

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

Date/Time/Location 24 May 2016, 6:00 PM Exploration Studio 106

AGENDA ITEMS CARRIED FORWARD

Image Processing Results–All

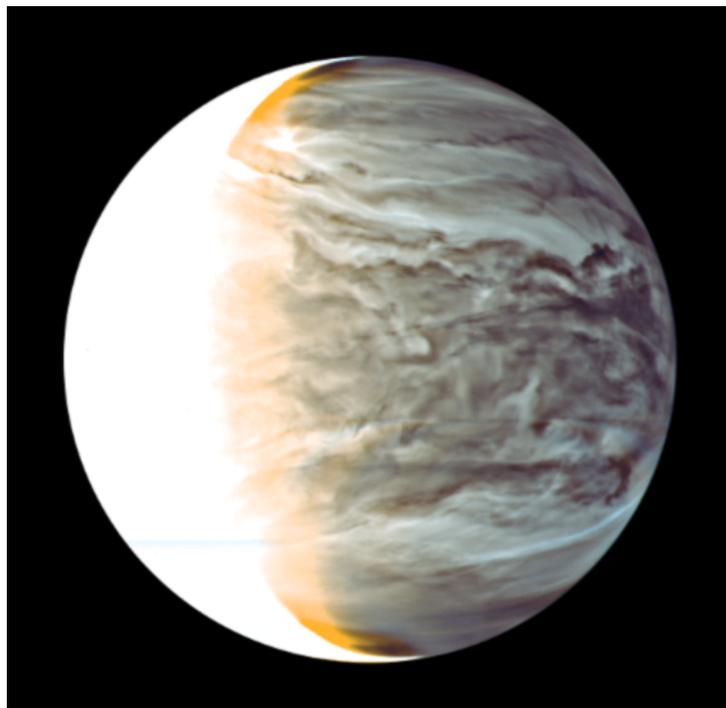
Everyone now has an assignment and thumbdrive to copy results to. You can copy your 16 raw images to its own folder (Selected Images). If you have removed the spectrometer slit from the raw images, store these results in the ‘Slit Removed’ folder. If you’ve been able to center your images, store them in the ‘Centered Images’ folder. We will take a look at all new results from volunteers.

Reading Assignment – Mark

Mark will go over some of the most important points in *The New Solar System* chapter that relate to our project. Bring questions, as this chapter discussed the basic physics of planetary atmospheres.

Akatsuki Update – Kevin

Another meeting in Japan between the NASA *Akatsuki* Participating Scientists and the Japanese science team will be held May 30-31. Kevin will begin his in-residence post at that time, returning some time in the fall. If there are any updates to the *Akatsuki* mission – spacecraft status or images, he will let us know. Below is a cleaned-up version of an *Akatsuki* 2-micron nightside image that was originally released 2-3 weeks ago. This image of Venus’ nightside was taken at nearly the same wavelength as our IRTF telescope images, about 2 microns.



Science on a Sphere –Michael and Connor

Michael and Connor will display a few variations of cloud opacity over the Magellan global mosaic, in order for us to assess the best opacity to display clouds on Science on a Sphere. Also, they may be able to show us Marta's recent movie clip of the Dec 18, 2010 images

NEW AGENDA ITEMS SINCE LAST MEETING

Past Image Processing Results – Mark

Mark has uploaded many of the results from previous years to the data server. He will briefly go over these so that everyone can explore the range of results from years past.

Image Processing Flow Diagram – Mark and Art

Mark and Art will go over the latest version of our process flow diagram, including embedded links to preliminary documentation and results.

Dealing with Rotated Raw Images – Mark

Mark will show how to retrieve the image rotation angle from the image header. This can then be used to re-align the image so that north is pointed up. Only a small fraction of the images are rotated with respect with north, but they have to be corrected after the spectrometer slit and bad pixels have been removed, but before centering the images.

Bad Pixel Removal – Mark

Mark will demonstrate the steps needed to remove bad pixels from the Venus raw images. We will use open source software by Meade, the telescope maker, called Autostar Suite. It is available for Windows and Macs, and Mark will bring both versions of the software to the meeting if folks want to download it to their computers. Alternatively, we will put the link to the software on the project web site. If you want to get it before the meeting, go to:

<http://www.meade.com/support/software-firmware/>

JPL HORIZONS Ephemeris – Mark

Mark will demonstrate the use of the JPL ephemeris to obtain various Venus parameters that we need to process the images. These include the apparent size and phase of Venus at the time of observations, as well as sub-solar and sub-earth latitudes and longitudes and the position of Venus' north pole. Although we've introduced the HORIZONS ephemeris before, a quick refresher is necessary as we move to the more complex processing steps that involve these parameters. There's a link to the ephemeris on the project web page, or just go to:

<http://ssd.jpl.nasa.gov/horizons.cgi>