Review of CLASSE Charon UV Data from Raut et al. 2022

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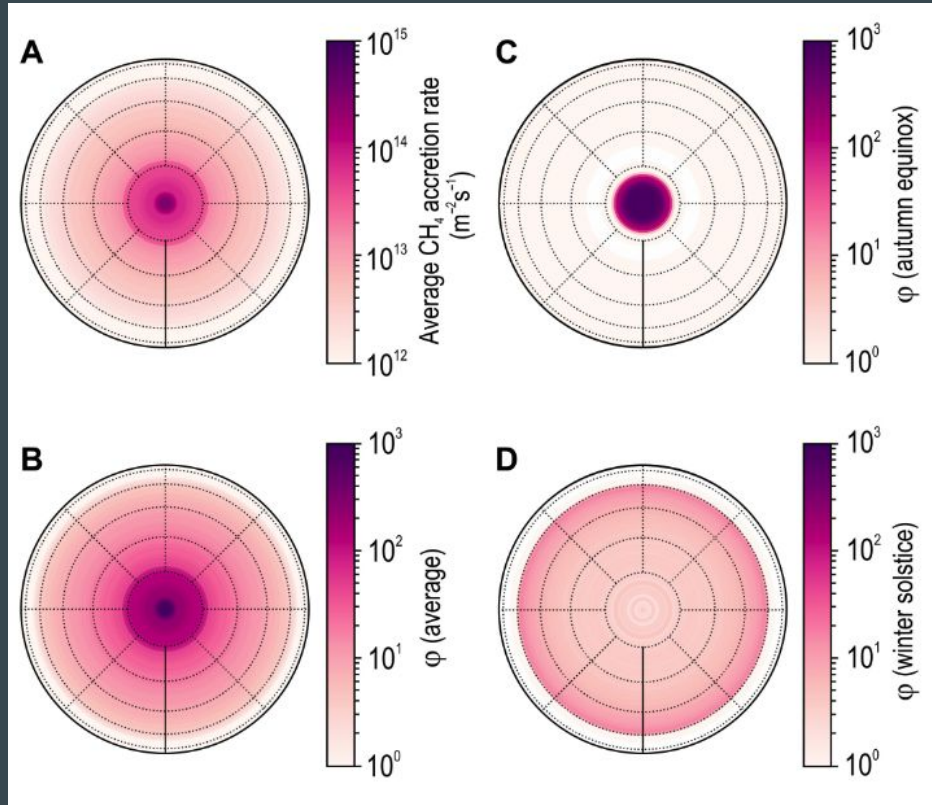
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Dataset Description

- "5 CSV tables that include experimental and model fits of refractory fraction vs. phi in dynamically photolyzed methane films, Charon's seasonally varying phi maps, temperature programmed desorption of dynamically photolyzed methane films, and mid-infrared spectra of methane films dynamically photolyzed in high and low phi conditions."

