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METEORSTORM™
CHEAT SHEET

The Multiple Environment Threat Evaluation of Resources Space Threats and Operational Risks to Mission Framework for Converged Space Systems Modeling, Threat Evaluation, and Resilience Engineering

FRAMEWORK PURPOSE

METEORSTORM™ models converged space systems to:

➤ Identify **Kinetic, Non-kinetic, Electronic Warfare (EW), Cyber Warfare, and** Other **Exposure threats.**

➤ Cover diverse interconnected assets, including:
- **Drones** (airborne, aquatic, space-based).
- **Transoceanic elements** (e.g., undersea fiber optic cables).
- **Autonomous Aquatic Vehicles** (AUVs).

➤ Enhance resilience with **decomposition and analytic enrichment.**

➤ Detect and mitigate **AI-CoPilot hallucinations** during modeling and analysis.

OFFICIAL FIVE-LAYER DECOMPOSITION MODEL

Layer	Focus	Key Elements
Primary Capability Environment (PCE)	Defines operational environments.	Terrestrial, Aquatic, Air, Orbital, Deep Space
Segment (SEG)	Defines service and asset groupings.	Launch, Ground, User, Aquatic, Low Altitude, High Altitude, Near Space, Space, Deep Space
Service (SVC)	Defines mission service types.	Control Plane, Data Plane, Hybrid
Asset (AST)	Defines mission-critical assets.	Hardware, Firmware, Software, Data, Signals, Hybrid
Analytic Enrichment (AN)	Adds threat intelligence and resilience.	Attack Paths, IoCs, IoAs, Threats, Detection Signatures, Resilience Measures

DATA MODELS AT EACH LAYER

Each element uses this Nomenclature Pattern:
Layer, Tag, Category, Ordinal Number, Label, Description

Example:

- **PCE: OR: Orbital: 00: LEO: "Low Earth Orbit"**

Includes modeling of:

➤ **Surface drones, space drones.**

➤ **Submarine cables** (critical infrastructure under Aquatic PCE + Signal AST).

➤ **Autonomous marine platforms** (AUVs modeled under Aquatic SEG + Hybrid AST).

OFFICIAL FRAMEWORK FUNCTIONS

FUNCTION NAME	PURPOSE
Decomposition Function	Models the concept of operations and nominal platform states.
Function 1: Threat Modeling	Models threats, attack paths, and resilience measures.
Function 2: Detection Engineering	Designs detection signatures and indicators of attack (IoA).
Function 3: Incident Response Preparation	Models indicators of compromise (IoC) and supports threat emulation.
Function 4: Adversary Management	Overlays known and theoretical adversaries against system models.
Function 5: Commercial Hybrid Warfare Analysis	Assesses risk of commercial hybrid warfare at operational intersections (e.g., commercial satellites, undersea cables, drone networks).

HOW TO APPLY THIS GUIDE

The **AI-CoPilot** is a powerful assistant designed to **accelerate your learning, modeling, and exercise preparation** within the METEORSTORM™ framework.

However, you must:

1 **Validate** every output (layer decomposition, asset modeling, threat mapping) manually.

2 **Cross-reference** models with trusted sources like SPARTA, MITRE ATT&CK, ESA Space Shield, and industry standards (NIST SP 800-160, ISA/IEC 62443).

3 **Apply critical thinking** to AI-generated content to detect hallucinations, gaps, or over-simplifications.

4 **Use the METEORSTORM™ layers and official data model** as your primary structure to guide corrections or improvements.

5 **Supplement** AI-CoPilot insights with direct reading, team discussions, and expert advisories during mission planning, academic work, or resilience engineering tasks.

REMEMBER:
AI-CoPilot is a **tool to enhance — not replace —** your expertise, judgment, and the rigor of METEORSTORM™ analytic modeling. Use it **wisely, cautiously, and always in combination with human validation.**

ANALYTIC ENRICHMENT SOURCES

Harmonized content from these trusted sources:

- SPARTA
- ESA SpaceShield
- MITRE ATT&CK
- MITRE D3FEND
- MITRE ATLAS

- MITRE CAPEC
- ISA/IEC 62443
- NIST SP 800-53
- NIST SP 800-160 V1
- NIST SP 800-160 V2

REMEMBER:
METEORSTORM™ is a convergence modeler. Always validate your AI Co-Pilot outputs using this structure before using them in official SCOR-P2 or resilience engineering work!