

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

Date/Time/Location: 14 May 2015 6:00 PM Exploration Studio 106

**ATTENDING**

<b>Art</b>	Ashley	<b>Cristy</b>	Dave	Drew	<b>Dylan</b>	<b>Emilie</b>
<b>John</b>	<b>Kevin</b>	Nick H.	Nick Z.	Mark	Marta	Mica
Michael D.	Michael L.	<b>Rachel</b>	Ricardo	<b>Terran</b>	<b>Yvonne</b>	

Guests: **Sandy**

The meeting opened at 6:00 PM at Exploration Studio 106 in the Morgridge Wing. Those **attending** are listed above. We welcomed new analyst, **John Bowler!**

**OLD BUSINESS**

**Your experience with DS9 and Gimp** All

Art discussed and demonstrated **SAOImage DS9**, an analysis tool that is widely used by the astronomical community to extract the maximum usable information from astronomical images. One potential **DS9** analysis of Venus images would be to locate the maximum pixel values of cloud/gap features much more precisely than an analyst could locate them. The **DS9** website is located at <http://ds9.si.edu/>. It is free and available for PCs, Macs, and Linux machines. Analysts are encouraged to download both **DS9** and its accompanying documentation to try it out.

Art demonstrated an important use for **DS9**, creating contour maps of the clouds/gaps, and thus allowing determination of the coordinates of maximal and minimal pixel values corresponding to clouds and gaps. His experience is that it is relatively easy to accurately locate minima and maxima in the contour maps to the *nearest pixel*. Such precision is not achievable with Adobe Photoshop; therefore, **DS9** may be reasonably expected to replace Photoshop in such analyses.

There was discussion of the relative merits of **Gimp**, another open source suite of programs, for similar analysis of images. Several of our analysts have experimented with **Gimp** already. We will have a discussion of the comparative merits of **Gimp** and **DS9** at a later date.

Discussion also focused on the longevity of cloud and gap features, using Venus images acquired on 12 July 2004. In roughly three-quarters of the selected features, the general shape of each feature persisted over the entire acquisition run, with only minor changes in shape, making those features candidates for further examination.

**Wind Velocities to Date**      Mark

At a later date, Mark will summarize the results from all analysts who have completed velocity spreadsheets for July 12, 2004. The purpose is to show the strengths and weaknesses of the methods used so far, and to point to ways that might provide more consistent results. At a later meeting, Christy will do a statistical analysis of the results to date.

**NEW BUSINESS**

**Car-pool experiment**      Art

Art described an unexpected issue that has arisen for several of our junior analysts who may depend upon family or friends to attend the Venus Winds Project meetings. Transportation may also be an issue if that driver is not available on all meeting nights. Several suggestions were discussed, namely carpooling and single-ride RTD passes that are arranged by the Museum. Other solutions will be considered from our membership so let me know if you have possible ideas.

The next meeting on May 28 will be in Exploration Studio 106

Submitted by Arthur C. Tarr, Venus Winds Project Coordinator