FUTURE PLANETARY DEFENSE FROM THE MOON, BOTH NEARSIDE AND FARSIDE

Nicolò Antonietti[(1)]**, Claudio Maccone**[(2)]
[(1)] *IAA and INAF, via Martiri della Libertà, 8, 10077 San Maurizio Canavese (TO), Italy, +39 (320) 2369-784, nicolo.antonietti@gmail.com*
[(2)] *IAA Director and INAF, via Martorelli, 43, 10155 Torino (TO), Italy, +39 (348) 581-6670, claudio.maccone@gmail.com*

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Abstract. The current rush of space-faring countries to the Moon opens new prospects for Planetary Defense also. Precision asteroid and comet astrometry is important to determine impact risks and to study future space missions to deflect them. In fact, the more precise and accurate are the estimates of the six orbital parameters of each asteroid and comet, the more precise and accurate the estimate of the lead-time needed to deflect them will be. The Seeing on both the Nearside and Farside of the Moon is excellent, and so the time to install optical telescopes on the Moon is now getting closer. In our paper, we compare how the atmosphere around the Earth affects the estimate and precision of asteroid/comet orbital elements and check that against the Moon Seeing, showing that the Moon (both Nearside and Farside) will be better than the Earth to achieve a better Planetary Defense. The study of the atmosphere will be conducted with software that can simulate the atmosphere on the Earth and the interaction with visible light. Finally, we refer to international Projects about the Moon exploitation in order to suggest a few good Moon locations for future Planetary Defense Observatories on the Moon.