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**Ongoing and Upcoming Mission Highlights**

**BOULDER MORPHOLOGY AT THE DART IMPACT SITE**

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**Keywords:** DART, Dimorphos, Proximity Observation, Image Analysis, Boulders

**ABSTRACT**

On 26 September 2022, the DART spacecraft intentionally impacted the surface of Dimorphos with the aim of changing the asteroid's trajectory. Fewer than two seconds before the impact, the DRACO instrument was able to capture a high-resolution image of the impact site with a pixel scale of 5.5 cm. (Fig. 1a).

This image presents a blocky terrain covered with large rather elongated boulders up to 6.5 m in length, and a lack of finer material. The shapes of the boulders in the impact area, and their sizes with respect to the DART spacecraft, influence the ejecta properties and as such the efficiency of the deflection of Dimorphos. Boulder morphology is, therefore, important to fully understand the DART impact but can also provide information about the evolution and mechanical properties of Dimorphos' surface itself.

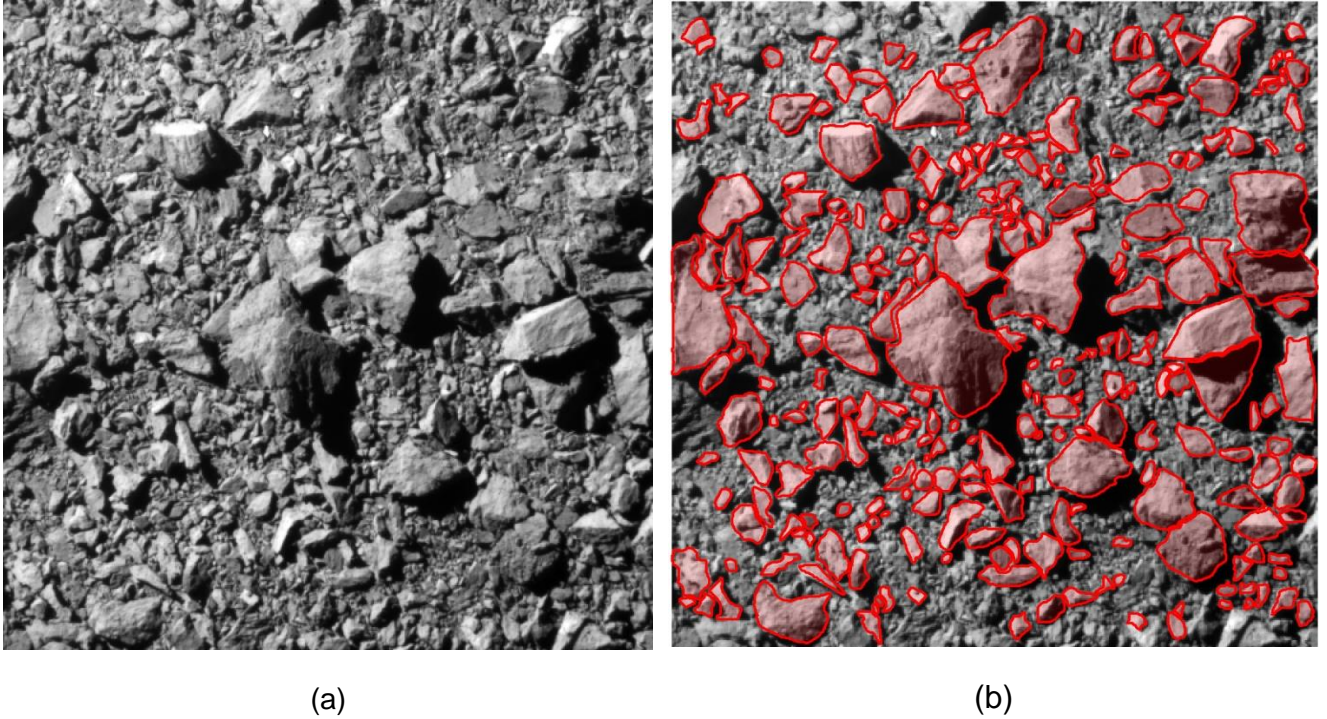


Figure 1: Penultimate image of Dimorphos' surface taken by the DRACO instrument aboard the DART probe (a) and the same image with the boundaries of the selected boulders (b). Dimorphos north is toward the upper right. The pixel scale is 5.5 cm.

Here, we will present an analysis of several key morphological characteristics of the boulders at the DART impact site. These parameters include the boulders' eccentricity, sphericity, compactness (a measure of large-scale roundness) and solidity (a measure of small-scale roughness). The presentation will include details of the image processing pipeline, and an interpretation of the morphological descriptors.

This processing and interpretation also help to be best prepared for the rendezvous of the ESA Hera mission with Didymos in 2027. The Hera which will offer detailed imaging of boulders on the whole surface of both of the bodies, allowing us to check our predictions based on DART images.

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**Acknowledgements:** This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 870377 (project NEO-MAPP) and CNES.

**Comments:** Oral presentation preferred, will be attending in person.