An AirTractor 502 Simulator for Training Agricultural Aviation Pilots on Pesticide Application

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Abstract

Many products are applied aerially to control fungal diseases, insect infestations, weeds, and other pests. While many aerial applicators are professional with a strong desire to carry out their profession in a sustainable and efficacious way, there is little room for error and very few opportunities to practice application situations which they may encounter. To help in part with this training, an AirTractor 502 flight simulator was constructed at the University of Nebraska-Lincoln's Pesticide Application Technology Laboratory. The simulator is capable of replicating application environments using a 235 degree wrap around screen, giving the pilot trainee an "out the window" visualization. The system uses multiple projectors and a sound system to create a realistic learning experience. A trainer can induce differing scenarios during a flight including inducing emergency situations. This will allow the pilot to experience potentially dangerous situations in an environment where there is no risk or liability. The trainer can also evaluate reactions and provide feedback on management of the application process under the different scenarios. The methods and application techniques used during the application can also be evaluated and critiqued. The simulator can also provide valuable flight time for those in training to become pilots. Training courses will become available with the goals of increasing pilot efficiency while also increasing the accuracy and effectiveness of pesticide applications.
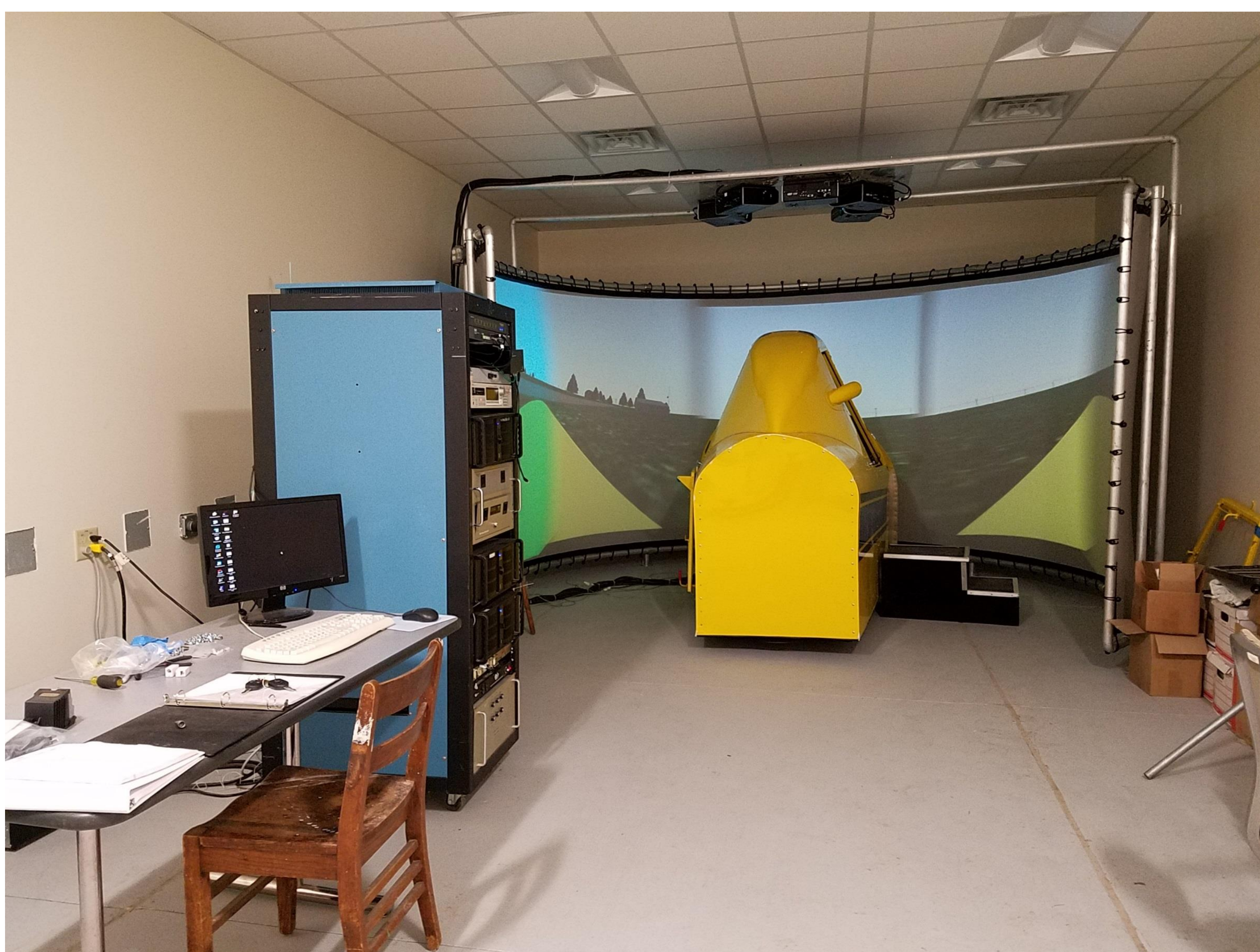
Figure 1. AirTractor 502 simulator and control equipment

