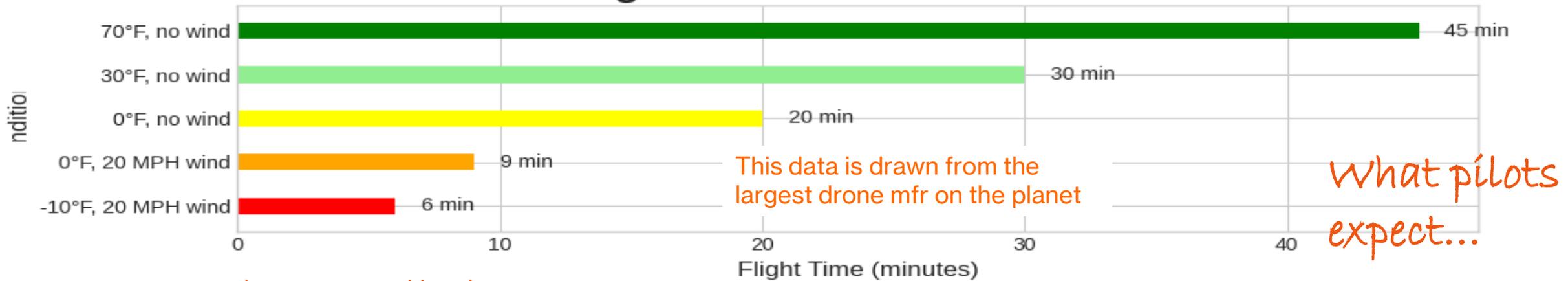


How to Operate Drones in Extreme Cold

This deck describes a solution to DIU Project G.I. Challenge DRM 4: Extreme Cold Weather ISR

Due 2025Dec15

Flight Time vs. Cold Weather



...what actually happens
in the cold and wind.

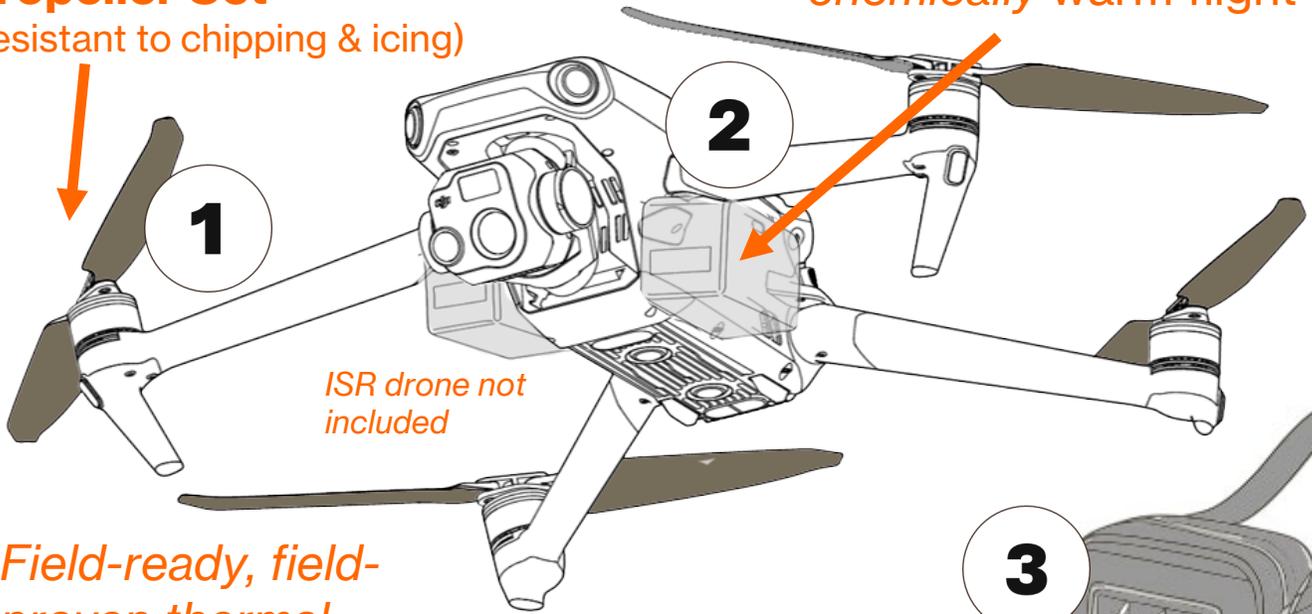
The reality of cold weather impacts,
scrubs, and/or fails drone missions

Problem - *Drone Performance and Soldier Piloting Performance drop dramatically in any extreme cold weather. Batteries don't last, and required pilot fine-motor skills seize at temperatures near freezing. Missions fail.*

Cold tolerant Propeller Set
(resistant to chipping & icing)

NAR proprietary Conformal Saddle Bags
chemically warm flight batteries

- Practical, simple, soldier-proof
- Minimal per-mission operating cost
- Easily maintained exothermic chemical packs (e.g. *HOTHANDS™*)



ISR drone not included

Field-ready, field-proven thermal management system for small UAS. Pre-warm and maintain optimal battery temp throughout flight.

