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SPECIAL OPERATIONS FORCES ACQUISITION, TECHNOLOGY, & LOGISTICS

Winning Left of Conflict

INTEGRATED STRIKE PROGRAM

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United States Special Operations Command

Air-launched Loiter Munitions (ALM)

Collaboration Event (CE)

02 November 2023

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PMO-Strike, PEO-Fixed Wing
SOF AT&L, USSOCOM

Munitions Overview

50 lb Class

AGM-176 Griffin

Raytheon
Employed from Common Launch Tube (CLT)
Integrated on Gunships and Surrogate Aircraft
Length: 43” w/ 5” Diameter
Weight: 34 lbs
Warhead: 13 lbs; 3.2 lbs Net Explosive (NEW)
Weapons Data Link (WDL)
SOF-p

Common Launch Tube

Dimensions: 5.95” ID x 42”
-- for internal payload
Interfaces: Common external ICD interface

50 lb Class

GBU-69/B Small Glide Munition

Dynetics, Inc.
Employed from CLT
Integrated on Gunships, MQ-9 and Surrogate Aircraft
Length: 42” w/ 4.5” Diameter
Weight: 59 lbs
Weapons Data Link (WDL)
SOF-p

100 lb Class

AGM-114 SOF Hellfire Variants

Lockheed Martin (Missile) / Various (Warhead)
Low Collateral Damage Variants
Integrated Gunship on MQ-9
Length: 64” w/ 7” Diameter
Weight: 109-118 lbs
Warhead: 20-29 lbs; 0-8 lbs
AF Common, SOF-p Modified

250 lb Class

GBU-39 B/B Laser Small Diameter Bomb

Boeing
Integrated on Gunships and MQ-9
Length: 70.8” w/ 6” Diameter
Weight: 267 lbs
Warhead: 36 lbs
Modified SDB

MUNITIONS ROADMAP

SMALL GLIDE MUNITION (SGM)

GRIFFIN MISSILE

SMALL DIAMETER BOMB II

PALLETIZED EFFECTS

- Close-in
- GPS-reliant
- Laser-guided
- Data Linked
- Irregular Warfare / Counter-Violent Extremist Orgs

- Standoff
- Contested environment, next gen guidance
- Open, modular alt-seeker modalities
- Networked, Collaborative, autonomous
- Campaign, compete, win versus peer threats

SO-P HELLFIRE VARIANTS

LASER SMALL DIAMETER BOMB

LOITER MUNITIONS

MINI/SMALL CRUISE MISSILES

Win | Transform

Cruise vs Loiter Munitions

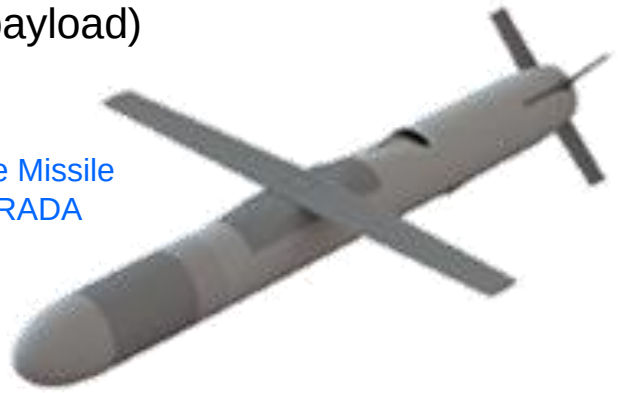
Cruise Missiles

CLT
(150 nm w/ 15-lb payload)

Mini Cruise Missile (MCM)
SBIR Phase II

Non-CLT
(500 nm w/ 35-lb payload)

Small Cruise Missile
(SCM) CRADA



Characteristic	Long Range	Long Endurance
Optimized Flight Profile (Aero/Propulsion)	Max Range (faster)	Max Endurance (slower)
Use Case	Stand Off	Wx, Hand Off, Leave Behind, Quick Strike
Launch Profile	To a target	To a flight plan
Phases of Flight	Launch, Transit, Fix, Finish	Launch, Transit, Find, Fix, Finish
Sensor	Seeker – Fixed Zoom and Forward Looking	Camera – Zoom Lens and Gimballed Turret
(typical) Data Link	BLOS / lower bandwidth (WDL)	LOS / Higher bandwidth (C-2 & FMV)

