Diurnal gas cycle on 67P from ROSINA, rotation measurements, and cross-instrument identification of icy patches

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Abstract

We propose a consistent picture of the diurnal and seasonal gas emission [1] of 67P/C-G based on the

- in-situ gas density probed by COPS/DFMS, converted to surface emission rates [2, 3]
- the rotational period and axis orientation,
- the direct identification of icy patches on the nucleus.

Combining these three sources provides strong constraints on the surface activity of the nucleus and a cross-validation of multi-instrument data. Our model [2, 3] provides both, temporal and spatial resolution (110 m) across the entire mission.

References

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