

"So You Want To Be A Meteorologist?"

David Changnon, Northern Illinois University, DeKalb, Illinois

Here are some lessons learned about these types of discussions (which I have had thousands of over the past 20 years). What are key 'learning outcomes' that we want every student to be introduced to and hopefully master before they complete their B.S. degree in meteorology? At the very least, students should develop critical thinking, problem solving, quantitative reasoning, and communication skills. Furthermore, to be a successful meteorologist it is key that the individual be creative. The ability to see and understand a situation where weather impacts the outcome and develop a workable and timely strategy (using various different available tools) to address an issue is essential. What are some critical activities that enhance a student's opportunity to land that weather job they have always wanted?

STEP ONE: While in High School

First, as a high school student, pack in as much math and science as possible! If you can take up through Calculus, do it! Make sure to take at least one chemistry and physics course. Also, take several composition courses and at least one speech course. These courses introduce the prospective meteorology student to a number of important skills one needs to be successful. Furthermore, anyone wanting to pursue a meteorology degree (a hard science) will find out whether they have the basic skills/background necessary to be successful in more difficult math and science courses once they get into a college meteorology program. A high school student should take the time to visit a number of universities that offer undergraduate meteorology programs to find one that is a 'good fit' for the student (in terms of curricular and co-curricular activities, campus housing, nearness to home, costs, benefits, etc.). Although most undergraduate programs teach the courses as outlined by the federal government and the American Meteorological Society, many emphasize different aspects of the field including applied meteorology and climatology, severe weather, remote sensing, etc. These one hour or longer informal discussions with a faculty advisor in a meteorology program give the student a chance to understand the academic program, what opportunities there are for internships, and time for the student/parent to ask questions about the program and what is needed for student success. He or she will learn a little about the job market and they types of weather jobs that are available. Today, students that graduate from undergraduate meteorology programs find themselves ending up in one of the following: 1) work for federal government (NWS, NOAA, EPA, or other agency), 2) work for a state agency (state climate office, state EPA, etc.), 3) apply and attend graduate school, 4) work in the private sector (for an energy company, environmental firm, transportation group, insurance company, etc.), 5) work for an applied meteorology forecasting firm, 6) work as a broadcast meteorologist, or 7) go into the US armed service (typically as an officer in the Air Force). Finally, an important aspect of the college decision relates to cost of higher

education. Any decision should be made with those individuals who are planning to assist paying for the student's education. Students might ask whether they can attend a community college for some period of time before transferring to the university.

STEP TWO: While at the University

Once you decide on a university to attend, you are onto the next step in your journey to become a meteorologist. While you are a student, there are many things you can and should do to enhance your education and give you a leg up against other students you will graduate with and compete for jobs with. Beginning with the first semester, meet frequently with the meteorology advisor (a couple times a semester). In these visits discuss courses you want to take, identify what types of jobs/career you are interested and identify other curricular and co-curricular activities that will add "value" to your degree (taking weather observations, doing tv weather broadcasts, etc.). Remember, everyone will graduate with a BS in meteorology...how will you separate yourself from others. Identifying career interests early is important. Next, ask you advisor about potential internships in your career area. Make contact with these external weather-sensitive decision makers and sign up for a semester-long internship. Most universities give academic credit for these internship experiences, so do at least one during the four years you are in college. These internships will help you better understand what practicing meteorologists are doing in the "real world." Furthermore, these internships will provide greater insight into the job market. For those who want to dig deeper into meteorology, they may want to consider graduate school. This too requires discussions with faculty and the advisor in the meteorology program. It is good to meet and know most if not all the faculty in your meteorology program, as they will be writing your reference letters (for a job, internship, or graduate program). Although the four years seems like a long time, it will go by fast and those who are successful in landing a job or a position in a graduate program, start planning for those goals at least two years prior to graduation...A key to success is to get (and stay) engaged with your education early in your four years and keep setting and chasing goals! The more you know about what is out there and the more that you can enhance your education with various engaged learning activities, the more likely will be successful after graduation. Remember, you are on a life journey to be a meteorologist, and education is just one part of that long journey!

STEP THREE: Preparing for college graduation and beyond

Don't wait until spring break of your senior year of college to start thinking about what you are going to do once you graduate! As you enter your junior and senior year, you should begin to develop your career road map. Important activities that assist in determining where you are going to go in meteorology after completing your degree are often completed in these two years. First, it is important to understand what electives are available in your meteorology degree (i.e., remote sensing, applied meteorology/climatology, GIS, modeling, etc.). What you learn in these elective courses (and the skills you develop) could help you narrow your career choices. Furthermore, these elective courses could introduce you to a

number of potential internship opportunities either inside or outside your university. These internships provide an opportunity for mentored learning and hands-on involvement in forecasting, research, and application of knowledge. Often post-graduate job opportunities come from participation in an internship. Second, students need to start having broad discussions with their faculty mentors/advisors about their future career interests in the years running up to graduation. These mentors can often provide names of individuals or organizations that the students should contact about potential employment opportunities. Students need to begin the job search months if not a year or so prior to graduation. Unlike engineering where many companies come to campuses to interview students for jobs, meteorology majors must search for them and be patient. It is a competitive job market and it is important that students identify ways to stand out, whether that involves completing extra course work (i.e., a minor, a certificate, a capstone project, honors, etc.) or completing an internship or independent research project. Those who want to hire meteorologists are not only looking for a broad knowledge of meteorology but also a set of important skills that they want the student to possess including those focused at critical thinking, analytical reasoning, problem solving, communication, and ability to work with technology and others. When looking for a job in meteorology, it is important to throw out a wide net. You may find jobs in related fields such as environmental science, hydrology, agriculture, transportation systems, insurance, energy markets, and others. Although your job title might not say "meteorologist" if you have the opportunity to use your knowledge and skills in a productive manner that gets you in the door...and continues you on your meteorology journey! Last point, even if you don't find that perfect career in meteorology, you can still be a "citizen scientist" by participating in a number of important and interesting roles including that of a National Weather Service cooperative weather observer, a trained storm spotter, a CoCoRaHS observer, becoming a member of the American Meteorological Society, a Ham Radio fanatic or others. Your contributions to meteorology can come from all types of activities, not just those that come from your employment. So stay involved!

Last point, I love teaching in a meteorology program! Why, you ask? Because whether you are 18 and just finished high school or 35 and wanting a career change, those interested in meteorology generally have a PASSION for it! They will do whatever it takes to earn a degree and get a job in a field they truly love. Good luck and never give up!