

HDFView: Navigating the Past, Understanding the Present, and Shaping the Future

You¹ Gerd Heber²

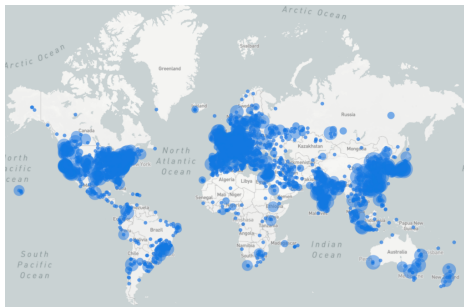
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HDF5 User Group Meeting, May 2025



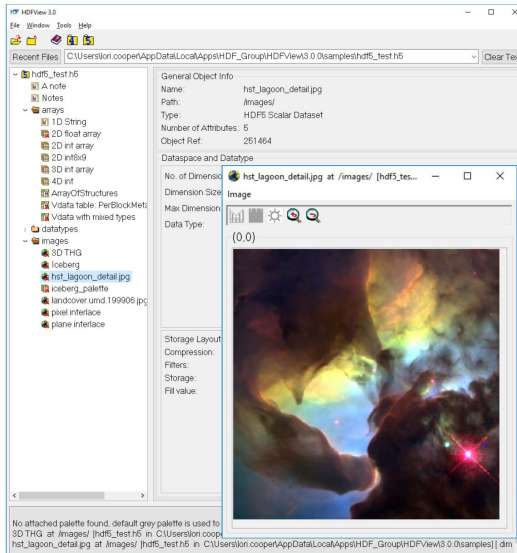
Purpose



- HDFView history recap
- Its current state through the eyes of its users
- An exciting future trajectory—terms and conditions apply



Dramatis Personae



HDFView's Roots – Origins

- HDF format development began in 1987 at the National Center for Supercomputing Applications (NCSA).
- HDF5, designed to overcome HDF4's limitations, emerged and received an R&D 100 Award in 2002.
- HDFView was developed by The HDF Group as a Java-based GUI tool to support HDF4 and HDF5.



HDFView's Roots – Initial Goals & Features

- Provide a visual way to navigate the hierarchical structure of HDF files.
- Allow users to view dataset contents, metadata, and attributes.
- Enable basic editing: creating files, adding/deleting groups and datasets, modifying content and attributes.
- Aimed to simplify access to HDF libraries and provide a common interface (e.g., for HDF-EOS data).



HDFView Evolution “Highlights”

- Became a widely adopted tool within the HDF ecosystem.
- Introduction of concepts like “Modular HDFView” to improve extensibility. (a mistake, perhaps)
- Consistent maintenance and periodic releases (roughly annually).
- Acknowledgment in the early 2010s of the UI needing modernization.
- Still the most popular HDF software download to this day!



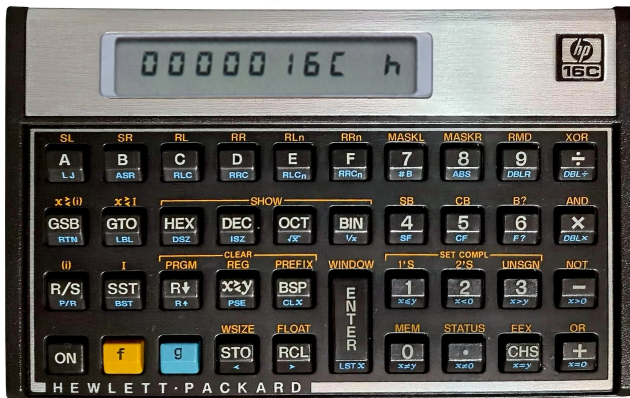
- All roles (researchers, engineers, developers, students, etc.)
- All fields in which HDF[4,5] is used
- Across all HDF skill levels (beginner, intermediate, expert)
- Usage frequency from daily to rarely



- **Core Strength:** “It just works” for quick visual inspection of file structure, data, and metadata.
- Essential for debugging HDF5 file issues and understanding file organization.
- Basic editing capabilities are useful for some.



HDFView Today – Metaphor



- **Outdated User Interface:** Frequently described as “clunky,” “not intuitive,” “unfriendly.”
- **Performance Issues:** Slowness, unresponsiveness, or crashes, especially with large files/datasets.
- **Limited Visualization:** Lack of advanced or even basic, user-friendly plotting capabilities.
- **Error Messages:** Often cryptic or unhelpful.



HDFView Future – First Things First

- **#1** Drastically Improved Performance, especially with “Large” Files.
 - Ability to open/browse files directly from HSDS, S3, or other cloud stores.
- **#2** Community involvement
 - Clearer pathways
 - Better documentation
 - Simpler build process
- **#3** A Modern, Intuitive User Interface.
 - Installation is trivial and includes batteries
 - Data import/export is a breeze (copy/paste, drag&drop)
 - “Design with the mind in mind”
 - GUI modernization



HDFView Future – Warp 2



(Source: ChatGPT 4o)



HDFView Future – Let's Talk!

A promotional banner for the HDF5 User Group Meeting 2025. The banner has a blue background with three white-bordered triangular photo cutouts on the left: one showing pink and white flowers, one showing the modern glass facade of the DESY building, and one showing an aerial view of the Hamburg city skyline. A yellow circular badge with the text 'May 26-28' is positioned over the building photo. To the right, the text 'HDF5 User Group Meeting 2025' is written in large white and yellow font, with 'DESY in Hamburg' in a smaller, stylized yellow font below it. At the bottom right, a white button-like shape contains the text 'Click to register today!' followed by the URL 'https://indico.desy.de/e/hug25' in blue.

HDF5 User Group Meeting 2025
DESY in Hamburg

May 26-28

Click to register today! <https://indico.desy.de/e/hug25>