

Chapter 5

The FAA Information Skyway

Thomas Coonan
Galaxy Scientific Corporation

5.0 Introduction

The Office of Aviation Medicine (AAM) Human Factors in Aviation Maintenance research team has been exploring alternative methods for disseminating the products from the research program. Examples include publication of project results on CD-ROM, the *Human Factors Guide for Aviation Maintenance*, and annual meetings and reports. The program has included efforts to involve the research and user communities in its decision-making processes. Another avenue for disseminating information is through an on-line electronic information source. This new distribution channel has been termed the *FAA Information Skyway*.

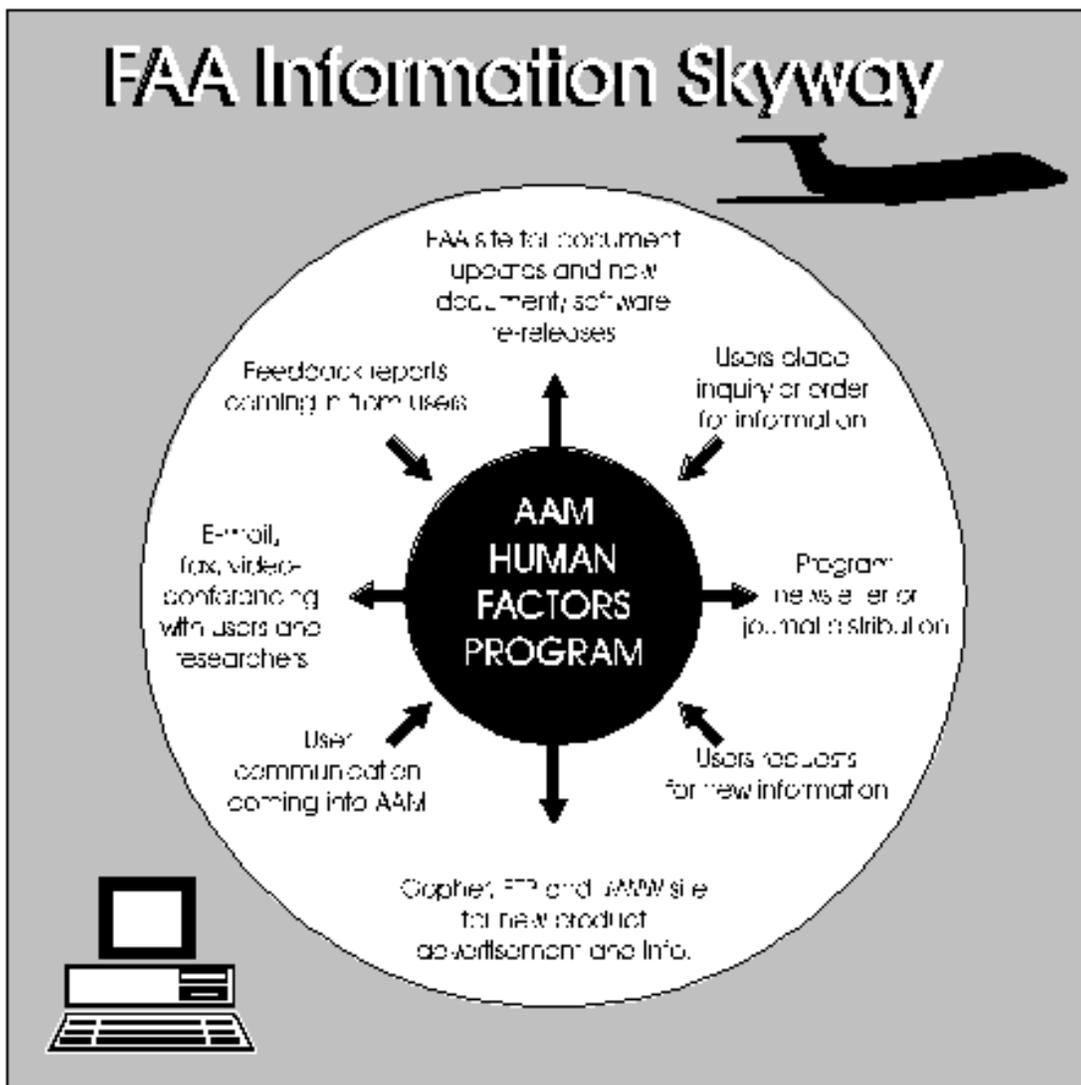


Figure 5.1 AAM Use of the Internet (Adapted from Nejme, 1994)

This report presents our vision of what the Skyway is, of our progress with our User Needs Survey, a survey of existing services, and a snapshot of the World-Wide Web (WWW)-based Skyway to date.

As shown in [Figure 5.1](#), the [AAM](#) will use the Information Skyway to:

1. Disseminate information from the Human Factors Research Program, Office of Aviation Medicine, and the [FAA](#) to all Internet users
2. Maintain and update official aviation-related documents and standards generated by the Office of Aviation Medicine for immediate world-wide use
3. Provide additional Maintenance Human Factors-oriented Internet services, such as notification bulletins, information archiving and retrieval, and conducting world-wide discussion groups.

A substantial portion of the FAA Information Skyway will be based on the [WWW](#), a Standard General Markup Language (SGML)-based hypermedia information layer available through the Internet. The WWW allows hypertext access across all WWW hosts and documentation. Most WWW hosts are government-sponsored research organizations or commercial publishers.

