

Launch

The UAS is launched via the SuperWedge pneumatic catapult system giving the ScanEagle its initial velocity and rate of climb at an angle of 25 degrees in a 12+g acceleration. This trajectory is beneficial in that it gives the UAS a rapid increase of altitude, minimizing the risk factors associated with operating an autonomous aircraft extremely close to the ground.

The aircraft is fully autonomous throughout the launch sequence. The UA climbs on course until it reaches the pre-designated safe altitude, at which point it automatically turns to its next projected waypoint located N 39° 01' 58.94" W 104° 51' 32.38". The aircraft must cross this waypoint below 500' AGL before climbing to its designated mission altitude. If the mission calls for simultaneous UAs, the airspace will be sectorized by a north/south dividing line from N 39° 02' 30.66" W 104° 52' 44.23" to N 39° 01' 14.23" W 104° 52' 44.64" into areas designated as West UAS Area and Jack's Valley. The UA operating in the West UAS Area shall be launched first; a second launch is prohibited until the first aircraft has climbed above 500' AGL and has passed the dividing line. In the event of an adverse situation with the UA in the West UAS area, the aircraft operating in Jack's Valley must recover/land prior to the UA in the West UAS area crossing the dividing line.



Recovery

The SkyHook retrieval system captures *Insitu's* UAS, providing runway-independent operations. The SkyHook includes a differential GPS unit and antenna, used to calculate the air vehicle's exact position to within a few centimeters. The air vehicle's wing is hooked on contact, by flying into the SkyHook rope, which is strung vertically approximately 50 feet above the ground. A hook on the UAS wingtip grabs the line and quickly stops the aircraft. The UAS senses the yaw and decelerations and cuts the engine. The UAS then hangs suspended from the rope, until lowered to the ground by the SkyHook operator.



The aircraft is fully autonomous throughout the entire approach and recovery sequence. Thus, the aircraft is not placed at risk by the performance of an external pilot flying the plane in a manner similar to a remote control model, as is typically done with other UAs. The aircraft will recover by orbiting in the designated airspace and descend below 500' AGL before proceeding direct the FAF for recovery as described above.

