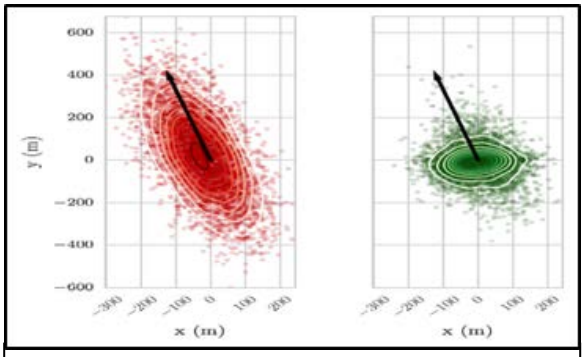
USTRANSCOM Science and Technology

Optimized High Altitude Low Opening (HALO) Delivery using Probabilistic Airdrop Planner

Project Summary: The intent of this project is improved airdrop delivery to recipients in the field. By using HALO systems, it enables the aircraft to stay above low altitude threats and decrease the fuel usage incurred by descending to a low altitude release point and then returning to a cruise flight level. For the recipient, aircraft state and wind errors can be corrected within the drop and dispersion decreased. This allows for faster payload recovery with less exposure to any hostile forces.



Single Bundle Monte Carlo Bundle Impact Locations for (left) Fixed and (right) Active Optimized HALO

While the execution lies in the Wireless Activation Device of the HALO parachute system, the calculations are done within the Air Force mission planner. Rather than using the current Monte Carlo process, the mission planner calculations use a new math engine. It is only when you combine these cross-service elements, Air Force mission planner and Army parachute systems, that you get the full value.

Benefit: Improved accuracy/decreased dispersion (50.6%) and reduced aircraft/aircrew risk.

Duration of project: FY18-FY20

Participants: Air Force Research Laboratory (AFRL)

Project advocacy (funding or otherwise): Air Mobility Command