Data Access and Investigation Tools

- Data accessed with Python and pds4_tools Python package.
  - Additional packages for reading .tab files: Pandas, NumPy
- Data were easy to read in, plot, and manipulate.
  - Loaded in tables via Python Pandas "read_fwf" for fixed width tables
- All .xml files were readable with pds4_tools Python Package
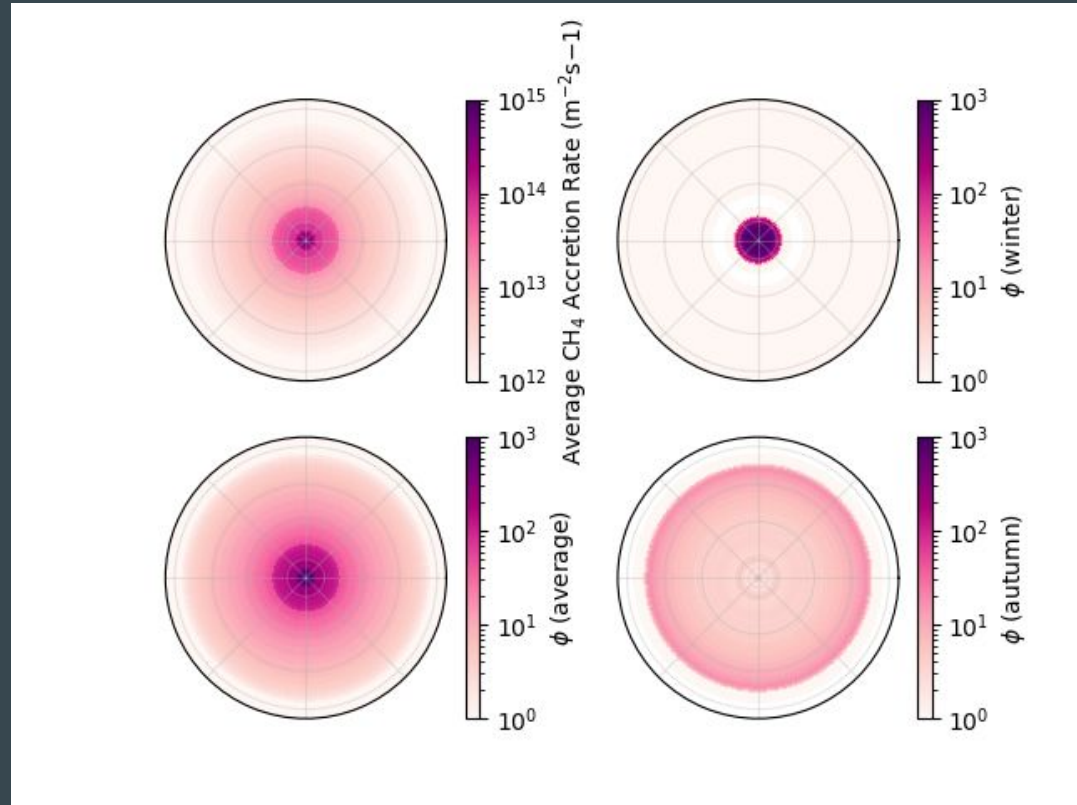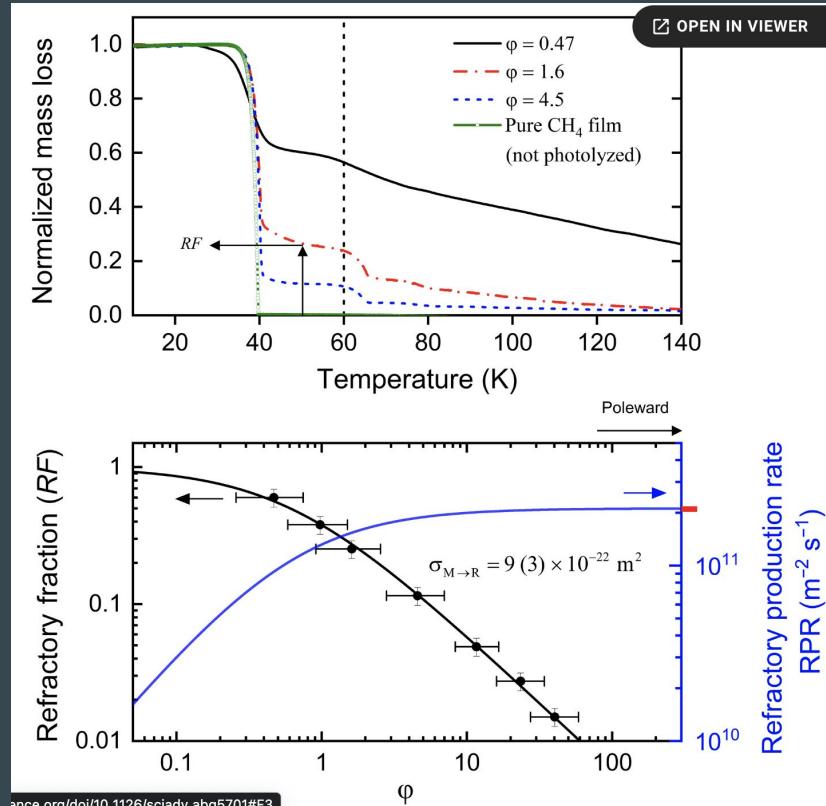 - No errors produced

Science Plots

- Simple file structure provided for easy data manipulation
- I was able to recreate the plots from Raut et al. 2022.

