

THE REGIONAL PLANETARY IMAGE FACILITY NETWORK. J. J. Hagerty¹, and RPIF Network Node Directors and Managers, ¹U.S.G.S. Astrogeology Science Center, Flagstaff, AZ 86001 email: jhagerty@usgs.gov.

Introduction: NASA's Regional Planetary Image Facilities (RPIFs) are planetary data and information centers located throughout the United States, in Canada, and overseas. The U.S. locations are funded by both NASA (i.e., the Planetary Geology and Geophysics Program) and their host institutions [1]. A network of these facilities was established in 1977 to "maintain photographic and digital data as well as mission documentation. Each facility's general holdings contain images and maps of planets and their satellites taken by solar system exploration spacecraft. These planetary data facilities, which are open to the public, are primarily reference centers for browsing, studying, and selecting planetary data including images, maps, supporting documentation, and outreach materials. Experienced staff at each of the facilities can assist scientists, educators, students, media, and the public in ordering materials for their own use" [2].

Since it was formally established, the network of RPIFs has expanded to nine U.S. facilities and eight facilities in other countries. The first RPIF to be established outside of the U.S. was in the UK in 1980 at University College London (UCL), and since then RPIFs have been set up in Canada, Finland, France, Germany, Israel, Italy, and Japan. Through its longevity and ability to adapt, the RPIF Network has leveraged its global reach to become a unique resource covering almost 60 years of international planetary science.

Historically the Network nodes have had an inward focus, providing resources to local clients, and communicating with other nodes only when the need arose. Using this methodology, the nodes of the RPIF Network have combined to serve an average of ~65,000 people per year since 2000. However, with the advent of simpler and more far-reaching forms of data transfer and sharing, it is clear that the nodes can operate together to provide the planetary science community and the public with greater access to: 1) archived mission products (e.g., maps, photographs, films, and documents); 2) mission-enabling documentation (e.g., data on previous mission design, development, implementation, and evaluation); 3) science and public research support, and 4) outreach experience and capabilities. Each node of the Network has unique capabilities that meet one or more of the above criteria; however, by linking the nodes virtually, it is now possible to provide a wider array of materials to a wider array of clients.

Resources: The RPIF Network, hereafter referred to as RPIFN, is staffed by experienced archivists who stand ready to assist in "Bringing planetary science

data to you." Unique offerings of the RPIFN include, but are not limited to:

- All nodes of the Network have hardcopy and digital data as well as supporting documentation from all U.S. and many foreign planetary missions flown since 1959
- The online Earth Impact Database at the Canadian RPIF at the University of New Brunswick
- More than 10,000 planetary images from Earth-based telescopes at the University of Arizona Lunar and Planetary Laboratory RPIF
- A collection of near-IR reflectance spectra of small areas of the lunar surface at the University of Hawaii RPIF
- An inventory of 60,000 USGS lunar and planetary maps as well as field notebooks, drafts of seminal papers, and planning documents for lunar and planetary missions at the USGS Astrogeology Science Center RPIF
- The Cornell University Meteorite Collection at the Cornell RPIF
- An extensive collection of online maps, publications, and outreach tools maintained by the Lunar and Planetary Institute RPIF
- The field analog terrains collection at the Arizona State University RPIF
- The 3D Imaging Centre at UCL includes a stereo workstation for producing DTMs from HiRISE and CTX and a twin Mac 30-inch display for viewing 5k pixels at full resolution [2].

Future Direction: The RPIFN is making strides to better serve its customers in the coming years. In an effort to learn more about the needs and concerns of the planetary science community, the RPIFN operated an informational booth at the 42nd Lunar and Planetary Science Conference in The Woodlands, TX. The results of the booth indicated that the planetary science community is hungry for more information on: 1) documentation for past missions and instruments; 2) basic knowledge about current planetary mission data sets; and 3) outreach materials to engage local communities. The bulleted points below describe methods by which the RPIFN will address the needs of its clients.

- *Provide documentation for past missions and instruments:* Each node of the RPIFN will be charged with inventorying, scanning, and providing access to maps, photographs, films, reports, memoranda, and publications for past planetary missions. As current and future missions come to pass, their documentation (currently stored in mis-

sion-specific webpages) will be ingested into the RPIFN. Nodes within the network will also begin collating key mission-related science publications.

- *Provide basic information about current mission data sets:* Beginning with the most recent annual RPIF review in October 2011, RPIF managers and directors will receive training on planetary data sets, such that they can serve as local resources for their clients. The training will provide overviews of data sets collected since the Clementine mission. The overviews will be geared toward providing basic knowledge of the mission goals, capabilities, data products, data processing tools, and science applications of the data.
- *Provide outreach materials:* By pooling their resources, the individual nodes of the RPIFN will have access to a wide array of space exploration materials. RPIF nodes that have unique data and/or relationships with current/future missions will share the information with the rest of the Network. Printing and distribution costs will be shared by network nodes. These materials can then be used to engage the public during facility tours, public lectures, and/or school demonstrations.

In summary, the long term vision of the RPIFN is to be a resource that provides the complete story of space exploration by providing archived data products, historical documentation of previous missions, outreach materials for engaging the public and up-to-date knowledge and expert advice on current and future planetary missions. The RPIFN will continually seek feedback and input from its clients via informational booths at international conferences, online surveys, and written or verbal comments.

For more information, or to request materials, please contact any of the RPIFs listed below. Additional, detailed information can also be found at <http://www.lpi.usra.edu/library/RPIF>

Arizona State University
Space Photography Laboratory
RPIF@asu.edu

Ben-Gurion University of the Negev
Department of Geography and Environmental Development
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Brown University
Northeast Regional Planetary Data Center
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Cornell University
Spacecraft Planetary Imaging Facility
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German Aerospace Center
Regional Planetary Image Facility
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JAXA
Institute of Space and Astronautical Sciences
Regional Planetary Image Facility
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Instituto Nazionale di Astrofisica
Southern Europe RPIF
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Jet Propulsion Laboratory
Regional Planetary Image Facility
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Lunar and Planetary Institute
Center for Information and Research Services
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National Air and Space Museum
Center for Earth and Planetary Studies
AielloR@si.edu

University College London
Regional Planetary Image Facility
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University of Arizona
Space Imagery Center
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University of Hawai'i at Manoa
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Phototheque Planetaire d'Orsay
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University of New Brunswick
Planetary and Space Science Centre
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University of Oulu
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Acknowledgements: The U.S. nodes of the RPIF Network are supported by NASA's Planetary Geology and Geophysics program as well as by leveraging funds from host institutions.

References: [1] Shirley and Fairbridge, eds. (1997) *Encyclopedia of Planetary Sciences*, Chapman and Hall, London, 686; [2] Muller and Grindrod (2010) *European Planetary Science Congress 2010*, 883.