PDC2019
Washington, DC, USA

Please send your abstract to iaapdc (at) iaamail.org

You may visit www.pdc.iaaweb.org

(please choose one box to be checked)
(you may also add a general comment - see end of the page)

☐ **Key International and Political Developments**
☐ **Advancements and Progress in NEO Discovery**
☐ **NEO Characterization Results**
☐ **Deflection and Disruption Models & Testing**
☐ **Mission & Campaign Designs**
☐ **Impact Consequences**
☐ **Disaster Response**
☐ **Decision to Act**
X☐ Public Education & Communication

THE CONTRIBUTION OF THE UNISTELLAR EVSCOPE NETWORK TO PLANETARY DEFENSE

Franck Marchis[1,2]**, Emmanuel Arnouch**[2]**, Emmanuel Bertin**[2]**, and Arnaud Malvache**[2]
[1]*SETI Institute, Carl Sagan Center, 189 Bernardo Avenue, Suite 200, Mountain View CA, USA, fmarchis@seti.org*
[2]*Unistellar, 19 rue Vacon, 13001 Marseille, Emmanuel.arbouch@unistellaroptics.com*

Keywords: *Network, Citizen Science, eVscope, Planetary Defense, SETI*

ABSTRACT

Thousands of eVscope users will soon begin deploying a revolutionary, light-amplifying, user-friendly telescope to observe the universe, either from downtown or the countryside, in unprecedented clarity and detail. In collaboration with the SETI Institute, every eVscope user will also be able to join a global network of observers conducting coordinated, worldwide viewing campaigns under the aegis of professional astronomers.

We have identified several scientific areas where this enormous and unprecedented network of eVscopes could help provide answers to key scientific questions listed in the Decadal Survey Vision and Voyages (2013-2022) and the NASA Planetary Defense Coordination Office goals. The large network of eVscopes distributed around the world could become a major facility to follow up NEAs with close encounter with Earth, so derive their orbits and, eventually, the probability of future impact.

Today 25% of the close-approaching asteroids within 1 Lunar Distance would be observable with the eVscope, so 1-2 events per week. Assuming a linear growth from 2014 to 2017 we conclude that in 2023 we will discover 3,400 NEAs per year. However including new surveys (ATLAS, LSST), the growth will be exponential and 9,000 asteroids could be discovered in 2023. This will translate into an increasing number of alerts for the eVscope network that will probably reach 5-10 asteroids per night.

We propose to send alerts of observations to eVscope in real time as soon an asteroid candidate ide detected or an PHA is passing nearby Earth, so they can point their eVscope to collect new data. We will also organize campaign of observations targeting specific target to transform each user into an active citizen scientist, able to participate in and contribute to Planetary Defense. This participative component is key and will stimulate interest, curiosity, and dedication to astronomy and science.

****