

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

Date/Time/Location: 22 May 2014 6:20 PM Admin 2

ATTENDING

Bullock	Doubek	Harter	Knutson	Lindsay	McGouldrick
Rabellino	Romero	Royer	Tarr		

Guests:

The meeting opened at 6:20 PM. Those **attending** are listed above.

OLD BUSINESS

Results of assignments to determine wind speed examples

7 Jul 2004 Marta

8 Jul 2004 Bryan

9 Jul 2004 Michael D. Images centered and transformed to cylindrical projection

10 Jul 2004 Marta

11 Jul 2004 Art Completed

12 Jul 2004 Carlos

13 Jul 2004 Mark Completed

First step in error analysis

Mark will distribute two rectangular (cylindrical projection) images from the 16 September 2007 series. Everyone will pick seven tracking points distributed in latitude on each image; the end points should be as high in latitude for each N/S hemisphere. Using the spreadsheet, calculate the average wind velocities. We will compare results to understand the variation due to individual technique. This will be the first step in an error analysis of the results.

NOTE: The two images distributed on Thursday May 22 should be deleted because these images were split at 240° longitude. The new images will be centered on the 0° meridian.

Sources of errors in velocity determination

The sources of errors in velocity determination were discussed and will be a topic in the future. Kevin has distributed a journal article (K. McGouldrick and others, 2012, *Icarus* 217:615-628) to our mailing list. You may find interesting how the authors treat the zonal (U) and meridional (V) components of the clouds in this study.

New Venus Winds researcher recruitment from current DMNS volunteers

The draft recruitment document text was discussed at length and several changes have been made. The document will be distributed, probably by e-mail, following approval by the Space Sciences Division Coordinator. The final draft will be sent to you as a separate attachment.

Status of the Venus Express spacecraft and end of mission

Kevin described the to plan to end the Venus Express mission with an air-braking experiment in the near future. Venus Express orbits Venus in a highly elliptical orbit and now is low on fuel to orient the spacecraft. The experiment will de-orbit Venus Express by orienting the solar panels perpendicular to the plane of its orbit at closest approach. The drag on the inner panel by the thin atmosphere will change the orbit to be closer to Venus. The amount of fuel necessary to re-orient the panels is related to the drag of the thin upper atmosphere. With each pass at closest approach the drag will be greater than the last passage and so on, until the spacecraft de-orbits and burns up in the thicker atmosphere.

Venus Winds wiki improvements Mark

Postponed until we enlist more researchers

Mathematics of the rectangular coordinates transformation Mark, Art

Postponed

Investigate some images on JPL web sites Mark

Postponed

Venus Landing Site Workshop Kevin

Postponed

NEW BUSINESS

Recent total lunar eclipse

Michael Doubek showed us his first telescopic effort to photograph the recent total lunar eclipse. He shot a sequence of frames with a camera attached to a telescope. His image sequence showed an interval from mid-eclipse, when the umbra nearly covered the lunar disk, to the end of umbral contact.

Michael has also set up an online method for viewing and participating in our meetings if you are unable to attend at the Museum. He has sent each of you the method for download of the BlueJeans software app. We will try a series of tests before the next meeting. Thank you, Michael!

The next meeting is June 5 and will be in the usual space, Admin 2.

Submitted by Arthur C. Tarr, Venus Winds Project Coordinator