



***7th IAA Planetary Defense Conference
Planetary Defenders!***

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Vienna, Austria***



Corporate Social Responsibility

K-12 STEM Outreach



https://www.youtube.com/watch?v=8m9i_wLE97w

The Aerospace Corporation

Working for a Brighter Future



- No one can predict where the future of space innovation will lead us, but we can help inspire the next generation of scientists and engineers who will guide the way.
- Aerospace's current K-12 outreach includes:
 - Classroom visits from Aerospace employees, online tutoring, virtual mentoring and more.
 - Partnerships with non-profits and community-based organizations to provide cost-free experiences for students and schools.

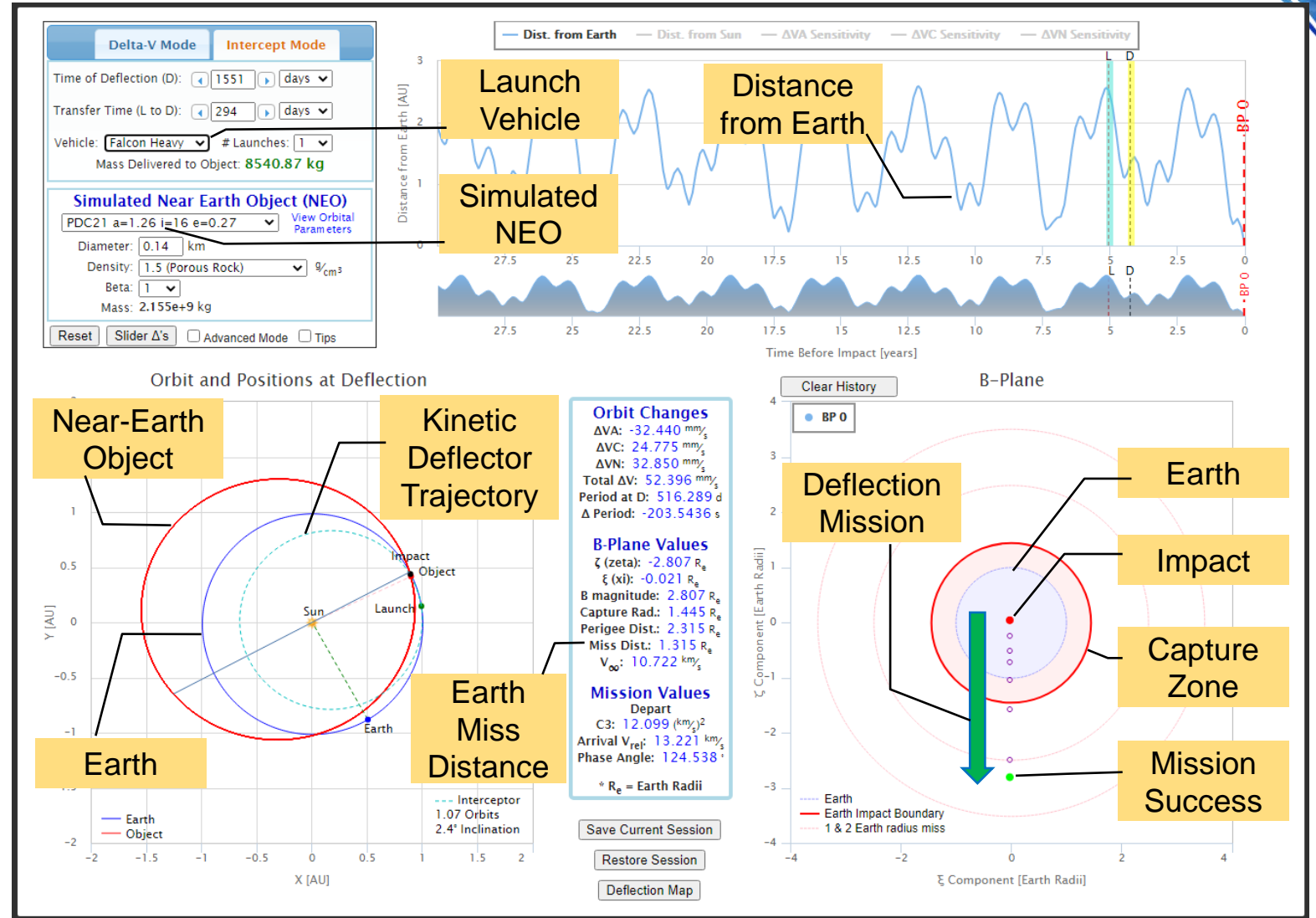


The NEO Deflection App (NDA)

Developed by NASA's Jet Propulsion Laboratory (JPL) and The Aerospace Corporation



- Physics-based web app used to evaluate deflection requirements for simulated Near Earth Objects on collision course with Planet Earth
- The NDA is hosted on JPL's website here: <https://cneos.jpl.nasa.gov/nda/>, and on Aerospace's website here: <https://planetary-defense.aerospace.org/main>
- The NDA applies Orbital Mechanics and Launch Vehicle Performance to approximate NEO deflection missions by High Velocity Kinetic Impact spacecraft