Loiter Munitions

CLT Requirement
(45 min at 20 nm)

Non-CLT Requirement
(2 hours at 60nm)

Integrate and Demonstrate

https://events.sofwerx.org/loiter

SOFWERX

EVENTS TECH TUESDAY FOUNDRY CONNECT METRICS

Air-launched Loiter Munition (ALM)

Collaboration Event (CE)

02 November 2023
Host Name: Bridget Stauffer
Location: SOFWERX
Share on Social Media

Request to Attend Closed 12 October 2023

Purpose

SOFWERX, in collaboration with USSOCOM Program Executive Office – Fixed Wing (PEO-FW), Stand-Off Precision Guided Munitions (SOPGM) Program, will host a series of events to demonstrate and integrate Air-launched Loiter Munition (ALM) capabilities. These engagements with Industry, Academia, and Government Labs, will help USSOCOM identify potential material solutions and investigate trade-space. USSOCOM intends to survey industry for mature, non-developmental, technology that may support rapid fielding of this capability.

Background/Synopsis

The SOPGM Program Office currently supports Special Operations Forces (SOF) aircrews with short range munitions that are employed directly to known targets, visually identified by the shooter aircraft before launch, and utilize Global Positioning System (GPS) or Semi-Active Laser (SAL) for terminal guidance. The dependencies for this employment method will place SOF Operators at an unacceptable risk during engagements in highly contested areas. New solutions are required to provide identification, tracking, and engagement of moving or mobile targets in a time compressed environment. SOF aircraft must be prepared to efficiently engage moving targets on the time scale it would face during any potential conflict with a well-resourced peer or near-peer adversary attempting an act of aggression. Traditional airborne moving target intelligence, surveillance, and reconnaissance (ISR) sensors currently employed by SOF will be inadequate for such a scenario due to deficiencies in survivability, speed, range, or sensor performance. Considering these capability gaps, USSOCOM is looking for ALMs to decrease the engagement time from minutes to seconds, improve targeting solutions, and increase the survivability of SOF.

