Committee on the Peaceful Uses of Outer Space

Scientific and Technical Subcommittee

Vienna, 6–17 February 2023

Statement of Italy on item 11

Near-Earth Objects

Mr. Chair, distinguished delegates,

This morning, Italy made a technical presentation on the results of the LICIACube cubesat that was part of the successful NASA Double Asteroid Redirection Test (DART) mission, launched in November 2021.

For those of you who could not attend the technical presentations session, allow me to provide you with a brief summary.

LICIACube stands for "Light Italian Cubesat for Imaging of Asteroids". It was a mission based on a CubeSat of 6 units managed by the Italian Space Agency (ASI), with the goal of contributing to the NASA mission by documenting, from a close distance, the effects of the impact of the DART probe on the Dimorphos asteroid, which is the smallest of a binary system of asteroids. The Italian satellite was released about two weeks before the impact. After a couple of orbital maneuvers commanded by Earth, it succeeded in autonomously tracking its final target, by performing a flyby at the distance of about 58km, and in collecting a unique set of images of the effects of the impact, mainly in terms of the resulting ejecta cone of materials from the asteroid surface. Moreover, LICIACube acquired also multiple images of the hemisphere of Dimorphos that was not impacted, and these will contribute in better determine the shape and volume of the whole binary system of asteroids. The associated measurements, meaning the evolution of the dust distribution and the estimation of the plume's structure, allowed to perform scientific investigations on the nature and composition of the asteroid and to confirm that the DART mission succeeded in modifying the orbit of Dimorphos around the main asteroid Didymos, finally demonstrating the effectiveness of this technique for Planetary Defense's purposes.

Mr. Chair, distinguished delegates,

Allow me to also recall the first hypothetical exercise concerning near Earth objects that the Italian Space Agency and the Politecnico of Milano are carrying out in collaboration with the European Space Agency within the framework of the Space Mission Planning Advisory Group (SMPAG). The exercise intends to simulate a case of hypothetical threat, invented, albeit realistic, of an impact of an asteroid on the Earth. In particular, it will propose a possible procedure to be adopted by space agencies, or other entities, to organise a coordinated response in such cases.

The primary objective consists in: defining the tasks required for such a SMPAG coordinated response; identifying the entity or entities that would be responsible for these tasks; and the internal procedures of each SMPAG member to be proposed as a response to the threat. The tasks will cover the technical aspects related to the design of a deflection or reconnaissance mission, but also the procedural aspects and the crisis communication aspects.

The first phase of the exercise has been completed in 2022. It focussed on the national organisation and coordination and on defining the lists of tasks to be performed in response to a scenario of a real threat. The second phase was kicked-off during the SMPAG meeting that took place two days ago, in the margins of this session, and will instead concentrate on discussing how the coordination can be done among different SMPAG delegations.

Mr. Chair,

The updates I provided you today confirm the Italian very-high interest and commitment in the field of the protection of the Earth from possible risks of impacts of asteroids and Italy will continue to be among the most active actors in the related activities.

Thank you very much