

TRAPPIST production rates of comet 220P/McNaught in outburst

ATel #17838; [E. Jehin, J. Manfroid, S. Hmiddouch, K. Aravind \(STAR Institute, University of Liege\)](#)

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The author reports that they obtained, using the TRAPPIST-North (Z53) telescope located in Morocco, observations of comet 220P on the nights of June 4 and 5, a few days after a large outburst of -6 mag was reported (ATEL#[17829](#)). They used broadband and cometary HB narrow-band filters (Farnham et al. 2000, Jehin et al. 2011) and computed preliminary production rates from extracted profiles at 10.000 km using a Haser Model ($V_p = V_d = 0.85/\sqrt{\rho_h}$) km/s (Haser 1957). Zero Points were determined on close nights using standard stars. The proxy to the dust production rate $A(0)f(\rho_h)$ was estimated by profile fitting at 10.000 km (A'Hearn et al. 1984) and corrected for the phase angle (Schleicher 2007).

220P/McNaught

Date UT=2026-06-05, $\rho_h = 1.56$ au, $\Delta = 1.56$ au, DT= -9 days

$Q(\text{OH}) = 8.40 \pm 1.26 \text{ E}27 \text{ s}^{-1}$

$Q(\text{CN}) = 3.04 \pm 0.45 \text{ E}25 \text{ s}^{-1}$

$Q(\text{C}_2) = 5.50 \pm 0.83 \text{ E}25 \text{ s}^{-1}$

$A(0)f(\rho_h)(R_c) = 2305 \pm 21 \text{ cm}$

220P/McNaught

Date UT=2026-06-06, $\rho_h = 1.56$ au, $\Delta = 1.55$ au, DT= -8 days

$Q(\text{OH}) = 6.52 \pm 0.98 \text{ E}27 \text{ s}^{-1}$

$Q(\text{CN}) = 2.27 \pm 0.34 \text{ E}25 \text{ s}^{-1}$

$Q(\text{C}_2) = 4.05 \pm 0.61 \text{ E}25 \text{ s}^{-1}$

$A(0)f(\rho_h)(R_c) = 1915 \pm 25 \text{ cm}$

The production rates have dropped significantly between the two nights. The comet appears enriched in C₂ with respect to CN. It also displays a narrow and intense dust tail, visible in all filters and in the dust continuum filters, which could indicate a fragmentation event. Notations: ρ_h = heliocentric distance (in au), Δ =geocentric distance (in au), DT= Time to perihelion. OH, NH, C₃, CN, and C₂ are the HB gaseous narrowband filters for the corresponding species, and BC, GC, and RC are the blue, green and red dust continuum filters (Farnham et al. 2000).

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