Cover photo credits: (top right) King Air aircraft courtesy of Alex Sailsbury, WMI Captain; (center) Piper Seneca II aircraft, intern co-pilot Ryan Starkey and WMI Captain Taylor Exizidis-Meier courtesy of Taylor Exizidis-Meier, WMI Captain

Cover artwork courtesy of Sheila Fryer, Graphic Artist, ND Department of Water Resources
Introduction

The Pilot Internship Program (PIP) and the Meteorology Internship Program (MIP) are designed to prepare qualified students for a professional career through participation in a summer intern position with the North Dakota Atmospheric Resource Board (NDARB) during the North Dakota Cloud Modification Project (NDCMP).

The Atmospheric Resource Board in cooperation with the University of North Dakota’s John D. Odegard School of Aerospace Sciences (UND) have long recognized their shared roles in providing appropriate experience for students and young professionals. During the 2021 NDCMP, nine qualified young people worked as interns on a full-time basis. The NDARB internships are an important milestone for the students, enabling them to gain unique insight and experience and to have important responsibility directly in their field of interest. NDARB constantly seeks to improve its training process and the entire internship experience. The knowledge and skills acquired by the students enhance the development and stature of an emerging workforce.

History

The Pilot Internship Program (PIP) began in 1974 with a $274,000 grant from the National Science Foundation to the University of North Dakota for an “experimental project for training pilots in weather modification.” The program was instantly successful, enrolling 70 students through the fall semester of 1976. That year, the ND Weather Modification Board (now Atmospheric Resource Board) entered into contract with UND to employ 14 interns on its summer cloud seeding program. By the mid-1980’s, the Bureau of Reclamation ceased to fund the program. The NDARB continued funding the program until 2003, when funding was no longer available. The Board did continue the program by making internships available, however, only on a volunteer basis. Funding was restored for the program during the 2005 Legislative Assembly.

A Memorandum of Understanding between NDARB and UND outlines the responsibilities of both entities to create an opportunity to prepare students for a professional career through participation in a summer intern position. Specific criteria are required to be eligible for the PIP. At the completion of the 2021 program, the program has provided training and experience for 397 pilots.

The NDCMP Meteorology Internship Program began in 1996 and to date has provided hands-on radar, operations and forecasting experience for 67 meteorology undergraduates and graduates.
Program Description

The following presents an outline of the program, its objectives, design, and main delivery components.

Program Objectives

- Encourage students to expand their education beyond the classroom.
- Enable students to sample actual situations and prepare for Pilot-In-Command (PIC) and Radar Meteorologist duties.
- Develop professional work habits and improve interpersonal skills of students.
- Establish a pool of potential professional employees who have demonstrated their abilities to assume in-command responsibilities.

Qualifications

Candidates for the MIP must be at least an undergraduate pursuing a degree in meteorology or atmospheric sciences. Applicants must apply and are scored and rated for selection by NDARB.

Candidates for the PIP must be at least an undergraduate pursuing an Aviation-related degree at UND. Applicants must apply and are scored and rated for selection by NDARB and UND.

Selection criteria for the PIP includes:

- Ratings: must have multi-engine commercial instrument rating completed by April 30.
- Motivation: class attendance, extra credit work, and overall enthusiasm for fieldwork.
- GPA: Complete the Applied Weather Modification class.
- Flight hours: total and multi-engine time.
- Related work experience.

Since 2018 due to a lack of applicants who were in the Applied Weather Modification class or had taken the class previously, NDARB accepted applications from UND student pilots who did not take the class. Preference was given to students who are in the class or have taken it in the past.

UND has established a policy that students participating in the PIP must obtain their multi-engine rating at UND. A student who has earned his or her rating prior to enrolling at the university will be required to take a check ride.
This policy is to ensure the quality of the ratings and pilots who will be representing UND through the PIP and allows for a measure of quality control to reduce the risk of accidents or incidents that would reflect poorly on this program.

Program Design

The PIP is designed for the primary benefit of the persons placed on the program including: multi-engine flight hours (number of hours dependent on weather conditions), Instrument Flight Rules (IFR) and adverse weather flight experience, and operations experience for future employment as weather modification Pilots-In-Command (PIC).

The MIP is designed for the primary benefit of providing hands-on radar experience, real-time weather observations, weather forecasting experience, and operations experience for future employment as weather modification radar meteorologists.

The programs are designed for positive, active involvement of the interns. The decision whether or not to allow each pilot intern to fly the airplane (from left or right seat) rests with the PIC. In the case of the MIP, the supervising Radar Meteorologist determines when a meteorologist intern is qualified to run operations during a mission. It is most beneficial if the interns receive direct, hands-on experience. In general, the assignment of each intern is to learn the duties of his/her supervisor/mentor. This includes the following areas of involvement:

- Conduct of seeding missions according to project guidelines.
- Detailed record-keeping of all missions.
- Seeding equipment maintenance.
- Visual surveillance of the weather.
- Representing the project to the public.
- Duties that will meet project objectives as directed by NDARB.

