AIRBUS

DEFENCE AND SPACE

Press Release

SPACE SYSTEMS

Twisting an Asteroid

Space experts to meet in Tokyo to discuss ways to deflect asteroids

Tokyo, 15/05/2017 – Scientists and engineers from all over the world will gather from 15 to 19 May in Tokyo, Japan, at the 5th Planetary Defence Conference (PDC) to discuss the threat posed by asteroids and comets. This bi-annual conference, organized by the International Academy of Astronautics (IAA) will discuss actions that might be taken to deflect an incoming object. At the first conference on asteroid impact prevention to be held in Asia, space experts from Airbus will provide an update on the NEOShield-2 project and will introduce an alternative kinetic impactor demo mission scenario, called NEOTωIST.

NEOShield-2 is a collaborative project that started in 2015 as part of the EU's Horizon 2020 programme and is developing the necessary space mission technologies to divert hazardous asteroids. The project is also investigating how to precisely measure any deflection attempts and how to carry out in-situ investigations. Astronomical observations, modelling, simulations and physical characterization of Near Earth Objects (NEOs) are being studied to better understand their physical properties. The research is also looking at a European strategy for future research and mission-related endeavours.

The NEOShield-2 team comprises 11 European partners under the coordination of Airbus in Friedrichshafen (Germany). Airbus in Toulouse (France) and in Stevenage (United Kingdom) are also part of the project. The project overview and its achievements reached so far will be presented in Tokyo by Airbus's Albert Falke, project manager and responsible project coordinator of NEOShield-2 towards the European Union.

Kilian Engel, space expert at Airbus and Line Drube, postdoctoral researcher at the German Aerospace Center (DLR-Berlin), will present the NEOTωIST concept, an element of the NEOShield-2 project. NEOTωIST is a test mission to demonstrate "deflection technology readiness" and to answer the uncertainties in the asteroid deflection physics that cannot be proven on Earth.

Albert Falke, who heads Airbus's asteroid deflection programme, said: "A deflection test mission, perhaps in a joint effort by several space agencies, is needed to develop technologies to enable us to deal with an asteroid threat. Most importantly, it would give us real data which is vital for the development of a mission in cases of real emergency."

A deflection test mission with an asteroid in space is the only way to validate existing impact models and to check that the current computer models of deflection predictions are accurate.

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Ulrich Johann, Head of Future Programmes, at Airbus's Science and Earth Observation department in Friedrichshafen, Germany said: "The NEOTωIST concept combines an impactor and an in situ monitoring module in a single spacecraft. This cost-effective approach providing on the spot observation capabilities should lead to more launch opportunities for NEOTωIST compared to other concepts."

Most demonstration mission concepts to date rely on changing an asteroid's orbit around the sun and require a second spacecraft that follows the asteroid for some time after the impact to measure the very small shift in its orbit. In contrast, the Airbus concept is to impact a well-characterized asteroid at some distance from its rotation axis, and thereby change the asteroid's rotational period. This change can be measured by Earth-bound telescopes.

In parallel, a small observation module which is separated from the main kinetic impactor spacecraft just before impact, will also measure this rotation change. These close-up observations will give detailed information about the impact location and success of the mission.

About Airbus

Airbus is a global leader in aeronautics, space and related services. In 2016, it generated revenues of € 67 billion and employed a workforce of around 134,000. Airbus offers the most comprehensive range of passenger airliners from 100 to more than 600 seats. Airbus is also a European leader providing tanker, combat, transport and mission aircraft, as well as Europe's number one space enterprise and the world's second largest space business. In helicopters, Airbus provides the most efficient civil and military rotorcraft solutions worldwide.

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