

UAS Calculations for Modern Aerial Dissemination - Learning Objectives

Objective #1

Action:

Identify key doctrinal constants for UAS leaflet dissemination.

Condition:

Given Tables D-1 through D-5 from the UAS Leaflet Drop doctrine and classroom instruction.

Associated Task or Educational Topic:

Introduction to UAS Aerial Dissemination Parameters

Standard:

Correctly identify and state the standard doctrinal constants, including descent rate (2.5 ft/s), spread factors (0.2-0.4), and standard UAS speed (17 knots) with 100% accuracy.

General Learning Outcomes (GLO) Supported:

Establish foundational technical knowledge for PSYOP planners.

Domain and Mastery Level:

Cognitive - Knowledge

Criticality Standard:

Essential - Required for all subsequent calculation tasks.

Associated Skills and Knowledge:

- S2: Technical data interpretation
 - K1: Physics principles of aerial delivery
 - K2: Mathematical formulas for time calculation
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Objective #2

Action:

Select appropriate sUAS platform for leaflet dissemination operations.

Condition:

Given mission requirements, available sUAS platforms, and operational constraints in a planning environment.

Associated Task or Educational Topic:

Platform Selection and Analysis

Standard:

Select the most appropriate sUAS platform that meets mission requirements while considering operational constraints, ensuring compatibility with leaflet dissemination needs.

GLO Supported:

Enable PSYOP planners to make informed platform selection decisions.

Domain and Mastery Level:

Cognitive - Analysis

Criticality Standard:

Critical - Platform selection directly impacts mission success.

Associated Skills and Knowledge:

- S2: Technical data interpretation
 - S15: Risk assessment
 - S16: Constraint analysis
 - K3: sUAS platform-specific performance characteristics
 - K21: Operational security considerations
 - K22: Terrain effects on sUAS operations
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Objective #3**Action:**

Calculate required metrics for leaflet descent and drift parameters.

Condition:

Given altitude above ground level (AGL), UAS airspeed, wind data, and doctrinal constants from Tables D-1 through D-3.

Associated Task or Educational Topic:

Basic UAS Dissemination Calculations

Standard:

Accurately calculate descent time, forward drift, and lateral wind drift with no more than 5% error from expected results.

GLO Supported:

Enable PSYOP planners to determine fundamental dissemination parameters.

Domain and Mastery Level:

Cognitive - Application

Criticality Standard:

Critical - Forms the foundation for all targeting calculations.

Associated Skills and Knowledge:

- S1: Mathematical computation skills
 - S5: Formula application
 - S6: Systematic calculation methodology
 - K2: Mathematical formulas for time calculation
 - K4: Unit conversion standards and procedures
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Objective #4**Action:**

Calculate compound drift metrics for leaflet dispersion patterns.

Condition:

Given calculated descent time, forward drift, and lateral wind drift values from previous calculations.

Associated Task or Educational Topic:

Advanced Drift Calculations

Standard:

Correctly calculate total drift distance, major axis, and minor axis of the dispersion ellipse with no more than 10% error.

General Learning Outcomes (GLO) Supported:

Determine precise dispersion patterns for MISO product delivery.

Domain and Mastery Level:

Cognitive - Analysis

Criticality Standard:

Critical - Defines the actual coverage area for psychological operations.

Associated Skills and Knowledge:

- S3: Critical thinking and analysis
 - S4: Attention to detail
 - S12: Spatial analysis
 - K12: Basics of vector physics
 - K16: Relationship between drift, dispersion, and release point
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Objective #5**Action:**

Calculate leaflet density metrics for operational effectiveness.

Condition:

Given dispersion ellipse dimensions and quantity of leaflets to be disseminated.

Associated Task or Educational Topic:

Density and Effectiveness Analysis

Standard:

Accurately calculate area coverage and resulting leaflet density with no more than 15% error, applying the appropriate formulas for elliptical area.

GLO Supported:

Ensure sufficient saturation for psychological effectiveness.

Domain and Mastery Level:

Cognitive - Analysis/Evaluation

Criticality Standard:

Critical - Determines if the planned dissemination will achieve desired psychological effect.

Associated Skills and Knowledge:

- S4: Attention to detail
 - S6: Systematic calculation methodology
 - S12: Spatial analysis
 - K16: Relationship between drift, dispersion, and release point
 - K17: Target area characteristics
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Objective #6**Action:**

Develop an integrated flight plan for SUAS leaflet dissemination operations.

Condition:

Given all calculated metrics (drift distances, dispersion patterns, density requirements) and a specific tactical target area.

Associated Task or Educational Topic:

SUAS Flight Planning for MISO Operations

Standard:

Produce a comprehensive flight plan that includes properly calculated release points, optimal flight altitude, and flight path to achieve desired target coverage.

General Learning Outcomes (GLO) Supported:

Translate technical calculations into actionable flight parameters.

Domain and Mastery Level:

Cognitive - Synthesis

Criticality Standard:

Critical - Final operational product that enables mission execution.

Associated Skills and Knowledge:

- S3: Critical thinking and analysis
 - S6: Systematic calculation methodology
 - S18: Strategic decision-making
 - K16: Relationship between drift, dispersion, and release point
 - K24: Mission success criteria
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Objective #7**Action:**

Adapt MISO product design for SUAS aerial dissemination.

Condition:

Given standard PSYOP products, SUAS dissemination capabilities/limitations, and calculated dispersion metrics.

Associated Task or Educational Topic:

MISO Product Integration with Technical Parameters

Standard:

Successfully modify or select MISO products that account for the technical constraints of SUAS dissemination while maintaining psychological effectiveness.

General Learning Outcomes (GLO) Supported:

Ensure technical delivery methods enhance rather than diminish PSYOP effects.

Domain and Mastery Level:

Cognitive - Evaluation/Synthesis

Criticality Standard:

Critical - Bridges the gap between technical calculations and psychological impacts.

Associated Skills and Knowledge:

- S2: Technical data interpretation
 - S4: Attention to detail
 - S9: Technical documentation
 - K3: sUAS platform-specific performance characteristics
 - K5: Documentation requirements and standards
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Objective #8

Action:

Execute practical application exercises to reinforce UAS calculation skills.

Condition:

Given complex scenarios with multiple variables and time constraints that simulate operational conditions.

Associated Task or Educational Topic:

Applied Lab Exercises

Standard:

Demonstrate proficiency in all calculation methods by completing practical exercises with at least 80% accuracy within the allotted timeframe.

General Learning Outcomes (GLO) Supported:

Develop calculation fluency under operational conditions.

Domain and Mastery Level:

Cognitive - Application/Analysis

Criticality Standard:

Critical - Builds speed and accuracy needed for time-sensitive operations.

Associated Skills and Knowledge:

- S1: Mathematical computation skills
- S3: Critical thinking and analysis
- S4: Attention to detail
- S6: Systematic calculation methodology
- K2: Mathematical formulas for time calculation
- K10: Validation methodologies