EGU25-1505
PS1.3

JAXA Virtual Planet: A next-generation web-GIS platform for lunar data visualization and analysis

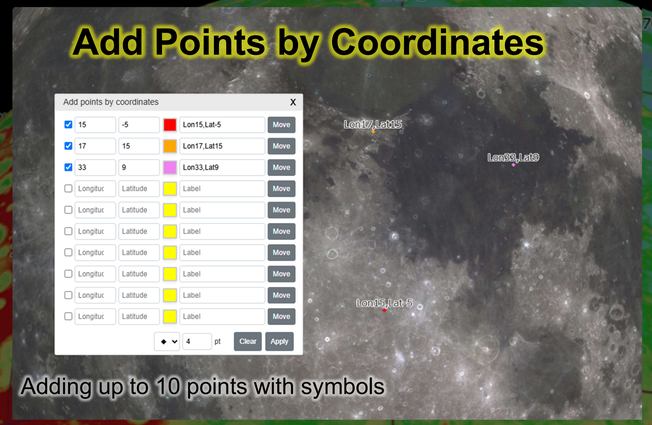
Ryodo Hemmi[1], Hiroyuki Sato[1], Shoko Oshigami[2], Shingo Nanbu[1], and Mitsuo Yamamoto[1]

[1]Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Sagamihara, Kanagawa, Japan (hemmi.ryodo@jaxa.jp), [2]National Institute of Information and Communications Technology, Koganei, Tokyo, Japan

What is JAXA Virtual Planet (VP)?

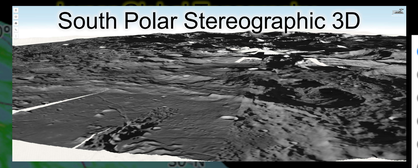
As the successor of KADIAS—the integrated analysis and data distribution system for the lunar-orbiting satellite “Kaguya”—we are currently developing a new release scheduled for publication within the current fiscal year.
This system takes the form of a 3D Web-GIS platform (see figure on the right) based on ESRI’s ArcGIS product suite (ArcGIS Enterprise and Image Server).
Besides Kaguya’s primary publicly available PDS data products, the system will also host higher-level data products derived from Kaguya observations.
These include MI FeO/TiO_2 abundance maps, chronological classification maps of the lunar maria, and datasets of LRS subsurface reflection points.

Add Points by Coordinates



Adding up to 10 points with symbols

South Polar Stereographic 3D



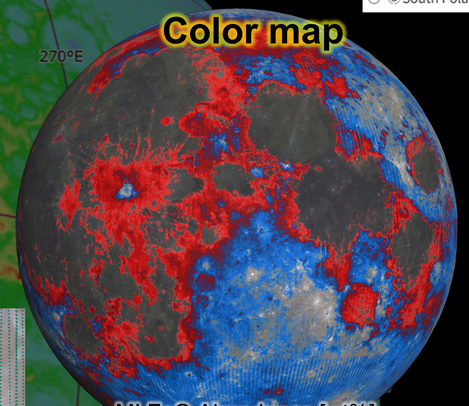
Views (3D/2D)

- 3D Globe
- Equidistant Cylindrical 3D
- North Polar Stereographic 3D
- South Polar Stereographic 3D
- Equidistant Cylindrical 2D
- North Polar Stereographic 2D
- South Polar Stereographic 2D

Layers

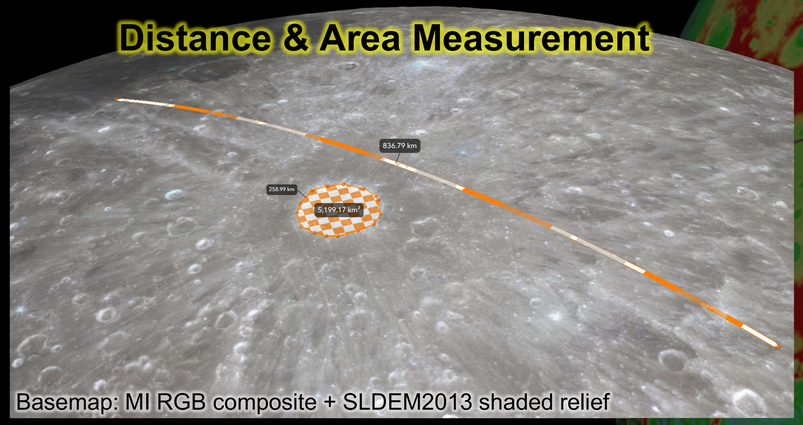
- Nomenclature
- Graticule (10 degree/30 degree)
- Lunar global topography [km]
- Mare unit age [Gyr]
- LRS subsurface reflection points
- SP radiance [W/m²/μ/sr]/diffuse reflectance
- SAR (5km/10km/40km)
- LRS radargram
- MI FeO Abundance [wt%]
- MI TiO_2 Abundance [wt%]
- MI reflectance
- Nuclide map (K/Th/U/Ca) [ppm]
- TC morning/evening
- TC orthoimage
- TC DTM [m]
- Bouger/Free air gravity anomaly [mGal]
- Crustal thickness [km]
- Magnetic anomaly (X/Y/Z/F) [nT]
- Magnetic anomaly OP (X/Y/Z/F) [nT]
- Basemap (Global): MI RGB composite & SLDEM2013 shaded relief
- Basemap (Polar): TC orthomosaic

