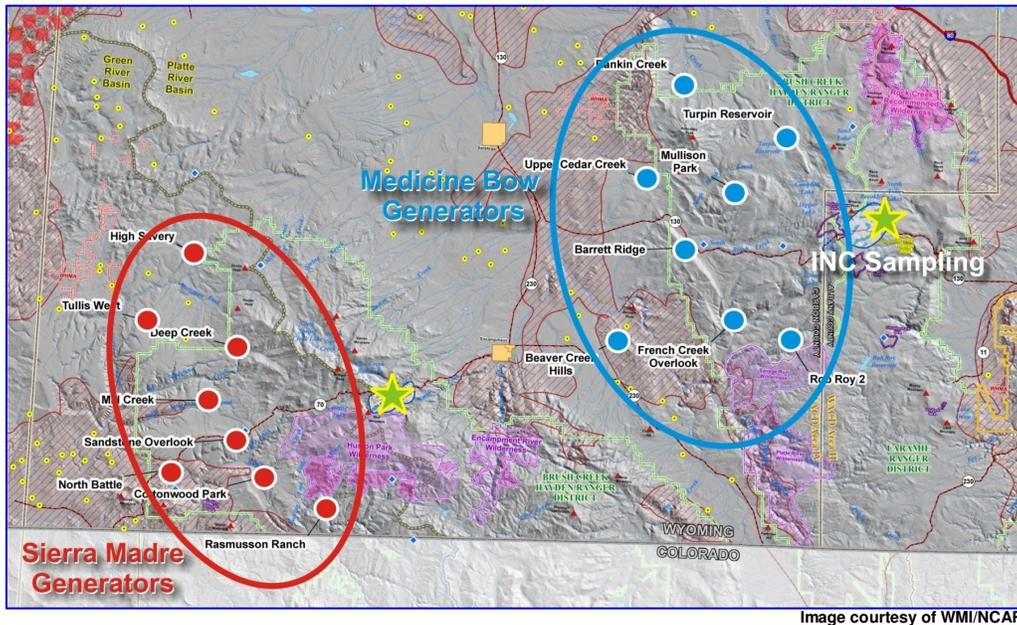


**Climate Issues Committee Meeting  
Wyoming Water Development Office (WWDO) Report  
Cheyenne, Wyoming  
May 20<sup>th</sup>, 2010**

**Wyoming Weather Modification Pilot Program – Winter 2009/2010**

**Medicine Bow/Sierra Madre Ranges Target Areas** (randomized program)



*The ground-based generators and evaluation target areas under the randomized crossover program design are shown on map. A network of precipitation gauges were deployed in both mountain ranges and surface-based INC measurements and snow sampling took place in the Medicine Bows.*

Randomized operations in the Medicine Bow and Sierra Madre Range target areas for winter 2009-2010 realized 30, 4-hour seeding events (16 Medicine Bows; 14 Sierra Madres), bringing the total number of cases achieved under the program since its implementation to that of 84 cases. While the initial results of the study are encouraging, the challenge remains in acquiring enough data to achieve statistical significance under the randomized program such that an accurate evaluation of the program's effectiveness can be determined with a high degree of

confidence. Scientists at the National Center for Atmospheric Research (NCAR) believe that current results suggest that the program is on track to achieve statistically significant results in 2-3 more winter seasons.

Resources used for carrying out the experimental design include 16 ground-based seeding generators (8 in each range), 20 precipitation gauges at 8 sites (with redundancy at each site and some experimental gauges), 12 weather stations (at each gauge site and four at



generator sites), two microwave radiometers for detecting SLW, a radiosonde unit (“weather balloon” for measuring temperature and winds at cloud heights), and a numerical forecast model cycling every three hours with updated observations.

Additionally, INC sampling was conducted at the Mountain Meadows Cabins in the Medicine Bow Range (downwind range) to help verify

targeting and to answer questions of downwind “statistical” contamination of control. The data from this later effort is still being analyzed, the outcome of which will drive any further INC work in subsequent seasons. Finally, Desert Research Institute (DRI) personnel came out on the project during the operational season and performed snow profiling; while an additional 15 snow samples were collected by WMI personnel for later analyses by DRI.

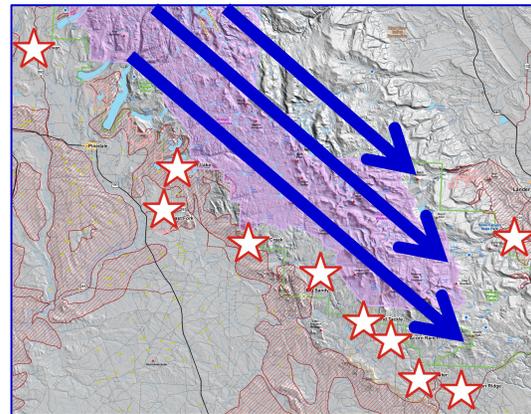
**Medicine Bow/Sierra Madre Ranges Target Area  
2009-2010 Ground-Generator Operations Summary**

	November	December	January	February	March	April	Total
# of Case Pairs***	2	9	7	6	0	6	30
Total GGEN Seed Hours	36	292	172	146	0	143	789

\*\*\* Due to the blind nature of the independent evaluation, only general summary information is shown

**Wind River Range Target Area** (non-randomized operations)

Operations for this target area were again difficult this past season with flows in the Wind River Range predominantly from the northwest, parallel to the range axis, rather than across it. Still, twenty ground-based seeding events were realized during the operational season. Of particular significance were the lack of suitable seeding conditions during the months of January and February, and conversely, the presence of favorable conditions at the end of the season.



*Predominant northwesterly flow observed during the months of January and February.*

**Wind River Range Target Area  
2009-2010 Ground-Generator Operations Summary**

	November	December	January	February	March	April	Total
# of Seeding Events***	1	2 (1)	4	1	7 (4)	5 (1)	20 (6)
Total GGEN Seed Hours	34	132	228	17	96	253	760

\*\*\* Events with the Enterprise (eastside) ground-based generator in upslope flow are shown in ()'s and are not additive.

