

# "The history of cloud seeding to enhance precipitation, and prospects for the future"

## by Professor Bart Geerts

2018 Peter V. Hobbs Memorial Endowed Lecture in Experimental Meteorology

**Thursday, February 15, 2018**  
**7:30-8:30 P.M., Kane Hall 220**

Cloud seeding is conducted in most states in the western United States, and in other arid regions around the world, in order to enhance precipitation. The main target is winter storms over mountains. The history of cloud seeding is long, and many cloud physicists, including Peter V. Hobbs, built their early career on researching seeding efficacy in the 1960s-1980s. Federal support for weather modification research ceased about three decades ago, not because of environmental or ethical concerns, but rather because of the difficulty of signal detection in the "noise" of natural variability. Peter V. Hobbs became one of the most vociferous scientists to show that some published claims of seeding impact were exaggerated, false, or unverifiable. Operational seeding, meanwhile, has continued unabated, especially in dry years. We are now in a far stronger position to study changes in mountain clouds following injection of artificial ice nuclei, by means of both detailed observations using new instruments, and high-performance computing efforts that simulate the flow, cloud, and snowfall over the mountains. Thus the National Science Foundation recently supported some field work to re-examine this issue. We now have definitive proof that cloud seeding can have a modest impact on precipitation, but it remains very difficult to detect and target the "right" clouds.



Dr. Bart Geerts conducts research into cloud-scale to mesoscale atmospheric processes, mainly using aircraft measurements and radar. Much of his research builds on field campaign observations. He received his PhD from the University of Washington (Atmospheric Sciences, 1990, advisor: Peter V. Hobbs), and MS and BS from the University of Louvain in Belgium, his country of origin. He has taught on various campuses in the US, Australia, and Europe, and has been a faculty member at another "UW" (in Wyoming) since 2000. He has been involved in many field campaigns, mainly using the UW King Air aircraft, studying a variety of weather systems, including shallow cumuli, frontal systems, mesoscale boundary-layer processes, orographic precipitation, and even cloud seeding, for which he received the 2012 National Institutes for Water Resources Program IMPACT Award.

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