Science Plots

- Simple file structure provided for easy data manipulation
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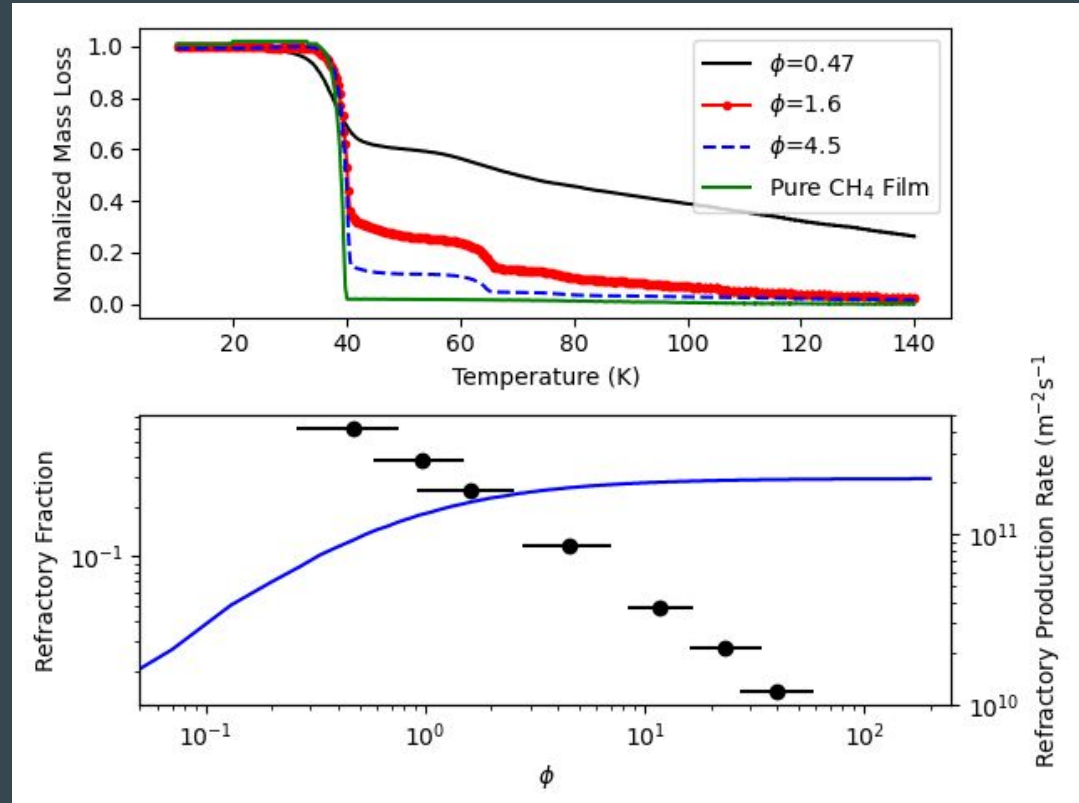
Science Plots

- Simple file structure provided for easy data manipulation
- I was able to recreate the plots from Raut et al. 2022

Science Plots

- Simple file structure provided for easy data manipulation
- I was able to recreate the two plots from Raut et al. 2022.

