

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

Date/Time/Location: 12 March 2015 6:00 PM Exploration Science 106

**ATTENDING**

<b>Boudreau</b>	<b>Bullock</b>	<b>Crowl</b>	Doubek	<b>Farrell</b>	Gehring
<b>Heil</b>	<b>Krider</b>	<b>Lindsay</b>	<b>Logan</b>	<b>McGouldrick</b>	<b>Parziale</b>
<b>Royer</b>	<b>Stewart</b>	<b>Tarr</b>	Viera	Zimmerle	

Guests: **Sandy Krider**

The meeting opened at 6:00 PM at Exploration Studio 106 in the Morgridge Wing. Those **attending** are listed above.

**OLD BUSINESS**

The following sub-group task discussions are postponed until the next meeting:

**Sub-group *Slit Removal*** (Proposer: Dylan)

Dylan and Mark discussed potential algorithms to automate slit removal from the images. Dylan will build upon existing program code.

**Sub-group *Improved Online Tools*** (Proposer: Ricardo)

Ricardo and an associate have been improving the coordinate recording tool that Ricardo demonstrated at an earlier meeting (November 6). The tool is available for testing at <http://venuswindsproject.org/>. Report your experience and any problems to Ricardo. Ricardo also suggested an improved method of rapidly examining a series of images for a specific dataset.

**Sub-group *Automated Co-Registration*** (Proposer: Dave)

Dave has been researching available applications employing auto-correlation algorithms that would be employed in automated co-registration of images. He is planning to continue this research.

**NEW BUSINESS**

**Image Co-Registration:** Mark

**GIMP** is widely-used image processing software available on multiple platforms, most notably Mac and PC systems. Mark described the process of centering images from the Dec. 14, 2010 sequence using GIMP. He demonstrated several illustrative examples of image co-registration using a centered circle whose diameter was determined from an ephemeris for that date. In each example, he demonstrated how to rotate and center the image within the circle.

The assignment for the analysts to download the GIMP software and become acquainted with it using recent image sets such as the Dec. 14, 2010 sequence.

You can obtain GIMP 2.8 for PC, Mac, or Unix at <http://www.gimp.org/>  
It's an open source, free program. After you've installed it, you should install the GIMP help program in the language of your choice, from <http://www.gimp.org/docs/>

**Wind Velocity Measurements:** Mark

As per Yvonne and Ashley's suggestion, we will collectively select 9 points on the July 12, 2004 images for the next analysis. This consensus-derived method should yield points that are easier to follow. The new points will be the basis for a new exercise determining velocities with pre-defined points.

**Accessing Raw Data Files:** Mark

All Venus images from 2001 to 2011 are now accessible! Point your browser to:

[http://http://data.boulder.swri.edu/bullock/Venus\\_images/](http://http://data.boulder.swri.edu/bullock/Venus_images/)

A box should pop up asking for your username and password. For now, please use:

username: mark

password: venus

The browser will show the contents of the folder [Venus\\_images](#). You can download any file by clicking on it. For each observing night, there is a .zip file that contains all the images from that night. These zip files are named [All\\_Dec\\_13\\_2010\\_images.zip](#), for example. These are large files, so expect some of them to take more than an hour to download.

The next meeting on March 26 will be in Expedition Health 201

Submitted by Arthur C. Tarr, Venus Winds Project Coordinator