1. **Telegram No. 4691，J. Crovisier, P. Colom, N. Biver, and D. Bockelee-Morvan, LESIA, Observatoire de Paris**  
   Nancay radio telescope. , 18-cm OH lines, Oct. 2-25,   
   **Q(H2O)** = 3.3 (+/- 0.9) x 10\*\*27 molecules/s
2. **Telegram No. 4691, E. Jehin, Y. Moulane, J. Manfroid, F. Pozuelos, and D. Hutsemekers**  
   TRAPPIST-North, since Sept. 10  
   **Q(CN)** = 1.69 +/- 0.56 x 10^24 molecules/s (10000 km + Haser model, V\_p = V\_d = 1 km/s, Oct. 18 and Oct. 31)  
   **Q(C\_2)** < 1.16 +/- 0.62 x 10^24 molecules/s (10000 km + Haser model, V\_p = V\_d = 1 km/s, have not been able to detect OH or C\_2 via spectroscopy)  
   **A(0)f[rho(R)]** = 138.4 +/- 7.4 cm. (100000 km + phase angle correction) [Opitom et al. Oct 28 2019]
3. **De Leon ea 2019**  
   **red slope** of 10+/1% per 1000 A between 0.55 and 0.90 um
4. **Detection of CN gas in Interstellar Object 2I/Borsiov, Alan Fitzsimmons et al., Oct 4, 2019**4.2m William Herschel Telescope + ISIS spectrograph on La Palma on 2019 Sep 20.2UT  
   **Q(CN)** = (3.7 +/- 0.4)E24 s-1 (2.7au, Sep 20 2019, Haser model, effective bandwidth of ~ 100A)  
   3-sigma upper limit of **Q(C2)** = 4E24 s-1 (from rms uncertainty of signal at 5167A)  
   (B−V )=0.92±0.06, (V−Rc)=0.41±0.01 🡪 **spectral slopes**: 19.9 +/- 1.5%/1000A from spectrum, or 24%/103 Å over 4380 Å < λ<5450 Å and 6%/1000Å over 5450 Å < λ<6410 Å from TRAPPIST-North imaging data (10,000km radius, the spectral reflectance slope is steeper at shorter wavelength)  
   **A(0)f rho from different filters**: A(0)f rho (B) = 88 +/- 15 cm, A(0)f rho (V) = 140 +/- 15 cm, A(0)f rho (Rc) = 143 +/- 10 cm, A(0)f rho (Ic) = 142 +/- 13 cm (aperture of radius 10 000km, )
5. **Carbon Chain Depletion of 2I/Borisov, Theodore Kareta et al. Oct 7, 2019**  
   2.3m Bok and 6.5m MMT telescopes, Haser model, CN(0-0) band near 3880A, C2 Swan band (delta nu=0) with peaks near 5167A and 5100A  
   Sep 20, rh=2.67au: **Q(CN)** = 5.0 +/- 2.0 x 10^24 molecules/s  
   Oct 1, rh=2.50au: **Q(CN)** = 5.3 +/- 0.7 x 10^24 molecules/s, **Q(C2)** = 2.5 +/- 0.5 x 10^24 molecules/s (first detection of C2, note: significantly higher than the upper limit determined by Opitom et al., more likely to be an upper limit argued by Opi2019)  
   we find no difference in spectral slope below and above 5500A as suggested by Fitzsimmons, **spectral slope** = -8 +/- 7%/micron below 5500A and -7 +/- 7%/micron   
   **Q(C2)/Q(CN)** = 0.47 +/- 0.11 🡪 carbon chain depleted group (most are JFCs)
6. **Detection of a water tracer in interstellar comet 2I/Borisov, Adam J. Mckay et al., Oct 25, 2019**ARCES instrument at Apache Point Observatory  
   **Q(H2O)** = (6.3 +/- 1.5)E26 mol/s ([O I] 6300A)  
   **Q(CN)/Q(H2O)** = 0.3-0.9% (0.59 +/- 0.15% for Fitzsimmons et al., 0.84 +/- 0.23% for Kareta et al., 0.30 +/- 0.07% for Opitom)  
   **Q(C2)/Q(H2O)** is normal or depleted (<0.63% for Fitzsimmons et al., 0.40 +/- 0.12% for Kareta et al., <0.1% for Opitom et al.) **log(A(0)frou/Q(H2O))** = -24.6(A(0)frou = 143 +/- 10cm from Fitzsimmons)  
   **active area** = 1.7 km2🡪 **active fractions** between 1-150% (1% for upper limit of 3.8km from Jewitt and Luu, 140% for 300-meter body, 1~25% for size of 0.7-3.3km from Fitzsimmons)
7. **2I/Borisov: A C2 depleted interstellar comet, Cyrielle Opitom et al., Oct 28 2019**  