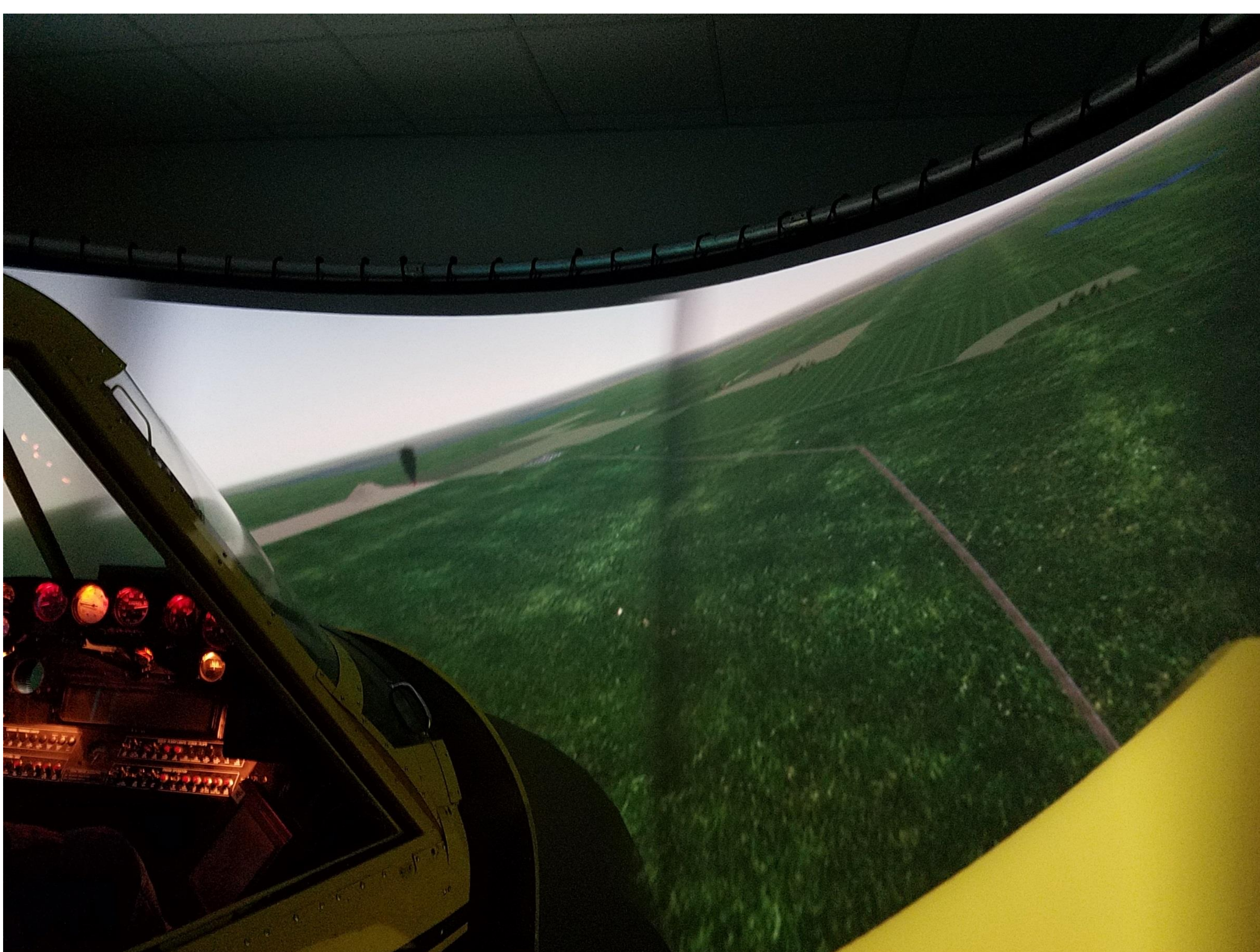Figure 2. AirTractor 502 simulator cockpit

Figure 3. AirTractor 502 simulator in flight
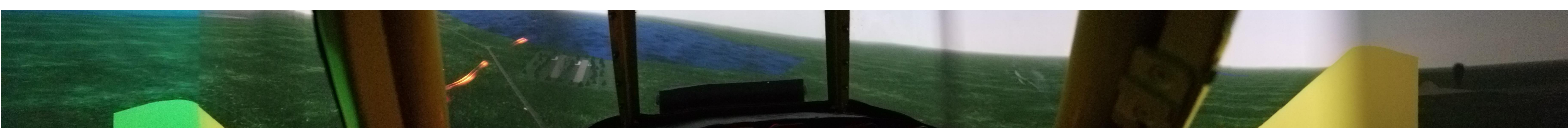

Figure 4. Ground view of AirTractor 502 simulator

Figure 5 Panaramic view from cockpit of AirTractor 502 simulator

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