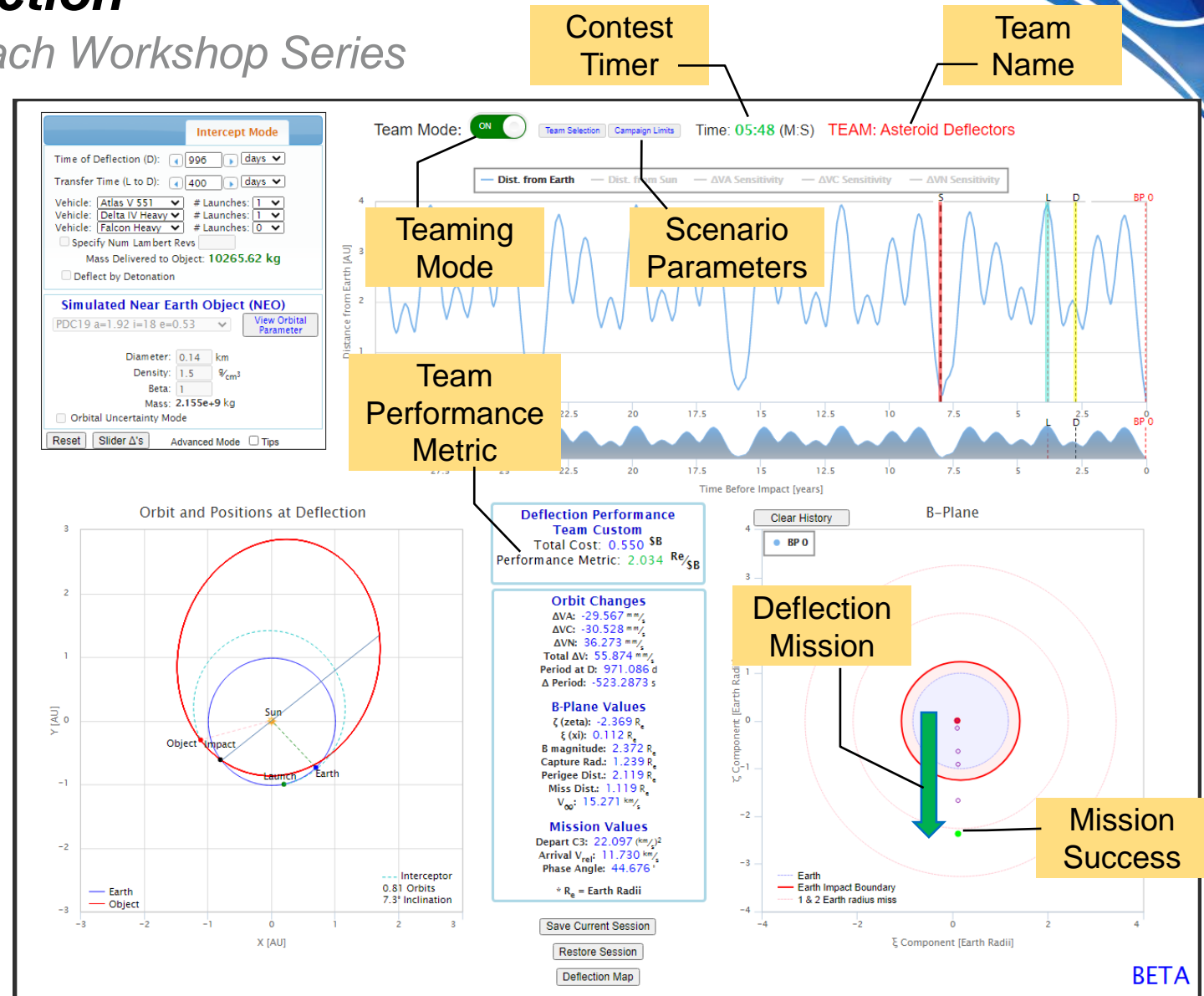
PDC21 successfully deflected with single kinetic deflector spacecraft launched 5 years before projected Earth impact

Teaming App for Asteroid Deflection

An Aerospace Corporation STEM Outreach Workshop Series



- The Aerospace Corporation has added a collaborative educational context to the App and developed an educational program to conduct asteroid deflection teaming exercises with the NDA
- Several participants are grouped into teams and given an increasingly challenging hypothetical asteroid collision scenario to solve
- The team with the highest performance metric wins the competition
- Aerospace has run 9 virtual and in-person asteroid deflection workshops for teachers, students, and the public to date

