Unstoppable Weapons? Hypersonic Missiles in the Context of the Revolution in Military Affairs

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Hypersonic missiles are quickly being developed by some of the largest states in the international arena. The media often calls hypersonic missiles 'unstoppable weapons'. They are not completely wrong.

Hypersonic missiles travel at speeds of at least five times the speed of sound (though many of these missiles are meant to travel at twice or more of that speed) and are manoeuvrable while in the air. These factors make the weapons very difficult to track and to launch a successful counter strike against. This means that, for the time being, all states are vulnerable to a hypersonic attack.

Does this fact, along with other implications of the development of these weapons, mean that significant changes in warfare are going to take place? This research explores these broad questions about changes in warfare through a military theory called the Revolution in Military Affairs (RMA). While RMA theory has often been applied *a posteriori* to past military revolutions, work in applying the theory to current changes happening in militaries is underdeveloped. This research involves synthesising the many variations in RMA theory through a content analysis and combining the key factors of RMA to create a definition which is specific enough to be applied to the case of hypersonic missiles. The application of RMA theory to hypersonic missiles will be able to offer a prediction as to whether hypersonic missiles will radically change warfare.

This research has found that key indicators of an RMA are technological change, operational developments, and organisational adaptation. Not all of these characteristics need to be realised in order to constitute an RMA. However, the deployment of hypersonic missiles is likely to present all of these indicators, making an RMA due to the deployment, and especially the use of these weapons, a highly likely occurrence. The presence of technological change has often dominated the conversation around RMA, but the operational developments and organisational adaptations that are likely to occur after the deployment of hypersonic missiles are just as consequential. Hypersonic missiles will enable missions to be carried out which were not possible with existing missile

technology. Further, the compressed time frame that the use of hypersonic missiles presents will stress the traditional decision-making model of militaries. This will likely necessitate that militaries adopt their decision-making models in order to react in a time sensitive manner to hypersonic threats.

The likelihood of hypersonic missiles to constitute an RMA validates hypersonic missiles as an important area for future research to be carried out. In future research specific attention should be paid to the strategic consequences of the ability for hypersonic missiles to put at risk previously protected targets. Further work should also be carried out in assessing the options for militaries to cope with the reduced decision-making timeframe that the deployment of hypersonic missiles will create. Finally, the implications of the development and deployment of hypersonic missiles is wide-ranging and challenging, but there is still an opportunity to curtail these implications through international arms control agreements.

While there is deadlock among the major powers concerning arms control, a narrower approach, specifically targeted to hypersonic missiles, may provide an opportunity to restart dialogue which can increase the security of all parties involved.