TRAPPIST comet production rates: 88/Howell, C/2020 M3 (ATLAS), C/2020 S3 (Erasmus), 156P/Russell-LINEAR

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E. Jehin, Y. Moulane, J. Manfroid, F. Pozuelos, M. Ferrais, D. Hutsemekers (STAR Institute, University of Liege) report that they obtained from TRAPPIST-South (code=I40, Chile) and TRAPPIST-North (code=Z53, Morocco) 0.6-m robotic telescopes (Jehin el al. 2011) observations using HB narrowband filters (Farnham et al. 2000) for the following comets and computed preliminary production rates at 10.000 km using a Haser Model (Vp=Vd=1km/s) (Haser 1957). The dust production rates proxy A(0)f(rho) were estimated by profile fitting at 10.000 km (A'Hearn et al. 1984) and corrected for the phase angle (Schleicher 2007).

88P/Howell
Date UT=2020-11-10 (I40), r_h=1.44 au, Delta=1.63 au, DT=+43 days
Q(OH)=(2.26+/-0.08) E28 s-1; Q(NH)=(1.11+/-0.07) E26 s-1; Q(CN)=(5.98+/-0.08) E25 s-1;
Q(C2)=(7.23+/-0.08) E25 s-1;Q(C3)=(1.47+/-0.05) E25 s-1;
A(0)fp(RC)=909+/-19 cm; dust/gas ratio ~ Log[Afp/Q(OH)]= -25.39+/-0.06

C/2020 M3 (ATLAS)
Date UT=2020-11-11 (I40), r_h=1.29 au, Delta=0.36 au, DT=+15 days
Q(OH)=(7.69+/-0.38) E27 s-1; Q(NH)=(3.96+/-0.45) E25 s-1; Q(CN)=(1.62+/-0.08) E25 s-1;
Q(C2)=(2.04+/-0.07) E25 s-1; Q(C3)=(5.46+/-0.27) E24 s-1;
A(0)fp(RC)= 86.6+/-6.4cm; dust/gas ratio ~ Log[Afp/Q(OH)]= -25.88+/-0.09

C/2020 S3 (Erasmus)
Date UT=2020-11-11 (I40), r_h=0.87 au, Delta=1.06 au, DT=-31 days
Q(OH)=(1.17+/-0.03) E28 s-1; Q(NH)=(1.43+/-0.04) E26 s-1; Q(CN)=(5.38+/-0.05) E25 s-1;
Q(C2)=(9.01+/-0.06) E25 s-1; Q(C3)=(1.55+/-0.03) E25 s-1;
A(0)fp(R)=971+/-10 cm; dust/gas ratio ~ Log[Afp/Q(OH)]= -25.08+/-0.10

156P/Russell-LINEAR
Date UT=2020-11-10 (I40), r_h=1.34 au, Delta=0.50 au, DT=-7 days
Q(OH)<(1.29+/-0.57) E27 s-1; Q(NH)=(2.04+/-0.52) E25 s-1; Q(CN)=(4.38+/-0.60) E24 s-1;
Q(C2)=(7.10+/-0.67) E24 s-1; Q(C3)=(1.80+/-0.27) E24 s-1;
A(0)fp(RC)=197+/-8 cm; dust/gas ratio ~ Log[Afp/Q(OH)]= -24.75+/-0.06

Notation: r_h= heliocentric distance (in au), Delta=geocentric distance (in au), DT= Time to perihelion. OH, NH, C3, CN, C2 are the HB gaseous narrowband filters for the corresponding species, and BC, GC, RC are the blue, green and red dust continuum filters (Farnham et al. 2000)

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