Air Force Special Operations Command

Quiet Professionals

Air-Launched Loiter Munition (ALM) Collaboration Event (CE) AFSOC Perspective

Dan Wilson
AFSOC A5 Requirements
2 Nov 23

AFSOC Problem Statement

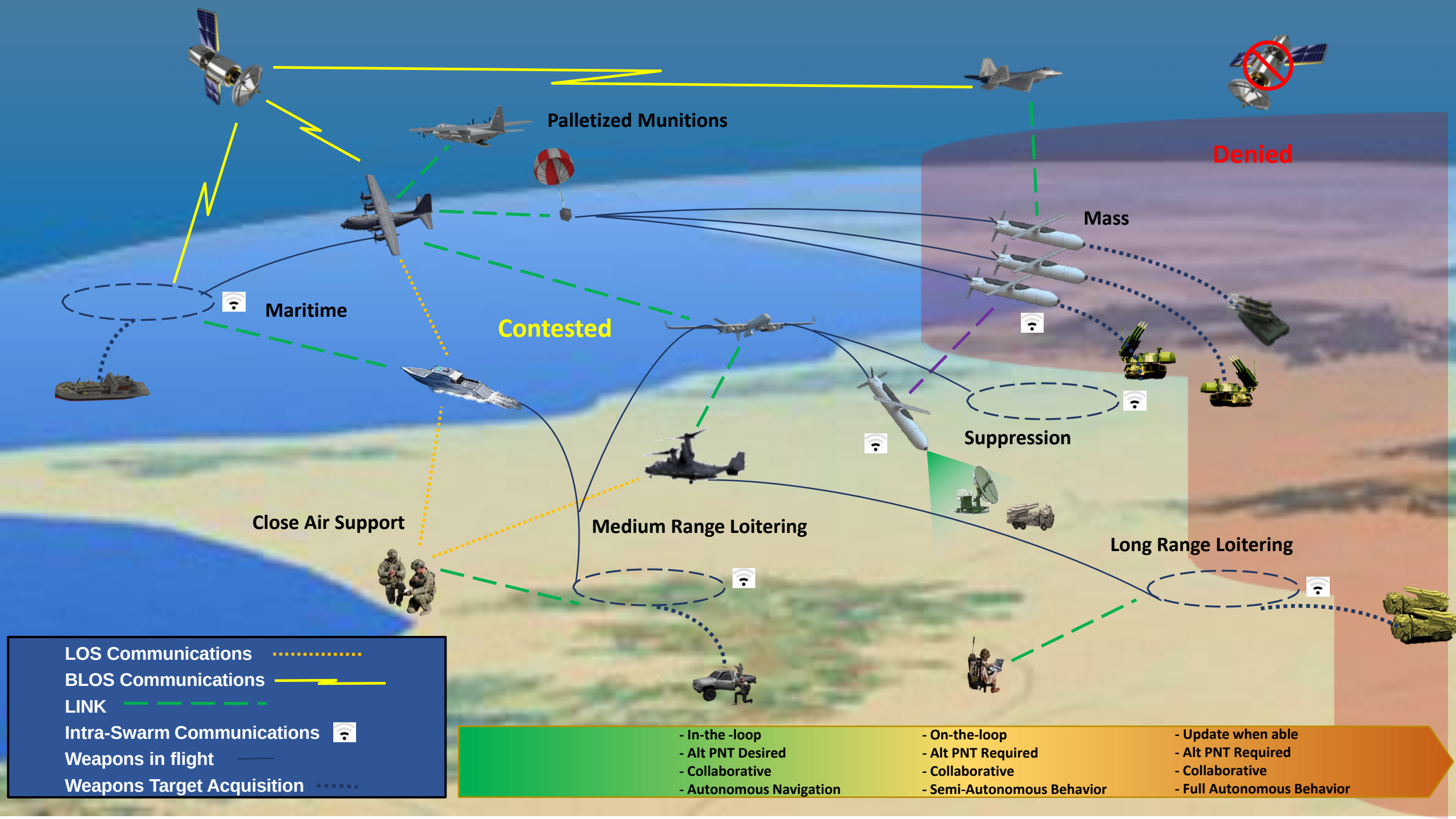
Given DoD's pacing challenges & the anticipated future operating environment, AFSOC lacks the concepts and technologies to provide effects in contested and denied environments.

Strategy:

- Transform AFSOC munitions to smart, capable, and cost effective
- Accept technical, requirements, and programmatic risk to field capability rapidly

- **Facts**
  - AFSOC aircraft are not survivable in contested and denied environments… neither are the weapons…
  - Global threats drive an aggressive timeline
  - AFSOC must support across the 4C's…
    - Crisis
    - Counter VEO
    - Competition
    - Conflict
- **Assumptions**
  - AFSOC will conduct operations in contested and denied environments with its existing Mission Design Series (MDS)
  - AFSOC will need larger quantities of collaborative, semi-autonomous/autonomous, loitering munitions
  - Current Costs of munitions are unsustainable


Scalable Mass Employment
Palletized
Munitions
Air Drop


Palletized Munitions
Denied
Mass
Maritime
Contested
Suppression
Close Air Support
Medium Range Loitering
Long Range Loitering
LOS Communications
BLOS Communications
LINK
Intra-Swarm Communications
Weapons in flight
Weapons Target Acquisition
- In-the -loop
- Alt PNT Desired
- Collaborative
- Autonomous Navigation
- On-the-loop
- Alt PNT Required
- Collaborative
- Semi-Autonomous Behavior
- Update when able
- Alt PNT Required
- Collaborative
- Full Autonomous Behavior

United States Army
Special Operations Aviation Command

Organization Overview

The Systems Integration Management Office (SIMO)

*"**Success** must be **proactive** – not **reactive.**"*

-SOF truths

SIMO Mission Statement

Equip the soldiers of the USASOAC Enterprise with the most capable rotary wing aircraft and mission systems in the world. Facilitate the sustainment and improvement of USASOAC highly modified and/or unique aircraft and mission systems.

