Review of "Lowell Narrowband Comet Photometry: 2018 May - 2021 Apr"

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Overview

- Narrowband photometry of 34 comets observed using the Lowell 42-inch telescope between May 2018 to April 2021
- Data provided: a large CSV table, with each row represents one set of observations that contains observational circumstances; measured flux, derived production rates of several cometary species (gas + dust) and associated/intermediate parameters; uncertainties

Documentation

- Does the dataset contain all documentation needed to use and understand its data without prior knowledge? [Yes]
- Is the provided documentation well organized, clear and self-consistent? [Yes]
- Can the dataset be understood without any external documentation it references, or should the information in said external references be incorporated into the dataset?
 - Cited past works extensively, which is fine by me; but users unfamiliar with this technique may have trouble following through
 - Would be good to (1) include copies of the cornerstone papers in this dataset (e.g. A'Hearn+ 1995, Farnham+ 2000); and (2) specifically point out the relevant sections in those papers because they are often very long papers
- If reviewing calibrated data, does the documentation fully explain the calibration process and contain all necessary parameters needed to repeat it?
 - See the comment above. Though I appreciate the providers for including intermediate parameters.

Labels and meta data

- Are the descriptions and scientific content contained inside the PDS labels sufficient to understand their corresponding data products? [Yes]
- Is all significant meta data included directly in the PDS labels? [Yes]
- Do the labels provide all essential description of data values directly in the label, instead of deferring them to external references or documentation? [Yes]
- Can the data be read programmatically using only the information contained in the PDS labels?
 - It would be good to define a <Special_Constants> class for undefined or invalid values (e.g. 0.0 or NaN).

Data

- Does the data look physically reasonable when examining it by eye or via a display tool? [Yes]
- When displaying the data as plots or images, are there any unexpected deviations?



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Some really big uncertainties (note: they are in %). Can these be taken at face value? Would be good to discuss a bit in the Document.



Data (cont.)

- Input files are listed, but not provided. Should it be removed?
- Tel. # are all identical. Maybe move to the description.
- Two values for photometer: Kron or kron. If they are the same one, then perhaps it should be moved to the description.
- Comet ID and Comet seems duplicated, and neither is clear to non-specialists (need some guessing to link them to official names)
- Certain Comet values need more explanation, e.g. what does "P/Giacobini-Zinner (2018-)" mean – an orbit solution that only valid after 2018?
- For orbital elements, need to indicate where do they come from and that it might change over time.
- What is aperture number? Seems to be correlated with aperture size (e.g. 8=97.2, 7=77.8, etc).
- Some columns are all NaNs. Do they need to be in the data cube at all?

Data

• Formulate a scientific inquiry and attempt to use the data to answer the inquiry. (Below: variation of OH flux of 21P/G-Z)