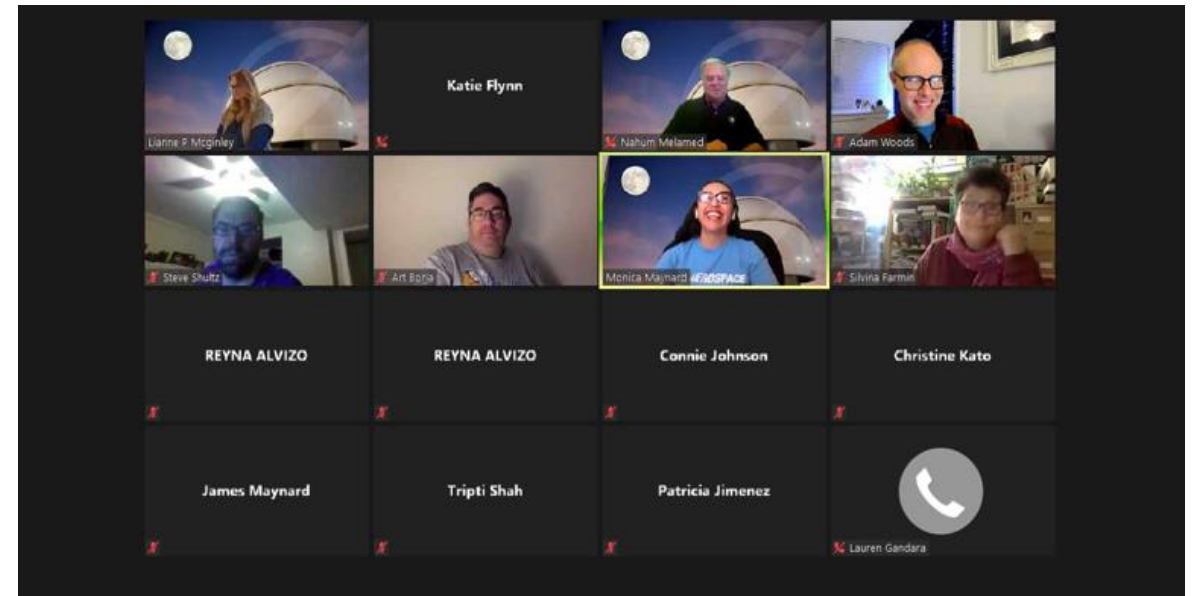


The teaming NDA is publicly accessible on Aerospace's website: <https://planetary-defense.aerospace.org/>



Educational Outreach

- The Aerospace NEO Deflection Teaming App helps participants
 - Investigate world-problems beyond their immediate environment
 - Engage in different perspectives and collaboration
 - *Take action and participate in problem solving scenarios*
 - Communicate potential solutions with team members and to a broader diverse audience

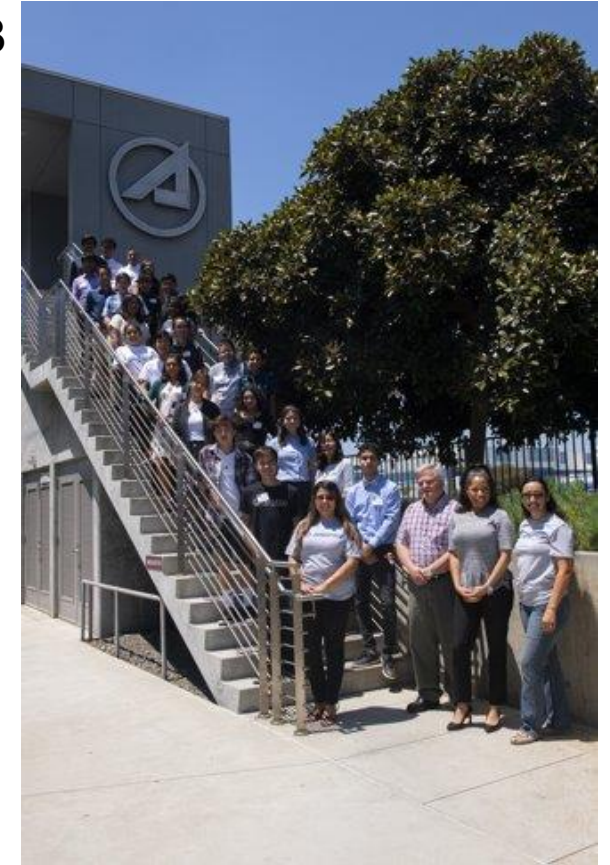


Joint effort with NASA/JPL - Center for Near-Earth Object Studies (CNEOS)



Educational Outreach

- Presented to teachers, students and public
- Nine (9) workshops have been run using the NEO Deflection App (NDA) since 2018
- ~90% of participants find the workshop *Excellent*
- 100% stated they would participate again
- Future Plans
 - Continue offering STEM outreach events and workshop series
 - Continue to train teacher to increase impact with students
 - Present at AIAA Asteroid Day event in June 2021
 - Engage more diverse, underrepresented, low socio-economic status groups of students
 - Partner with other organizations



Check out our teacher resources, lesson plans and videos: <https://aerospace.org/asteroids>



Thank You