

## **Accounting For Violent Conflict Risk In Planetary Defense Decisions**

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This paper evaluates the implications of violent conflict risk for planetary defense program decisions. Arguably, the aim of planetary defense should be to make Earth safer from all threats, including but not limited to threats from near-Earth objects (NEOs). Insofar as planetary defense projects affect other risks besides NEOs, these other risks should be taken into account. Perhaps the most significant non-NEO risk potentially affected by planetary defense programs is the risk of violent conflict. This paper evaluates three potential effects of planetary defense programs on violent conflict risk. First, the proposed use of nuclear explosions for NEO deflection could affect the role of nuclear weapons in violent conflict risk. The exact effect is difficult to assess because nuclear weapons play an ambiguous role in violent conflict risk, potentially increasing the risk via their larger explosive force or decreasing the risk by strengthening deterrence. One important factor is the longstanding taboo against nuclear explosions, which is commonly credited for reducing the risk of catastrophic nuclear war. Programs for peaceful nuclear explosions, such as for NEO deflection, could weaken the taboo. Second, planetary defense could reduce violent conflict risk by addressing the possibility of NEO collisions being mistaken as violent attacks and inadvertently triggering violent conflict. False alarms mistaken as real attacks are a major concern, especially as a cause of nuclear war. The prospect of NEO false alarms is exemplified by the 2013 Chelyabinsk collision near the Russian Snezhinsk nuclear program site and the 2018 collision near the US Thule Air Base. Planetary protection programs may be able to help reduce this risk via communication and coordination with militaries around the world. Third, planetary defense may offer a constructive model for scientific and international cooperation to understand and address an important global risk. While the NEO threat does not have the same political dimensions as the threat of violent conflict, planetary defense programs may nonetheless be of value as a model for efforts to reduce violent conflict risk. Each of these areas of intersection between planetary defense and violent conflict risk—nuclear weapons for NEO deflection, NEO false alarms, and models of cooperation—can benefit from interaction between the communities that study and address NEO and violent conflict risks.