
Friday - April 21, 2017

Overview of the Project Tasks:

1. Get DATA
2. Separate the data into field and filter.
3. Reduce the raw data (bias subtraction and flat field reduction).
4. Run the data through the photometry pipeline where astrometry and photometry is done on every object in the field.
5. Identify all known objects in the field by querying Horizons with code Michael has written.
6. Extract photometry and astrometry from the pipeline.
7. Use VARTOOLS to characterize the light curves by determining period and aspect ratio using the generalized Lomb-Scargle periodogram.
8. Submit astrometry to MPC.
9. Look for trends in rotation rate and amplitude.

Current Status of CODE Needed for Each Task:

1. Get DATA
 - Kathryn has downloaded the data onto a drive and Colin has put it up on Monsoon.
 - Colin has run statistics on the dataset, and it is up on GitHub.
2. Separate the data into field and filter.
 - Kathryn has written this script and the data has been separated into directories.
3. Reduce the raw data (bias subtraction and flat field reduction).
 - There are issues reducing the data efficiently with the corrupt images and the variety of ways the data has been taken. Colin's statistics should help here.
4. Run the data through the photometry pipeline where astrometry and photometry is done on every object in the field.
 - Code is already written and ready to go on Monsoon. I confirmed the error was fixed.
5. Identify all known objects in the field by querying Horizons with code Michael has written.
 - Michael and Chris have put the code up in our shared directory on GitHub.
 - Chris has formatted the parameters for our situation.

6. Extract photometry and astrometry from the pipeline.
 - This is the last step of the PP. Already written.
7. Use VARTOOLS to characterize the light curves by determining period and aspect ratio using the generalized Lomb-Scargle periodogram.
 - VARTOOLS is loaded onto Monsoon for us.
 - Colin has written code to take the PP output and configure it to be an input in VARTOOLS.
 - Colin has begun to set the period parameters. We need to finish this as well as set parameters for amplitude.
8. Submit astrometry to MPC.
 - We need to take the output of the astrometry data and format it for MPC submission. We have created a document on GitHub that includes some of this formatting.
9. Look for trends in rotation rate and amplitude.
 - Basic script has been written for this. It needs to be revised once we know the output format of VARTOOLS.

Other Updates:

- Chad has requested all of our emails be added to the NAU domain.
- Chad has also requested an AST520 group workspace for us.

Tasks:

- Kathryn: Help with data reduction.
- Colin: Help Kathryn with organizing data.
- Nathan/Aaron: Finish defining parameters for VARTOOLS. You can run tests in the VM. See Colin's scripts in GitHub and add to them.
- Chris: Test your find asteroids code on raw images, or some that have already been reduced.
- Michael: Work on output format for the astrometry portion for MPC submission.
- Annika: Once data is reduced, run it through PP.