



# Precision Air Drop System (PADS) Local Analysis and Prediction System (LAPS) Wind Forecasts Improve Air Drop Target Accuracy



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## Problem

- Missing drop zone targets results in loss of payload and danger to personnel when dropping payloads from high altitudes.



Planning Systems Inc. Photo



U.S. Air Force Photo

## For Example:

- Payloads intended for a valley in a politically friendly, mountain site may land in an adjacent valley, which may be a hostile location.
- Payloads may drop into populated areas endangering personnel and inhabitants.

## Collaborators

- Planning Systems, Inc (PSI) part of QinetiQ North American Technology Solutions Group
- U.S. Army Natick Soldier Research Development and Engineering Center
- U.S. Air Force
- Draper Laboratory

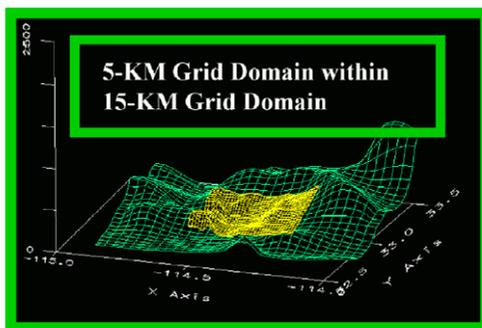
## Solution

- Following NOAA's mission, the risk to property and lives can be reduced by reducing error in trajectory due to inaccurate wind forecasts, especially in mountainous terrain.



Planning Systems Inc. Photo

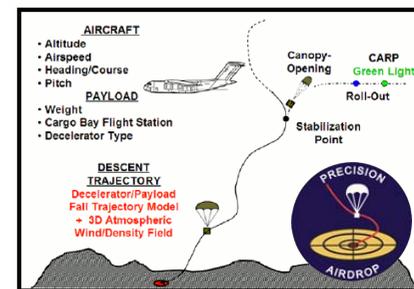
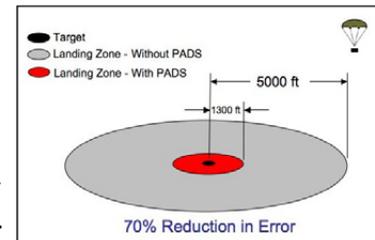
- ESRL's Local Analysis and Prediction System (LAPS) runs on a laptop aboard the aircraft producing a high resolution wind and weather forecast.



U.S. Air Force Photo/Tech. Sgt. Cecilio M. Ricardo Jr.

## Successes

- The **drop zone size is reduced**, making recovery less dangerous for ground crews.
- The PADS system allows aircraft to fly at **higher, safer altitudes with higher drop zone accuracy.**



## Technology Transfer



LAPS software used in PADS won the 2008 Federal Technology Transfer Award.

- The PADS system has been transferred to PSI and is currently in active use by the U.S. Military saving lives in Iraq and Afghanistan.

**"We've revolutionized the way we supply the war fighter. This is a hellaciously great capability."**

*AF Maj Gen Scott Gray, Commander Air Mobility Warfare Center, Fort Dix.*

## Other Benefits

- The PADS system using LAPS can benefit civilian needs: the technology can be applied to firefighting, by increasing the accuracy of water drops and protecting ground crews.

Wind data gathered from a dropsonde deployed over drop zone fine tunes the LAPS wind forecast for highest accuracy.