   optical spectra from 4.2m William Herschel and 2.5m Isaac Newton telescopes (from Sep 30 to Oct 13), images from broadband filters (from Sep 11 to Oct 17), CN narrow-band filter of TRAPPIST-North telescope (Oct 18 and Oct 20)  
   **colors**: B - V = 0.82 ± 0.02, V - R = 0.46 ± 0.03, R - I = 0.44 ± 0.03, B - R = 1.28 ± 0.03  
   **Q(CN)** = from 1.6E24 to 2.1E24 molec/s (thought to be consistent with results from Fitzsimmons et al. 2019 due to the large uncertainty due to the high arimass and thin clouds reported by Fit2019)  
   3-sigma upper limits of **Q(C2)** (6E23 molec/s), **Q(C3)** (2E23 molec/s) and **Q(OH)** (2E27 molec/s) on Oct 2  
   no significant increase of Q(CN) and A(0)f rho during our observing period (~3 weeks) 🡪 slow rise of 2I gas activity so far 🡪 dynamically new comets  
   3-sigma upper limit of **Q(C2)/Q(CN)**: 0.3 on Oct 13  
   highly depleted in C2  
   **A(0)f rho** = 132.4 +/- 4.7 cm (R filter, aperture of radius 10 000km)  
   **log(A(0)frou/Q(CN))** = -22.16
8. **Initial characterization of interstellar comet 2I/Borisov, Piotr Guzik et al., Oct 14, 2019**  
   4.2m William Herschel Telescope on Sep 10 and Sep 13 2019 & 8.2m Gemini North Telescope in SDSS g’ and r’ bands on Sep 10 2019  
   12.5% per 100 nm between 475 and 630 nm
9. **Pre-discovery activity of new interstellar Comet 2I/Borisov Beyond 5 AU, Quanzhi Ye et al., Nov 15, 2019**Catalina Sky Survey, Pan-STARRS and ZTF  
   identified Borisov in ZTF images taken in May 2019 🡪 update its orbit 🡪 identifies the comet in Dec 2018  
   activity is **driven by more volatile species** (CO, CO2)  
   **size of the nuleus** < 7km  
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11. **The Nucleus of Interstellar Comet 2I/Borisov, David Jewitt et al., Dec 11, 2019**HST/WTC3 **spherical-equivalent nucleus radius**: >0.2m, <= 0.5m
12. **A search for water ice in the coma of interstellar Object 2I/Borisov, Bin Yang et al. Dec 12, 2019, CBET 4672**NIR, Sep 19 UT using SpeX spectrograph at the 3-m IRTF, Sep 24 UT using GNIRS spectrograph at the 8-m GEMINI telescope, Oct 09 UT using IRTFno water ice absorption features are detected 🡪 water grains comprise < 10% of the coma cross-section **spectral slope:** ~6%/1000A (red D-type like spectrum), became flatter (~2.8%) in the third observation
13. **Evolving Coma Morphology of Interstellar Comet 2I/Borisov with Deep HST Imaging, Bryce T. Bolin, Dec 17, 2019**HST/WFC3, observed on Oct 12, Nov 16 and Dec 9 UTC  
    no discernible **signal from a nucleus**  
    detected a possible fine **jet-like structure** 1-2’’ in length that appears to change positions independent of the orbital velocity and antisolar vectors 🡪 possible rotational variation of the morphology (slow? No significant change within a 7h observation)  
    upper limit for the **diameter of 2I’s nucleus** of ~1-2km
14. **Telegram No. 4691, A. Nakamura, K. Yoshimoto**  
    43.1-cm f/4 reflector  
    CCD measurements of the magnitude and coma diameter:  
    Sept. 8.82 UT, 17.8, 0'.4 (tail in p.a. 280 deg); 26.48, 17.4, 0'.3 (tail 0'.4 long in p.a. 315 deg)
15. **Telegram No. 4691, H. Sato**  
    0.43-m f/6.8 astrograph near Mayhill, NM, USA  
    Oct. 10.48 UT, strongly condensed coma 15" in diameter, a 40" tail toward p.a. 315 degrees, 16.7 mag measured within a circular aperture of radius 9".6