Semi-rigid Landing Mat for soft snow landings

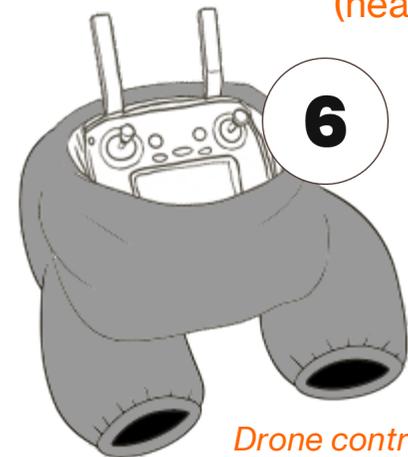


Flight Battery pre-warming pouch.
(Insulated. Shares same light-weight chemical heat source as saddle bags.)



Touch-screen Pilot's Gloves
(heated)

Weather-proof Muff for drone controller (heated)



Drone controller not included

Solution - a specialized **Drone Cold Weather (DCW) Kit** Restores Capabilities

SWaP-C entire kit fits in small belt/shoulder pouch. Adds <100g to drone, < 1 kg to soldier-drone pilot gear



BACKGROUND

The Department of War (DoW) announces Drone Dominance, an iterative \$1 billion plan to purchase small, lethal drones over the next two years. Secretary of War Pete Hegseth's intent is to accelerate growth of the U.S. industrial base and rapidly arm combat units with low cost, consumable drones at scale.

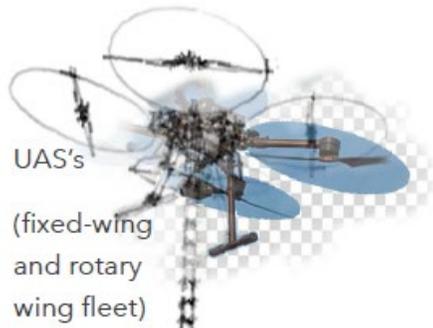
Drone Dominance is designed with the principles outlined in Secretary Hegseth's acquisition strategy: a steady demand signal and a commercial competition that leverages private capital, dropping prices while boosting lethality across the ranks.

Selected companies will be invited to participate in Prototype Gauntlet events. Victorious vendors will be selected at each event to receive orders. At Gauntlet I in February 2026, the DoW expects to order 30,000 drones with deliveries to be fulfilled by July 2026.

By 2027, Drone Dominance intends to purchase over 200,000 drones that can produce lethal effects in the toughest battlefield environments.

<https://dronedominance.mil/> c.2025

Market Opportunity - US Army Drone Dominance Program (DDP) will be purchasing 300,000 shiny new drones that will need to work in dark, frigid Ukraine or Greenland like they do in sunny, warm California or Florida.



