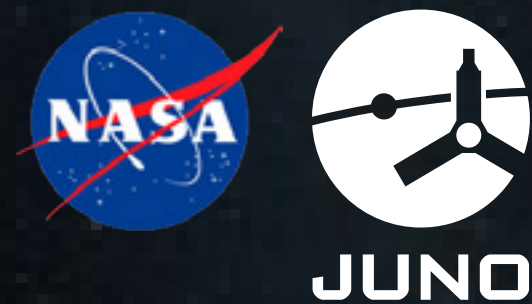# INSTRUCTIONS FOR AMATEUR OBSERVERS

The Juno mission science team welcomes any and all imaging contributions from the amateur community to the Mission Juno website as a vital tool to provide global context, aiding us in our planning of acquisition and scientific analysis of Juno data during the mission.

We will accept data in any form and using any filters that are available to each contributor.

Especially encouraged are images in uncompressed formats such as TIF, PNG, or FITS that preserve the detector response linearity and are the most useful for scientific analysis. But all formats are useful for global context of weather systems on Jupiter are welcome. Images separated by substantial rotation of the planet (30 - 60 minutes) are most useful.

Please send us information on the observer, location, date and time, and filters used (or if a color camera was used to acquire direct RGB images). Combined RGB images, whether captured as an RGB or in individual R, G, B filters, are most useful for Jovian global context maps to support JunoCam in-situ observations. Please be mindful not to overprocess images with excessive wavelet enhancement which may introduce high contrast and sharpened but non-physical artifacts in images.

Notes about WinJUPOS

The WinJUPOS freeware (jupos.privat.t-online.de). is useful for processing images. The geometry and image acquisition details will be added to an "eml" file. Longitude-latitude maps may be produced from each image. Creation of compressed image bundles is easy, using the "Create transmission package" module in the menu list (see the figure right), although this is not required. Individual RGB images in png, tif, or other format, with North facing up, are perfectly acceptable.

To create a WinJUPOS bundle:

• Start the "Recording/Image measurement" module

• Load the image

• Adjust the outline frame to match Jupiter's limb

• Save the settings

• Ensure that North is facing up

• Use the preferred naming convention: YYYYMMDD_HHMMSS

• Call the "Create transmission package" option

• Upload the file to the Juno site: https://www.missionjuno.swri.edu/junocam/planning
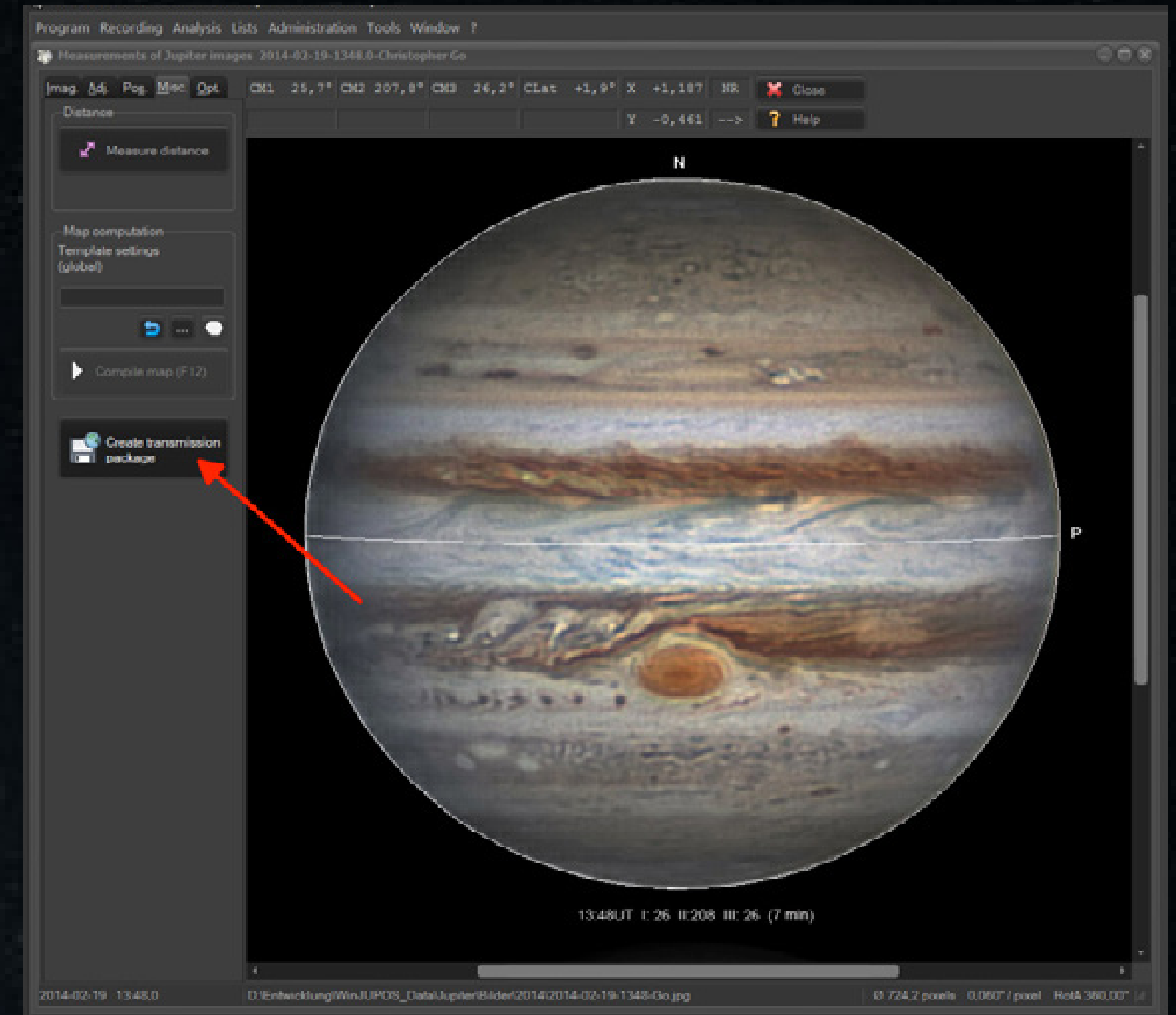
Observing Jupiter: A Primer

Those new to imaging Jupiter (or other planetary targets) might try what is called the "lucky imaging" technique to make very sharp images. This involves using a video to capture several hundred images of a planet in any given filter. These are then loaded into software that selects the crispest images and then coadds them, shifting each exposure around, as necessary, to register them properly.

Two types of freeware are available to do this type of processing:

Autostakkert (**autostakkert.com**)

Registax (**astronomie.be/registax**)

If you use these programs, please turn off the histogram stretching before registering and stacking the images.

An excellent introduction to making high-quality planetary images by prominent amateur astronomer Christopher Go (Cebu City, Philippines) is given in this **power-point presentation**.

High Resolution Planetary Imaging Primer

A splendid exposition of planetary imaging by prominent amateur Damian Peach is available as a chapter in the book "Lessons from the Masters – Current Concepts in Astronomical Image Processing", edited by Robert Gendler. Damian also has a great tutorial on DVD called "High-Resolution Astrophotography". Both are available here: **damianpeach.com/dvd.htm**

Questions?

Questions can be directed to Juno scientist Glenn Orton (glenn.orton@jpl.nasa.gov), who is responsible for coordinating all Earth-based supporting observations for the Juno mission or Tom Momary (thomas.momary@jpl.nasa.gov) who is administering all submissions to the Juno website.