

Title:

Titan Light Curve Analysis with Python

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Subsection:

(Data) Filter Information

Calibrated I/F Images

- Visual criteria: Shows the full disk of Titan, not near the edge because of possible haze
- The following will be on the NAC ONLY
- Wavelength in microns

Filter	Number of Images	Min Wavelength	Max Wavelength
CL1_BL2	25	0.4252	.4757
CL1_CB2	191	0.7455	0.7555
CL1_GRN	204	0.5116	0.6246
CL1_MT1	185	0.6171	0.6208
CL1_MT2	133	0.7254	0.7295
CL1_CB1	102	0.6144	0.6244

- In NAC, BL1, CB3, IR1, IR2, IR3, IR4, have available images in polarized form but in WAC, so will perhaps try WAC but for now only focused on NAC
- CB1 has no PSF file so can't do a deconvolved image

Calibrated Polarized Images

- The column denoted 'Number of Images' is the total number of images downloaded with the BL2 filter across the 3 different polarized directions 0, 60, and 120 degrees.
- The real polarized images are created by combining three of the images at different directions hence the total number used, or 'Polarized Images,' is one-third of the total number

- Again, only on the NAC
- MT1_P0, 90, 120, MT2_P0, 90, 120 have combined less than 10 points of data

Filter	Number of Images	Polarized Images	Min Wavelength	Max Wavelength
BL2_P0, 90, 120	78	26	0.4253	.4758
CB2_P0, 90, 120	87	29	0.7455	0.7556
GRN_P0, 90, 120	78	26	0.5116	0.6246
CL1_CB1	72	24	0.615	0.625

- After running the results, for the outliers, I look at COISS volume number, missing lines, loss, etc.
- CB2 had some corrupted files

WAC I/F Images

The Next goal is to try it on WAC. For now, since I have a little time, I will do 1 test on the filter polarized at 0 and 90 degrees. Since I already have an MT2 brightness curve, even in NAC, I will try WAC IR for this.

Filter	Number of Images	Polarized Images	Min Wavelength	Max Wavelength
MT2_IRP0, 90	70	35	0.7265	0.7305