THE COMET INTERCEPTOR MISSION'S COMET ENVIRONMENT WORKING GROUPS.
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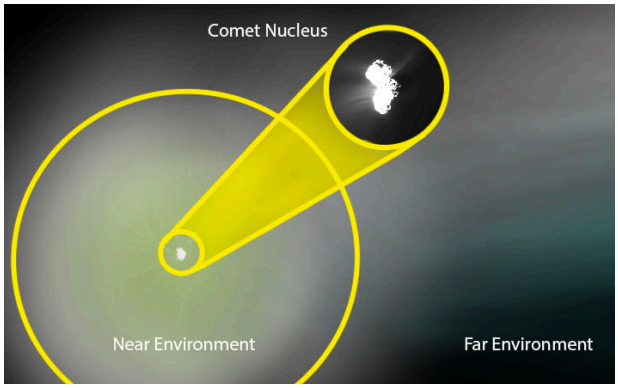
Introduction: Comet Interceptor is a European Space Agency-led mission, selected in 2019 and due for launch in 2029, with significant contributions from the Japanese Space Agency, JAXA [1,2]. In brief, the mission's primary target will be a long-period comet, preferably dynamically-new. The mission comprises a European primary spacecraft, referred to as spacecraft A, plus two small probes, B1 and B2, provided by JAXA and ESA, respectively. Instruments for A and B2 are provided by consortia of institutions in ESA member states, with those on B1 provided by Japanese institutions. There is a high likelihood that the target will have been identified prior to launch. The spacecraft stack will first be delivered to Sun-Earth Lagrange Point 2, and will wait there until orbit phasing is suitable for its journey to its target comet to begin. If not found prior to launch, the spacecraft can remain at L2 until a suitable target is discovered.

Working Groups: A Science Working Team (SWT), appointed by ESA in coordination with JAXA, advises ESA on all mission aspects potentially affecting scientific performance. The SWT is supported by Working Groups (WGs), in specific relevant scientific and science operation areas. These are the Target Identification Working Group [3], and the Comet Environment Working Group, described here.

The specific tasks of the Comet Environment WG are to develop and provide results from scientific models addressing questions relevant to the implementation and operation of the mission and to achieve its scientific objectives. Its interim chair during 2023 is ESA Project Scientist M. Küppers.

Some topics of interest are: Simulation of observable properties that distinguish dynamically new comets from those that have visited the inner solar system multiple times; Models of the activity evolution of long-period comets; Models in preparation of multi-instrument observations and data analysis with the Comet Interceptor mission scientific payload; Support



the ESA Project Team with developing and providing results from engineering comet nucleus and environment models that will allow decisions in the spacecraft and mission definition and operations; Support the ESA Project Team and/or the SWT in trade-off analyses, relevant for the mission definition and operation and for the achievement of the mission scientific objectives; Liaise with the other Working Groups, in particular the Target Identification Working Group on key observational parameters to be fed into the scientific models.

The group is organised into three sub-groups, relevant for the following areas:

- Comet Nucleus (Chair: A. Guilbert-Lepoutre)
- Near-Environment, covering the inner dust and gas coma (Chair: J.-B. Vincent)
- Far-Environment, covering the outer dust and gas coma and tails (Chair: G. H. Jones)

We provide more details of the activities of these three sub-groups, and their plans for future studies in support of the mission.

Acknowledgments: Contributions are supported by the national space agencies of the ESA Member States.

References: [1] www.cometinterceptor.space [2] Küppers M., et al., this meeting [3] Snodgrass C., et al., this meeting.