Science Plots

- Simple file structure provided for easy data manipulation
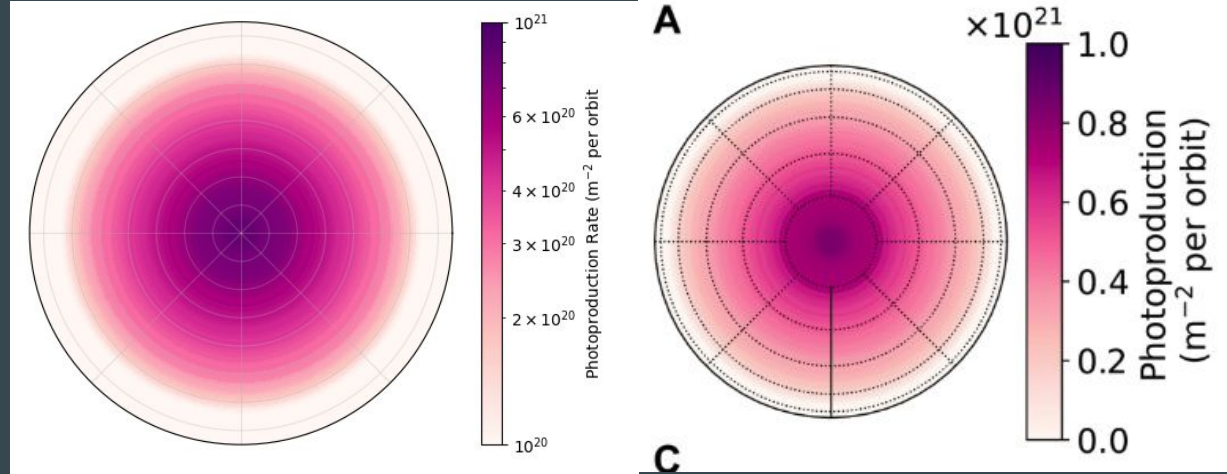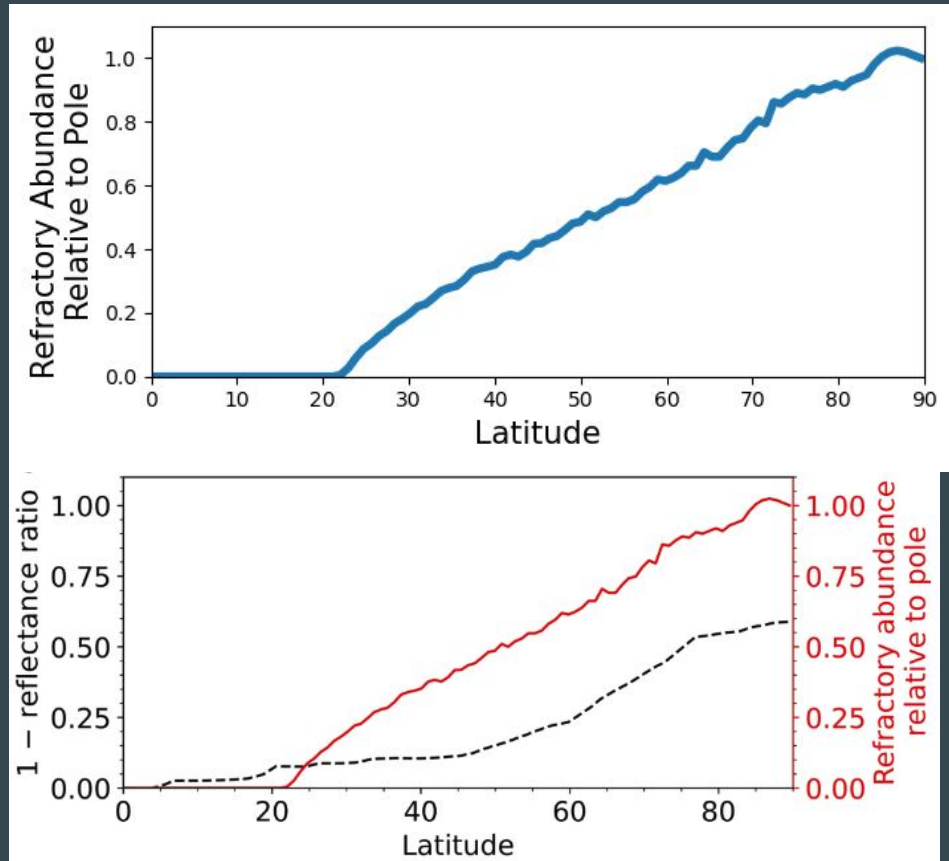- I was able to recreate the plots from Raut et al. 2022.

Science Plots

- Simple file structure provided for easy data manipulation
- I was able to recreate the plots from Raut et al. 2022.