Support and Supervision

The NDCMP is a 24/7 project for 92 days, or longer if an extension occurs, and ongoing communications are vital. Each intern was assigned a Supervisor/Mentor who offered guidance, inside information, encouragement and general counsel. An “always-available” policy enabled the interns’ access to individuals at any time for answers to questions, accept feedback, and help with project objectives. This policy created an environment in which the interns felt comfortable asking questions, and aided in keeping the interns productive, no matter what time of the day or night.
Orientation & Pre-project Training

Orientation and training were accomplished for the ND Cloud Modification Project on May 25 through 26, 2021 during the virtual Ground School. All project personnel were required to attend. During Ground School, the interns received a detailed overview of cloud seeding science and technology, and information that clarified their specific tasks and roles on the NDCMP, including operations, policy, rules and regulations.

Accountability

Daily, participants were required to document the number of hours worked using the agency’s web-based time system. At the end of the workweek, the supervising PICs or meteorologists reviewed, commented and approved the interns’ hours, which were forwarded to NDARB via email. The comments served to track performance and the time entry provided a database of official hours worked for Fair Labor Standards Act and payroll purposes.

ARB full-time staff made multiple visits to field locations to check on quantity and quality of work, receive and make suggestions and criticisms, and consider adjustments to the program.

Continuing Development

Participants were encouraged to become involved in networking with NDARB and contractor employees. Sharing information on work experiences and performance is critical to the professional development and growth of the individual. Feedback on the intern’s progress was provided as a professional development tool and to provide clarification of NDARB’s expectations of what constitutes quality performance on the job.

Approximately two months into the internship, the supervisors/mentors conducted peer-review evaluations of the participants and discussed the results with them. The interns were also asked to evaluate the internship program. The business manager and chief meteorologist then visited with each intern and offered comments and critical suggestions for improvement and further development. At this time, comments were also received from the interns regarding possible changes and improvements to the program for the future.

Legal Considerations

Interns of the NDARB are temporary unclassified employees and were paid at the rate of $14.94 per hour. The NDARB workweek is from Monday at 12:00 a.m. to Sunday at 11:59 p.m. Any overtime hours worked within the workweek required prior authorization. Internship employees were covered under the agency’s Workforce Safety policy.
Program Information

During the 2021 NDCMP, the 6 PIP interns worked a total of 2,485.75 hours. These hours were spent at weather briefings, operations flight missions, chemical mixing and inventory, record keeping, aircraft and seeding equipment maintenance, alert status prior to launch, and public relations.

Intern pilots are rotated through the Williston location to give all a chance to experience high-altitude turbo-prop aircraft operations.

The 3 MIP interns worked a total of 1,277.50 hours. These hours were spent at weather briefings, forecasting, assisting with operations flight missions, radar watch, record keeping, and public relations. All project personnel are responsible for “weather watch” at all times during the project.

Each intern meteorologist was given the opportunity to rotate through the two radar locations. This gave each intern a chance to experience operations in each district.

Most intern participants had completed their internship and left the project by mid-August to return to college.

2021 Participants

Pilot Interns & Field Site:  
Hanna Anderson, Seed 1, Bowman  
Izzy Adams, Seed 2, Bowman  
Ryan Starkey, Seed 4, Stanley  
Ryan Kram, Seed 5, Williston  
Jake Floyd, King Air Rover  
Joe Taylor, Vacation Rover

Meteorologist Interns & Field Site:  
Alexis Staniec, Bowman  
Lynnlee Rosolino, Stanley  
Ben Schaefer, Stanley

Recommendations

The following are recommendations from students for consideration for future efforts:

Meteorology Internship Program
- Additional meteorological duties for interns when weather is quiet, such as research.
Pilot Internship Program

- More clarification of housing arrangements be made in the job description or during the interview process.
- Increase promotion / public relations of the internship at UND.
- Make vacations optional.

Acknowledgements

NDARB wishes to thank the Radar Meteorologists and Pilots-In-Command for their efforts and assistance in serving as supervisors and mentors during the 2021 NDCMP Internship Programs. They are as follows.

**Pilots-In-Command**
- Tyler Couch, Seed 1, Bowman
- Alex Bestul, Seed 2, Bowman
- Taylor Exizidis-Meier, Seed 4, Stanley
- Damien Gehler, Seed 5, Williston
- Alex Sailsbury, Seed 7, Williston

**Radar Meteorologists**
- Joe Parton, Bowman
- Ben Stoinski, Stanley

NDARB also appreciates the efforts of Professor Michael Poellot, UND John D. Odegard School of Aerospace Sciences, and Mr. Jody Fischer, Director of Flight Operations, and Kirk Hamilton, Chief Pilot, Weather Modification, International.

We would also like to congratulate Izzy Adams (recipient of the 2021 Hans P. Ahlness Intern Award) for her dedication to the program, hard work and ambition.

Attachments

- Intern Performance Evaluation
- Evaluation of Meteorology and Pilot Internship Program