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Introduction:
Besides being objects of great scientific interest, Near Earth Objects (NEOs) also represent a well-founded threat to life on our planet. However, up to now there has been no a concerted international plan on how to deal with the impact threat and how to organize, prepare, and implement mitigation measures. The European NEOShield project aims to address this problem. NEOShield is a consortium of 13 research institutes, universities, and industrial partners and includes leading US and Russian space organizations. The primary aim of the project is to study in detail the three most promising mitigation techniques: the kinetic impactor, blast deflection, and the gravity tractor, and to devise feasible demonstration missions.

The NEOShield project is funded by the European Union with a total of 5.8 million Euros for a period of 3.5 years. The kick-off meeting took place at the DLR Institute of Planetary Research, Berlin, in January 2012, while the first progress meeting was scheduled on May 31 - June 1 at the Paris Observatory.

While we will give particular emphasis on the NEOShield activity carried out at the Paris Observatory, we will present and discuss the whole proposed 42 months work plan, which includes the tasks listed in the following section.

NEOShield goals:
1. NEOs and mitigation science: Data on the physical properties of NEOs will be collated and analyzed from the point of view of mitigation requirements. Laboratory experiments on high-speed impacts into asteroid surface analogue materials will be carried out and the results will be compared with those of numerical simulations to validate numerical models of fragmentation. The latter will then be used to explore the parameter space of momentum transfer efficiency at asteroid scales. Requirements for mitigation precursor reconnaissance observations will be determined. Suitable targets for mitigation demonstration missions will be identified.

2. Technology development: The potential mitigation techniques include systems that do not have a technology readiness level sufficient for mission implementation. The industrial partners will develop the necessary architectures, algorithms and simulators to investigate and improve crucial technologies, such as spacecraft guidance, navigation and control aspects.

3. Demonstration missions: To maximize the chances of success of a mitigation attempt, it is fundamental to test the mitigation technique and related technologies beforehand. Various options will be considered to provide detailed designs of realistic space missions that could demonstrate the applicability and effectiveness of one or more of the investigated mitigation techniques.

4. International response: A strategy will be developed for implementation when an actual impact threat arises. The roles and responsibilities of international organizations such as the UN and the EU, in addition to space agencies and other authorities, will be considered. Account will be taken of complementary efforts currently in progress (e.g. UN Action Team 14 on NEOs, ESA’s SSA programme), and colleagues outside our consortium involved in such activities will be invited to contribute to the establishment of a broad international strategy.