

DENVER MUSEUM OF NATURE AND SCIENCE
VENUS WINDS PROJECT
MINUTES OF MEETING

Date/Time/Location: 10 March 2016 6:00 PM ADM1

ATTENDING

Art	Ashley	Christian	Cristy	Dave	Drew	Dylan
Elizabeth	Emilie	John	Kevin	Mark	Marta	Michael D.
Michael L.	Rachel	Terran	Yvonne			

Guest: **Dave Blumenstock**

The meeting opened at 6:00 PM in ADM1. Those **attending** are listed above.

OLD BUSINESS

Meeting schedule changes – Mark, Kevin, Art

Kevin distributed a DoodlePoll, a web site that allows our active volunteers to register their preferences for a new meeting night. The poll will allow volunteers to rate alternate meeting nights (Monday, Tuesday, Wednesday) as well as the existing Thursday meeting night. Eight responses had been received as of the Meeting.

Akatsuki Updates – Mark, Kevin

There has been very little additional information about the *Akatsuki* mission, other than that the spacecraft instruments, power, and propulsion systems all remain in excellent condition. Data and images continue to be received by the ground stations, but the data reduction pipeline is not yet producing processed images. Mark and Kevin described some of the data that eventually will be released. The header data of each *Akatsuki* FITS image will include the latitude and longitude of the corners of each pixel, as well as the time the image was acquired. Each image will be 1024pxx1024px.

NEW BUSINESS

Navigating the new file system – Mark

Mark demonstrated how to find and download raw data, metadata, and results posted to the data server using the new file system. For uploading your results, we will use the Dropbox folder:

<https://www.dropbox.com/sh/88mcagkx81h3c2y/AADDRhNrLSdwcuQFqHPRaiMBa?dl=0>

In that folder you will find folders for uploading your results into the same categories: Bad pixel removal, Centered Images, etc. Please upload future results to these folders. We will talk more about them at our next meeting.

Using Python to view raw data – Mark

Mark discussed using the Python programming language on Windows, Macs, and Linux to view and compare the Venus FITS images (raw data). For those interested in applying Python to perform some of the processing steps, he displayed portions of the 114-page primer, *Using Python for Interactive Data Analysis*. This document was written by two astronomers at the Space Telescope Science Institute. You can obtain a copy of it from Mark's Dropbox:

<https://dl.dropboxusercontent.com/u/52682795/greenfield07a.pdf>

Probability and error analysis of wind velocities derived from cloud tracking – Mark

Mark discussed probability theory, leading to how we will calculate the velocity errors introduced in each step. He also described how these errors are compounded to obtain the total estimated errors in the velocity calculations. We will use actual spreadsheet velocity data next time to calculate the errors for one specific example.

POSTPONED

Centering images demos – Ashley and Yvonne

These analysts will discuss their own image centering techniques using Photoshop and GIMP.

Spectrometer slit removal - Michael Logan

Michael will show how he uses GIMP to remove the spectrometer slit and other artifacts

The next meeting will be on 24 March 2016 at 6 PM. Location to be announced.

Submitted by Arthur C. Tarr, Venus Winds Project Coordinator