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Upper Limits for Emission in the Coma of Comet 67P/Churyumov-Gerasimenko Near Perihelion as Measured by Rosetta's Alice Ultraviolet Spectro

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The European Space Agency's Rosetta mission escorted Comet 67P/Churyumov-Gerasimenko for two and a half years, including its perihelion passage on 13 August 2015. The Alice far-UV spectrograph, one of three NASA instruments aboard Rosetta, took over 70,000 exposures during the full escort mission and over 10,000 in the 90 days surrounding perihelion when the comet activity level was highest. We have developed automated software to fit and remove common emissions from H, O, C, S, and CO from Alice spectra, along with backgrounds from reflected solar continuum and absorption from gaseous H_2O in the comet's coma when necessary. Once these known emissions are removed, we use the resulting residual spectra to create a grand sum of the exposures taken within 90 days of perihelion to set sensitive limits on the presence of other undetected species. This talk will present the derived upper limits for noble gas and other emissions compared to H_2O for this time period, compare them to results obtained by other Rosetta instruments, and discuss their implications for the formation and subsequent evolution of Comet 67P.