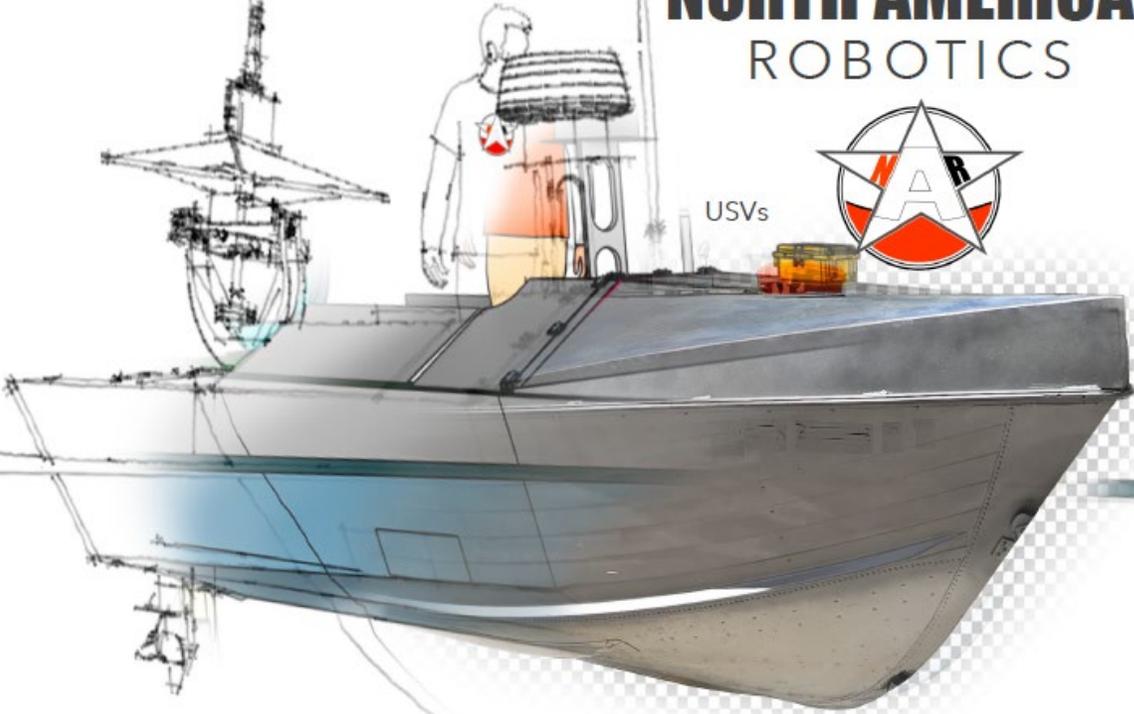
UAS's
(fixed-wing
and rotary
wing fleet)

from Ideation to Proof Of
Concept to Prototyping
and Demonstration -
NAR's experts have been
doing it all since before
Al Gore invented the
Internet*.

**NORTH AMERICAN
ROBOTICS**



USVs



UUVs



Technology Differentiator

- North American Robotics (NAR) is based in Minnesota and has been operating sUASs under mil-spec extreme cold since 1985. NAR has evaluated and combined the ideal cold-weather tech to restore nominal performance and capabilities to US Army drones and drone pilots.

•Link to a recorded video of your solution in real life operation and using the functionality proposed. www.NARobotics.US

NAR Drone Cold Weather (DCW) kit is a value that adds only about 5% to the cost of any existing sUAS system, but more than doubling its operating weather envelope

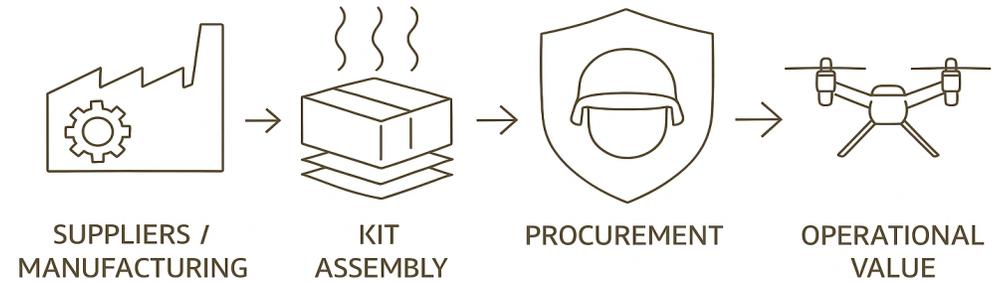
- Sales Channel:** Direct procurement via DoD vendor on-boarding

- Offering:** Modular cold-weather accessory kit (single SKU optional component-level replacements)

- Revenue Model:** Per-unit sales with volume pricing for battalion-level orders

- Value Proposition:** Extends drone flight time, protects gear, improves mission reliability

- Scalability:** Expandable to other services (USMC, SOCOM, NATO) and allied drone platforms, easily adaptable to civilian markets, e.g Law Enforcement, Emergency First Responders, Search & Rescue, DNR, Agriculture, etc.



ALL kit components use NDAA-friendly supply chains

NAR's Business Model is to deliver complete *Drone Cold-Weather (DCW) kits* as a single SKU, assembled, packaged, and available to accompany each Army procurement for new ISR/attack drones.

Team - made up of augmented family business – **Dr. Michael Vogt** Chief Science Officer, **Mark Vogt** Lead Aerospace Engineer, **Portia Vogt** CFO and Marketing Lead.



Ask – be considered for DoD Defense Innovation Unit Design Reference Mission (DRM) #4, Phase 1, 2, & 3

- **Senior Scientist, 25-year R&D career at DOE National Labs , *R&D100 Award winner***
- **+15 years defense contractor /PI/Sr Advanced Systems Engineer**
- **PI for (15) SBIR/STTRs**
- ***Specialist in applied agentic AI and autonomy, Expert Drone Pilot with 6,000 logged flight hours (3,000 hrs in extreme cold conditions)***