Accounting For Violent Conflict Risk In Planetary Defense Decisions

Seth Baum

Global Catastrophic Risk Institute

http://gcrinstitute.org

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“The chances of the Earth being struck by a large asteroid are extremely small, but since the consequences of such a collision are extremely large, the Committee believes it is only prudent to assess the nature of the threat and prepare to deal with it.”

Planetary Defense
Effects On Violent Conflict Risk

• Nuclear explosives for NEO deflection
• Violent conflict triggered by NEO collision mistaken as an attack
• Planetary defense as a model for global risk management

See paper for details
Planetary Defense Effects On Violent Conflict Risk

• Nuclear explosives for NEO deflection
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  – Document more history

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Nuclear NEO Deflection
Nuclear NEO Deflection: International Treaties


• Is it worth revising or violating the treaties?
Nuclear NEO Deflection: Nuclear Disarmament

Image credit: Federation of American Scientists
Nuclear NEO Deflection: Nuclear Taboo

1962 Sedan nuclear test

*Image credit: US National Nuclear Security Administration*
Inadvertent NEO Conflict
Inadvertent NEO Conflict

1995 Black Brandt scare

*Image credit: NASA*
Inadvertent NEO Conflict

Snezhinsk

Chelyabinsk
Inadvertent NEO Conflict: Risk Model

\[ F_0 = F_1 \times P_1 \times P_2 \]

- \( F_0 \) = frequency of inadvertent NEO conflict
- \( F_1 \) = frequency of relevant NEO collisions
- \( P_1 \) = probability in relevant area
- \( P_2 \) = probability of “counterattack”
Recommendations

• Nuclear explosives for NEO deflection
  – Coordinate with disarmament efforts
  – Assess whether NEO benefits outweigh nuclear violence risks

• Violent conflict triggered by NEO collision mistaken as an attack
  – Raise awareness
  – Communicate NEO detections to militaries

• Planetary defense as a model for global risk management
  – Document more history

See paper for details