to fill in data gaps, but he will not charge for his time supervising the project. Total cost is estimated at \$10,000. James will make this proposal at our March 22 meeting.

Agenda Item 7: Elect a Chair

Roy Stoesz said he was willing to organize the TAG, but asked if anyone would volunteer to take over the Chair at this point. No one volunteered and Roy was unanimously elected.

Agenda Item 9: Next Meeting

The next meeting will be held at 10:30 AM March 22 in the north atrium of the Harold Runnels Building, 1190 St. Francis Dr. Our meeting follows the New and Expanded Water Technology Committee meeting which starts at 9:00 AM. Sig Silber invites any of you who might like to attend that meeting to join them.

<u>Attendees:</u>	<u>phone</u>	<u>email</u>
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I will be sending out a draft agenda soon for our meeting March 22. It ought to be interesting.

Roy Stoesz

Chair, JyS Cloud Seeding Technical Advisory Committee