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NASA has been charged by Congress to protect the Earth from asteroid and comet impacts. The 2005 George E. Brown Survey Act [1] directs NASA to find more than 90% of near-Earth objects larger than 140 meters in diameter by 2020. This objective has not been met because telescopes have not yet been deployed with sufficient sensitivity to spot enough asteroids when they are far from Earth and very faint.

But we are taking action. NASA's Near-Earth Object (NEO) Surveyor mission is currently under construction and is about 2.5 years away from launch. This space telescope is being designed with the goal of detecting the majority of potentially hazardous near-Earth asteroids large enough to cause severe regional damage within its 5-year baseline mission lifetime. Following the deployment of NEO Surveyor, we will reach the 90% objective within 10-12 years [2].

NASA is uniquely qualified to lead the nation's planetary defense efforts. Through its continued support of a community of experts in asteroid and comet science, telescope engineering and design, and data analysis, NASA-funded researchers have the tools to do this work. Figuring out when the next asteroid or comet is likely to impact is a science question with profound societal implications, and NASA's decades-long support of scientists in this discipline has born fruit. We are now able to build an advanced survey telescope to find, track, and characterize large numbers of asteroids and comets from space. NASA has already demonstrated that it can deliberately alter an asteroid's orbit through the success of the Double Asteroid Redirection Test (DART) mission [3]. Now, with the NEO Surveyor mission, we will improve our chances of spotting potential impactors far enough in advance to mount a successful deflection campaign.

The United States uniquely has the technology to tackle a problem that no one else can solve. We lead the world in production of heat-sensitive infrared sensors needed to detect asteroids and comets and in the deployment of space telescopes such as the Spitzer Space Telescope and the Near-Earth Object Wide-field Infrared Survey Explorer[4, 5]. All major pieces of NEO Surveyor's hardware are being delivered and tested now, and the project is on track for launch.

Recent large polls[6, 7] have shown that the American public cares about this issue and believes that protecting our planet from asteroid and comet impacts should be one of NASA's top two priorities. NASA is taking the steps to do this through its Planetary Defense Coordination Office. By continuing to fund missions like NEO Surveyor and DART, as well as vital infrastructure to track objects and predict their orbits, our nation leads the way in understanding Earth's nearest neighbors, and in so doing, protects the world.

References:
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