WIN

Maintain our Current Technology and Training Overmatch.

TRANSFORM

Transform from Legacy to the Future "Shaping the Advantage"

DOMINATE

Full Spectrum Dominance through Comparative Advantage

Design → *Develop* → *Deliver* → *Dominate*









OV1 Discussion/ Questions

ALM SOFWERX Engagement Objectives

1) Explore potential ALM solutions with Industry, Academia, and Labs based upon an understanding of current SOCOM use cases and operational landscapes for future conflicts. Recent conflicts in Ukraine and elsewhere have demonstrated mature ground-launched loiter munition capabilities. This, combined with the emergence of Air Launched Effects (ALE), should provide a shorter path to viable and mature ALMs.

2) Investigate the trade-space, to include:

a) Endurance, Range, Cruise and Max Airspeeds
b) Payload Capacity
c) Sensors/Seekers, Semi-Active Laser (SAL), Electro-Optical/Infrared (EO/IR), Radio Frequency (RF), Automatic Target Recognition (ATR), Automatic Target Detection (ATD)
d) Command and Control (C2) Data-Link, Telemetry, Transponder, Flight Termination System
e) Counter Detection
f) Warhead and Fusing
g) Employment from various SOCOM aircraft (ex: AC-130J, MQ-9, MQ-1, MH-60, and others)
h) Aircraft Integration standards such as MIL-STD-1760/1553, Universal Armament Interface (UAI), Battle Management System (BMS), Common Launch Tube (CLT), and 14-inch lug racks.

3) Future proof the system for technology upgrades, with considerations for Model Based Systems Engineering (MBSE), Modular Open Systems Approach (MOSA), Weapons Open Systems Architecture (WOSA), and Weapons Government Reference Architecture (GRA), as well as producibility concerns.

4) Identify Risks, Issues, and Opportunities.

Suggested Discussion Topics

CONOP	Material Solution	Flight Test	Acquisition
- Targeting Solution - Autonomous Behaviors - Bingo before Target - Tactics, Techniques, and Procedures (TTPs)	- Aircraft Integration - MOSA/WOSA/GRA - Communications - Investigate Trade Space - What is in in the art of the possible? - What is readily available?	- Government Dependencies (DT vs CT) - Risk Reduction - Lab Test - Ground Shots/Releases - Fit Checks - EMI/EMC - Captive Carry - Safe Separation - 1st Flight - Configuration Management in T&E	- Program of Record - Economy of Scale - Program Protection (Cyber, AT, SCRM) - Configuration Management (Production) - Training

Questions?

(tentative) Schedule

Phase 2 - 05 December 2023 to 05 January 2024 Submissions to the Assessment Event (AE) Open: Interested respondents who could potentially provide solutions that meet the needs of USSOCOM are encouraged to submit their capability for USSOCOM review. To submit your technology for potential Phase 4 attendance, please review the assessment criteria and follow the submission instructions that will be near the bottom of this webpage on/around 05 December.

> **Phase 2a - 11 December 2023 Q&A Telecon:** Interested offerors may participate in a virtual Q&A session to better understand the PM's specific technology objectives. The telecon will take place on 11 December 2023 2:00-3:00 PM ET. RSVP form will be available on/around 05 December.

Phase 3 - 08 January 2024 to 18 January 2024 Downselect: USSOCOM will downselect those respondents/submissions they feel have the highest potential to satisfy their technology needs. Favorably evaluated submissions will receive an invitation to attend the AE on/around 19 January.

Phase 4 - 06 February 2024 to 08 February 2024 Assessment Event (AE): During the AE, selected participants will be allotted a one-on-one session with the USSOCOM evaluation panel to pitch, demonstrate, and/or discuss their solutions. The forum will include a Q&A portion and discussions may continue outside of the event. Solution brief presentation guidelines will be outlined in the event invitation and solutions will be assessed according to the criteria in the link provided below. If the USSOCOM evaluation panel favorably evaluates a solution brief, negotiations for Phase 5 may immediately begin.

Note: The event details are subject to change.
This event will be held in person at SOFWERX.

Phase 5 - Path Forward: Successfully negotiated awards may fall under any combination of these categories: