

1st /2024 SCM

Subject No 9



INTEGRATED AIR & MISSILE DEFENCE

CENTRE OF EXCELLENCE

Souda Air Base, 73100, Chania

<https://www.iamd-coe.org>



1st/2024 Steering Committee Meeting POINT PAPER

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Date:	02 Aug 2024	Email:	info@iamd-coe.org

TO: See Distribution
SUBJECT: **HYPERSONIC Study**
No: 9

PURPOSE: To inform SC about the Centre's intention to initiate a study titled (TBC) "Comparative study of two open-source Computational Flow Dynamics solvers, with respect to their effectiveness and accuracy in predicting hypersonic flows. How can this study assist the alliance in creating appropriate methods of **Modelling and Simulation (M&S)** to address Hypersonic effectors".

BACKGROUND: Hypersonic weapons can strike targets with little warning, reducing the reaction time for defense systems. This capability is crucial for hitting high-value, time-sensitive targets. Defending against hypersonic weapons presents significant challenges due to their high speed and maneuverability. These weapons, capable of traveling at speeds greater than Mach 5 (five times the speed of sound), are poised to disrupt current defense systems and strategic doctrines. Various surveillance and tracking systems are being explored to enhance defenses against hypersonic threats. While there's no foolproof method, some approaches assisted by modelling and simulation methods are the first steps for countering them.

It's important to note that countering hypersonic threats is a complex and evolving field area, and no single system may provide a comprehensive solution. A layered defense strategy, combining various technologies and approaches, is more likely to be effective in mitigating the risks associated with hypersonic weapons.

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Ongoing research and development are crucial to staying ahead of emerging threats in this rapidly evolving technological landscape. Additionally, alliance collaboration and partnerships may play a role in enhancing the capability to detect and respond to hypersonic threats. Further research and experimentation are essential to fully understand and address the impact of this emerging & disruptive technology.

ANALYSIS &
STATUS:

IAMD COE perspective on the Challenges Countering HYPESONICS Weapons, are:

- Hypersonic Weapons as part of Emerging Disruptive Technology (EDT)
- Definition - Categories
- Advantages – Disadvantages of Hypersonics
- Operational Implications
- SURVEILLANCE Challenges in Countering Hypersonic Weapons

Previous Hypersonic studies assisted in understanding and covering the first three areas. The proposed study will be beneficial, to explore the “Operational Implications” and the “SURVEILLANCE Challenges in Countering Hypersonic Weapons” through M&S. Essential in that regard would be the parallel exploitation of envisaged predictive hypersonic data through, inter alia the IAMD COE M&S Capabilities. Thus, through collaborative work with our SMEs more tangible ways and methods might be identified/produced to address above mentioned topics, closely connected with our Focus Areas.

FINANCIAL
CONSIDERATIONS
& FUNDING:

The financial requirements for the aforementioned project (17.000 €) have been budgeted within the IAMD COE Shared Budget for Fiscal Year 2025. This allocation of funds required has been planned to stay within the established limits and ceiling of the respective Medium-Term Financial Plan, thereby eliminating any need for additional funding.

RECOMMENDATIONS
& DECISION:

SC members are requested to note the initiation of the above project regarding Hypersonics.

FOR THE IAMD COE:



B. Gen (OF-6) Nikolaos MAKRYGIANNIS GRC (AF)
IAMD COE Director

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