Color map



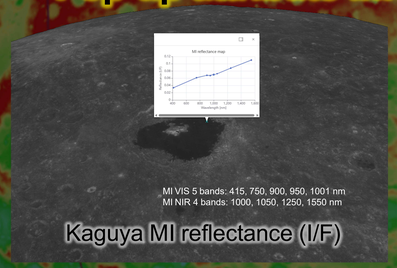
MI FeO Abundance [wt%]
stretched b/w 5 (blue) & 15 (red)

Distance & Area Measurement



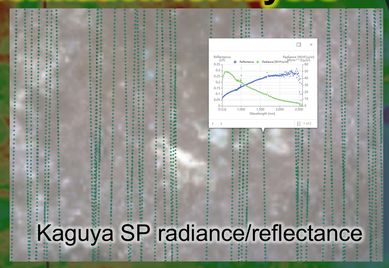
Basemap: MI RGB composite + SLDEM2013 shaded relief

Pop-up attribute information for layers



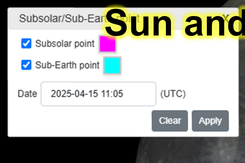
MI VIS 5 bands: 415, 750, 900, 950, 1001 nm
MI NIR 4 bands: 1000, 1050, 1250, 1550 nm

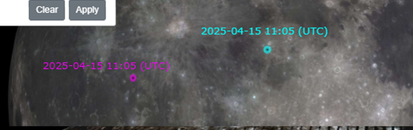
Kaguya MI reflectance (I/F)



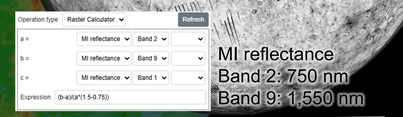
Kaguya SP radiance/reflectance

Sun and Earth Sub-point Display by UTC





Raster calculator



MI reflectance
Band 2: 750 nm
Band 9: 1,550 nm

$$\text{slope} = (1/R_{750})\frac{R_{1500} - R_{750}}{(1.5 - 0.75)} \quad \mu\ \text{m}^{-1}$$

Slope of reddening [Le Mouélic+2000 *JGR*]

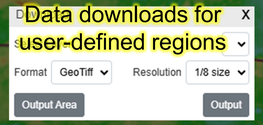
Cross-section Visualization (3D view only)

You can download a profile data

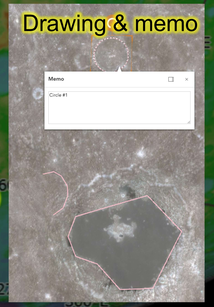
Search by Feature Name

Jump to the view centered at “Copernicus” crater

Data downloads for user-defined regions

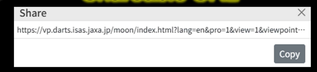


Drawing & memo



Printing (PDF/PNG)

Shareable URL



RGB Composite

MI Reflectance
R: Band4 (950nm)
G: Band 2 (750nm)
B: Band 1 (415nm)

Mode	Device	URL
Easy	PC or Mobile	https://vp.darts.isas.jaxa.jp/moon/
Advanced	PC	https://vp.darts.isas.jaxa.jp/moon/?pro=1

Language	URL
English	https://vp.darts.isas.jaxa.jp/moon/?lang=en
Japanese	https://vp.darts.isas.jaxa.jp/moon/?lang=ja

For additional information, please visit the JLPEDA website at **https://jlpeda.jaxa.jp/en/**

We also encourage you to expect the forthcoming release of JAXA Virtual Planet, accessible soon at **https://vp.darts.isas.jaxa.jp**