**PLANETARY NOMENCLATURE: AN OVERVIEW.**

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**Introduction:** The task of naming planetary surface features, rings, and natural satellites is managed by the International Astronomical Union’s (IAU) Working Group for Planetary System Nomenclature (WGPSN). WGPSN members include Rita Schulz (chair) and 11 other members who hail from countries across the globe. Given the recent increase in planetary exploration and research, and the fact that many planetary surface features of likely scientific interest have yet to be named, it is timely to summarize the status of planetary nomenclature, the purpose and rules, the process for submitting name requests, and the IAU approval process.

**Status:** There are currently 14,847 surface feature names in use (not including names that have been dropped but retained in the database for reference). Table 1 shows the breakdown of the number of adopted surface feature names for each body. A table showing the named rings and ring gaps can be seen at the following URL: http://planetarynames.wr.usgs.gov/Page/Rings. Planet and satellite names are listed here: http://planetarynames.wr.usgs.gov/Page/Planets.

**Table 1. Named Surface Features**

<table>
<thead>
<tr>
<th>System/Body</th>
<th>Number of named surface features currently in use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>398</td>
</tr>
<tr>
<td>Venus</td>
<td>1,973</td>
</tr>
<tr>
<td>Earth</td>
<td></td>
</tr>
<tr>
<td>Moon</td>
<td>9,003 (7,057 of which are lettered craters)</td>
</tr>
<tr>
<td>Mars</td>
<td>1,707</td>
</tr>
<tr>
<td>Deimos</td>
<td>2</td>
</tr>
<tr>
<td>Phobos</td>
<td>20</td>
</tr>
<tr>
<td>Asteroids</td>
<td></td>
</tr>
<tr>
<td>Eros</td>
<td>41</td>
</tr>
<tr>
<td>Gaspra</td>
<td>34</td>
</tr>
</tbody>
</table>

**Jupiter**
- Amalthea 4
- Thebe 1
- Io 224
- Europa 111
- Ganymede 184
- Callisto 153

**Saturn**
- Epimetheus 2
- Janus 4
- Mimas 42
- Enceladus 84
- Tethys 53
- Dione 93
- Rhea 143
- Titan 129
- Hyperion 5
- Iapetus 69
- Phoebe 25

**Uranus**
- Puck 3
- Miranda 18
- Ariel 26
- Umbriel 13
- Titania 18
- Oberon 10

**Neptune**
- Proteus 1
- Triton 61

**Purpose and Rules:** Planetary nomenclature is a tool used to uniquely identify features on the
surfaces of planets or satellites so they can be located, described, and discussed. Approved names are listed in the Transactions of the IAU [1] and on the Gazetteer of Planetary Nomenclature web site [2].

Planetary names must adhere to rules and conventions established by the IAU WGPSN (see http://planetarynames.wr.usgs.gov/Page/Rules for the complete list):

- Planetary names should be simple, clear and unambiguous.
- The number of names chosen for each body should be kept to a minimum.
- Features should be named only when they have special scientific interest and when the naming is useful to the scientific and cartographic communities at large.
- Duplication of the same name on two or more bodies, and of the same name for satellites and minor planets, is discouraged.
- Solar system nomenclature should be international in its choice of names.
- Names having political, military, or religious significance are not allowed.
- Commemoration is not a goal in itself, but may be employed in special circumstances and is reserved for persons of high and enduring international standing. Persons being so honored must have been deceased for at least three years.

**Submitting a Name Request:** The gazetteer includes an online Name Request Form (http://planetarynames.wr.usgs.gov/FeatureNameRequest) that can be used by members of the professional science community who have a specific scientific need to name a planetary surface feature. Required information, such as the requester’s contact information, the feature type and location, the scientific justification for the request, and images showing the feature, must be entered in the form. The completed form also serves as a record for the WGPSN. A specific name may be suggested for a feature, but the name is subject to IAU review and there is no guarantee it will be approved. A published reference is required for each name (web sites are not allowed as references, but scanned online books suffice). Suggested names must also fit the approved theme for each feature type on each body (see http://planetarynames.wr.usgs.gov/Page/Categories).

Before submitting a name request, the online database and maps showing named features (http://planetarynames.wr.usgs.gov/Page/Images) should be consulted to confirm that the feature is not already named. If a specific name is included in the request, the database should also be checked to ensure the name has not already been approved for a different feature.

**Name Approval Process:** Name requests are first reviewed by one of six task groups (Mercury, Venus, Moon, Mars, Outer Solar System, and Small Bodies). After a task group has successfully reviewed a proposal, it is submitted to the WGPSN. Allow six to eight weeks for the review and approval process, but more time may be necessary if the proposal is complicated or if questions are raised during the review process. Name requests should be submitted well in advance of publication deadlines. Upon WGPSN approval, names are considered formally approved and it is then appropriate to use them in publications. Approved names are immediately entered into the database and shown on the web site.

**Summary:** The members of the WGPSN and its task groups have worked since the early 1970s to provide a clear system of planetary nomenclature that represents cultures and countries from all regions of Earth. This activity supports ongoing planetary research, and the participation of knowledgeable scientists and experts in this process is vital to its success. Questions about the nomenclature database and the naming process can be sent to Jennifer Blue, USGS Astrogeology Science Center, 2255 N. Gemini Dr., Flagstaff, AZ 86001, or by email to jblue@usgs.gov.

**Acknowledgments:** Funding for J. Blue has been provided by NASA’s Planetary Geology and Geophysics Cartography Program.