Aerospace students test modified plane

By Chelsea Smith
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After a year of research and adding instruments to an airplane, graduate students in the Department of Aerospace Engineering finished conducting tests concerning flight angles and in-air stability, research that will later contribute to pollution measurement and turbulence tests.

“We just finished a long week of work and three successful flights,” said Celine Kluzek, a graduate student in the Department of Aerospace Engineering. “I know the other students would agree with me if I say that we worked hard the last month to get to that point but the results are showing.”

Following the Federal Aviation Administration approval of the modified plane on Wednesday, the flights began testing different measurements with the newly added instruments. The goal of the tests was to determine if the airplane’s stability would change after adding the instruments, said Andrew Carpenter, a graduate student in aerospace engineering.

“The goal of these three flights was to verify the stability of the aircraft had not changed after adding our flow field measurement devices,” Carpenter said.

The tests were conducted on a 1967 Cessna O-2 Skymaster used by the Commemorative Air Force, a collection of restored airplanes once used in the military. Two pilots conducted the flights for the research. Roy Martin, a chief test pilot for Northrop-Grumman and former fighter pilot, was the principal pilot. Don Ward, professor emeritus of aerospace engineering and former fighter pilot and commandant of the U.S. Air Force flight school, was the second pilot.

Andrew Carpenter, a doctoral candidate in aerospace engineering, prepares a sting mount probe on a retired Vietnam era N102JD aircraft Wednesday afternoon at Easterwood Airport.

All of the tests conducted have a large significance to the flight research, said aerospace engineering professor William Saric. The first test featured a probe that measured the angle the plane flew at, he said.

According to Carpenter, during the probe test the pilot noticed that the stability of the plane was not meeting expectations at low speeds, a problem that should be looked into before any future flight with additional instrumentation located on the wings can be flown.

“The probe test was important to future testing,” Carpenter said. “We plan on mounting an airfoil later on the same wing, and with the airfoil located on the wing we need to verify that the stability of the aircraft is not in question.”

Saric said the second test planned was called a sting mount, in which an instrument mounted to the wing

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measures atmospheric turbulence levels. However, due to weather complications on Friday and Saturday, the sting mount test was unable to run.

The graduate students will now begin to prepare for round two of the extensive flight research planned for the summer, Saric said.

"Subsequent flights will be conducted in July and August, when the students will be able to test the string mount and later add an air foil on the wing," Saric said. "Hopefully this too will be a success."

Even though the research was cut short by weather, Kluzek said the ability to get private group lessons from the pilots was worth it.

Carpenter said he enjoyed working alongside professional test pilots and flight test engineers, and said he is looking forward to doing tests the rest of the summer.

"The research we are conducting is very exciting," Carpenter said. "We have been working seven days a week to prepare and we plan on working hard throughout the summer."

Kluzek, who has a pilot's license, said being able to fly backseat on every flight and serve as a test engineer was a wonderful opportunity.

"Baseline, it is hard work but the experience is great," she said. "There (are) only a few universities that have a flight testing program, and this is what we love."