

**HiWeb**  
**Functional Requirements**  
**Version 2.1**  
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**Vision**

HiWeb provides a web interface to the HiRISE dataset and a means to submit image suggestions. HiWeb also serves as HiRISE's E/PO website and the distribution site for HiRISE images (PDS formatted and "quick look" intermediate versions). It needs to be useful both to HiRISE team members and other scientists and to the general public interested in Mars and HiRISE data. It provides carefully limited access to HiCAT (the HiRISE database and catalog), to extract HiRISE images and to submit image suggestions. HiWeb will also provide some user-friendly interactive tools to analyze HiRISE images in context with other available Mars data. HiWeb is a key element of HiRISE E/PO, hosting image releases and educational information.

**Requirements:**

**Version 0.5 [Delivery: 3 months before launch ~ May, 2005]**

- 1     Allow image suggestions from team three months before launch.
  - 1.2    Provide secure login for users
  - 1.3    Show lat/lon for image center and corner coordinates when rubber band dragging cursor over region of interest on basemap.
  - 1.4    Prompt for and record image width (# of CCD's) (footprint box adjusts appropriately)
  - 1.5    Prompt for and record image length (# of lines) (footprint box adjusts appropriately)
  - 1.6    Provide constraints for reasonable image size and skew image footprint to approximately account for orbital track.
  - 1.7    Prompt for and assign acceptable level of binning for each CCD
  - 1.8    Prompt for and record color requirements
  - 1.9    Prompt for and record special requests (stereo, phase angle, season, etc.)
  - 1.10   Prompt for and record scientific rationale, and science themes for image
  - 1.11   Allow team members to register themselves in HiCAT via HiWeb to make image suggestions.
  - 1.12   Allow team members to assign their own personal priority rankings of their image suggestions (note this is entirely separate from the priority assigned during targeting).
  - 1.13   Allow team members to modify their own existing suggestions until either the suggestion has been put into the Planned\_Observations table or perhaps until it has been prioritized by a Co-I.

## Version 1.0 [Delivery: Launch, August 2005]

1. Display basemap and MOC-NA images.
  - 1.1 Display map of Mars (MOLA or MDIM tied to MOLA)
    - 2.1.1.1 Display must be useful at the poles
    - 2.1.1.2 Display must use same coordinates as the HiPLAN
  - 1.2 Display MOC-NA footprints on basemap and display MOC-NA images when clicked on
  - 1.3 Provide links to Marsoweb to show lat/lon and associated data values for overlain data sets of cursor location as user scrolls over basemap (eg.: show elevations with MOLA data, TI values for thermal inertia maps)
  - 1.3 Display footprints of already requested HiRISE images and their science rationale when clicked on
  - 1.4 Pan and Zoom on all of the above displays at discrete jumps
2. Allow general public to input image suggestions
  - 2.0 Public users must register--lengthy enough to discourage casual users
  - 2.1 HiWeb must recognize users status (team/science/public) at login
  - 2.6 Prompt for and record image suggestion parameters as for the HiRISE team members, with the exception of CCD specification.
  - 2.7 Allow general public and school groups and informal K-14 student clubs like Space, Astronomy, Science clubs and boy/girl scouts troops to register themselves in HiCAT via HiWEB to make image suggestions.
  - 2.8 Allow public to modify/edit their own submitted image suggestions. Changes would only be allowed until either the suggestion has been put into the Planned\_Observations table or perhaps until it has been prioritized by a Co-I.
  - 2.9 Allow general public to submit multiple suggestions and to assign/edit their own priorities to their own suggestions only. (Note: This is completely separate from and has no connection to the priority that the CoI will eventually assign during targeting. The suggestor's priority provides a place to assign an order of importance to their own requests when submitting more than one suggestion.)
3. Maintain secure high-speed link for the HiRISE Team and MRO Project even if public site is overwhelmed or attacked. (Note: Public image suggestions are done only on a best effort basis and will not unduly impact normal mission operations or science analysis. The goal of the public image suggestion process is to provide a mechanism for the team to obtain the best image suggestions from students, the general public and from the science community.)

## Version 1.1 [Delivery: Mars Orbit Insertion, March 2006]

1. Allow co-analysis of additional Mars data sets by displaying data in same projection as MDIM/MOLA data.
  - 1.1 IRTM + TES thermal inertia maps and derived products

- 1.2 MOC WA global mosaic
- 1.3 THEMIS (IR and Vis) global mosaics and derived products
- 1.4 GRS global composition maps and other products
- 1.5 Mars Express images
- 2. Display E/PO and press release materials.
  - 3.1 Provide HiRISE press release materials
  - 3.2 Provide new or modify existing E/PO material that is aligned with National Education Standards and Benchmarks for Science Education
  - 3.3 Link to other sites with relevant E/PO material
  - 3.4 Provide information on MRO HiRISE instrument and goals
  - 3.5 Provide information on Mars exploration and easy access/viewing to other relevant Mars data sets

**Version 2.0 [Delivery: End of Aerobraking, November 2006]**

- 1 Display HiRISE and other released MRO data
  - 1.1 Display (on demand) footprints of acquired HiRISE images
  - 1.2 Display level-1c panchromatic and color images when footprint is clicked on. Image must be visible in a timely manner using only conventional internet connections
  - 1.3 Display (or provide links to) other released MRO data
- 2 Allow scientifically meaningful measurements on HiRISE images
  - 2.1 Tool to measure distances on HiRISE images
  - 2.2 Pan/Zoom across HiRISE images
  - 2.2 Change the stretch on images
  - 2.3 Ability to download interested portions of a HiRISE image in a variety of formats.
  - 2.4 Tool to extract I/F values of pixels or pixel areas on calibrated images.
- 3 Enhanced content on E/PO pages
  - 3.1 Detailed explanation of how HiRISE works.
  - 3.2 Description and examples of different types of Martian features seen in HiRISE images.
  - 3.3 Classroom materials and “virtual” workshops for teachers and students
  - 3.4 Bios of all team members posted and “Meet the team” segments posted.
  - 3.5 Links to HiRISE E/PO Partner websites, other useful Mars and E/PO websites
  - 3.6 Weekly or periodic journal updates posted to the public from the PI on the status of the instrument, what the team is currently doing, etc. (much like Steve Squyres is doing for MER on his Athena website.)
  - 3.7 Posting of local and regional HiRISE E/PO and related E/PO activities
  - 3.8 Clickworkers’ module activities that will allow opportunities for the public to participate in generating feature databases in HiRISE images and to collect other scientifically useful data.