Science Plots

- Simple file structure provided for easy data manipulation
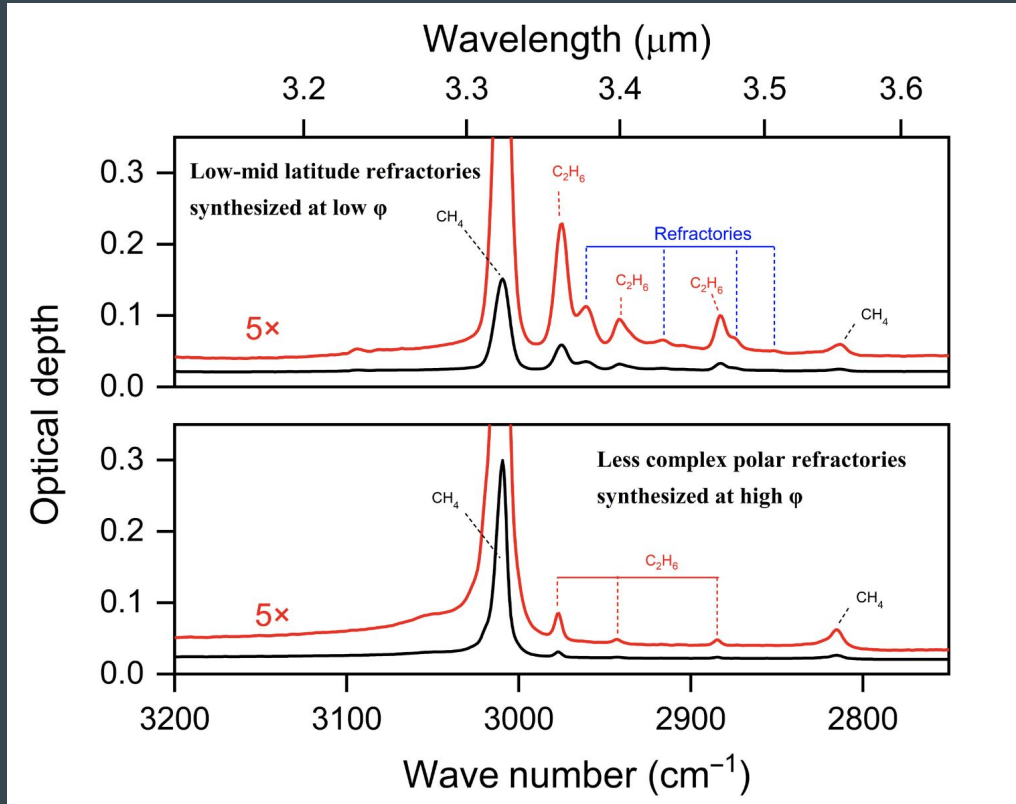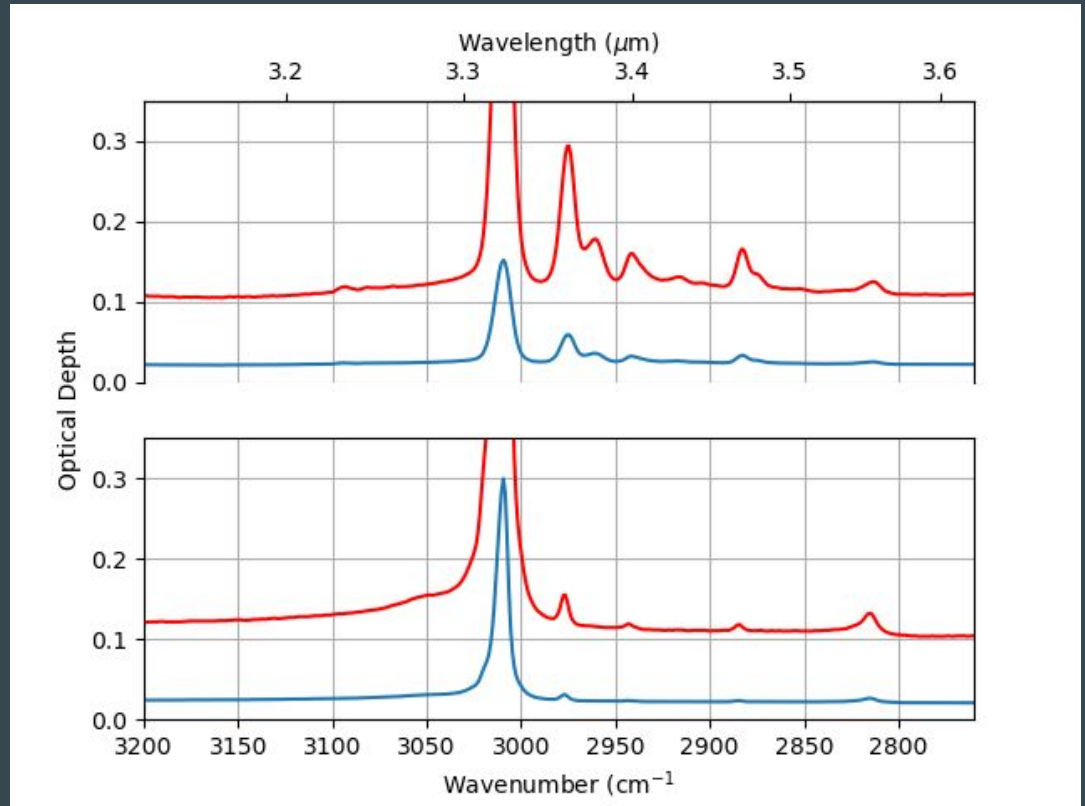- I was able to recreate the plots from Raut et al. 2022.

Science Plots

- Simple file structure provided for easy data manipulation
- I was able to recreate the plots from Raut et al. 2022.

Liens

- Minor
  - Unit of "ML" not defined in dataset
    - Provided in paper, ML = monolayer = 10^{19} molecules/m^2
  - *Data_Fig3_Bottom_panel_Raut_Sci_Adv_2022-Experimental.csv/.xml, Data_Fig3_Bottom_panel_Raut_Sci_Adv_2022-Model.csv/.xml,* and *Data_Fig3_Top_panel_Raut_Sci_Adv_2022.csv/.xml*
    - Units not given for columns
  - *raut_paper_figdata_20220215.csv/.xml*: Length of unit column array less than data array: 7 vs. 8
    - Missing unit of "deg" in unit column definitions for Phi (average)
- Major
  - None

Summary

- All files are easy to read in and manipulate
  - Copy of paper PDF would be useful to future users.
- Documentation is limited, but contained in paper.

Conclusion: Certifiable once minor liens corrected