Internet and the WWW are explosively growing mediums for information access (Stefanac, 1994). Previously restricted to government research and educational firms, Internet recently opened access to general business organizations. Seven thousand businesses and organizations now have 15 million Internet users-there are one million more users each month. Over a recent 12 month period, WWW traffic increased 341,634%; and a new *network* is joining the Internet every 10 minutes. Twenty-one large Bulletin Board Systems (BBSs) have also connected to the Internet, at least for e-mail transfer. More than half of all registered networks are now commercial. Surveys have also been done on existing WWW users (Pitkow, 1994).

Immediate benefits for the [AAM](#) of the [FAA](#) Skyway include publicity and immediate distribution of the Office's public information, research results, and official notifications. Previous AAM experiences with electronic distribution of research information, by way of CD and [SGML](#), technically position the AAM to pursue this form of publication.

Long-term benefits of the [FAA](#) Skyway are based on current research and development activity among commercial aviation manufacturers and [FAA AAM](#). Commercial aviation manufacturers are beginning to distribute documentation electronically in an [SGML](#) format. (Remember that [WWW](#) is SGML-based, too.) Current AAM and FAA research projects are evaluating how to use portable computers to support maintenance and inspection activities. The merging of portability, world-wide access, and a plethora of electronic aviation-related documentation will serve to bring timely information to our maintenance and inspection users.

5.1 User Needs Survey

The Information Skyway User Needs Survey has been created empirically to determine needs in the community. The survey's intent is to establish what members of the Aviation/Human Factors community have, need, and want from existing or potential on-line electronic information services. Specifically, the survey includes questions on what classes of [FAA](#) information and services community members desire, what computer resources users have access to, and individual affiliations and job functions. The survey will be distributed to people across the airline, academic, and government sectors. The survey is included in this report as [Chapter 5 - Appendix](#).

The question arises as to how innovative an approach the Skyway should take. An innovative strategy attempts to identify, refine, and specialize emerging technologies and prepare users for the new and hopefully ubiquitous technology. Alternatively, a more conservative and applied strategy minimizes risk by employing only the most widely available tools, if not innovative tools.

The Skyway occupies the more innovative position on this scale. The Internet is a major information technology and, while not yet on every desktop, is here to stay. We predict that the Internet will be a primary source for electronic information - including Aviation and Human Factors information.

5.2 Potential Skyway Services

The User Needs Survey will help us determine what the Skyway should do, what information it should include, and how it should be accessed. There are two immediately apparent ways for members of the public to access computerized on-line information: the Bulletin Board System (BBS) and the Internet.

BBSs are typically accessed with low-speed modems over standard telephone lines. A BBS is often hosted on a PC with many modem ports. One advantage of BBSs is that they require modest equipment: a PC with a low-speed modem and modest graphics, and no pre-established account. BBS services typically include E-Mail (amongst users of the BBS), real-time CHAT conversations, and uploading and downloading files. Usually, these systems do not offer advanced services such as document searching, hypertext, or multimedia.

The Internet is a computer network pioneered in the 1960s. Today, many millions of users in the public, academic and governmental sectors share in this global fabric. Internet services are typically more advanced than a BBS's and include E-Mail, file up/down loading, hypertext, multimedia, video conferencing, etc. Until recently, it was difficult to connect to the Internet. Only university researchers or government officials could afford the specialized communications connections or could use the UNIX environment. However, access is now much easier. New protocols (such as Serial Line Internet Protocol or SLIP), modems, public domain software and commercial Internet Service Provider (ISP) companies make access feasible for many people. This trend continues; in fact, reports are that the upcoming Windows 95 will come bundled with Internet software and that the Internet will reside on most desktops.

The Internet, specifically the World Wide Web, is our first experiment in the Information Skyway. We do not see the Skyway necessarily as a single medium or service, so our initial foray into an Internet-based Skyway does not preclude future work with BBSs or any other means of effectively delivering information electronically.

5.2.1 Internet Services

Before discussing Internet services, we will briefly discuss methods of access. Until recently, Internet connectivity required high-speed digital communications found only in sophisticated labs and large offices. With the introduction of SLIP protocol and high-speed modems, a typical PC can cost-effectively establish a true Internet connection. ISPs offer a SLIP dial-up bridge into the Internet for a few dollars per month. In fact, Internet access is now as easy as dialing up a bulletin board.

We made a survey of Internet Services, seeking out both mainstream and emerging Internet technology. Services we investigated included E-Mail, Gopher, video conferencing, Lotus Notes, WWW, File Transfer Protocol (FTP), ListServers, and Multiple User Domains (MUDs). We gave most attention to WWW and FTP as potential services due to their widespread use, high growth, and appropriateness for digital documentation.

5.2.1.1 Electronic Mail

E-Mail is a core Internet service and is available in many environments other than the Internet. Different E-Mail systems typically communicate via Gateways. For example, E-Mail is routinely exchanged between CompuServe, America On-Line (AOL), and the Internet users, as well as many localized proprietary [LAN](#)-based E-Mail systems such as ccMail, PROFS, and Microsoft Mail. Text-based E-Mail can be enhanced with multimedia attachments, as well as with groupware-oriented enhancements such as ListServers (see [Section 5.2.1.5](#)).

5.2.1.2 The World Wide Web

The [WWW](#), commonly referred to as "the Web", is one of the fastest growing Internet services. A user views WWW documents called "pages" by using a WWW viewer or browser. Many browser programs are available for most platforms, including NCSA Mosaic, CELLO, NetCruiser, and NETSCAPE. Web pages may include text, graphics, or multimedia. Links within the text allow the user to branch off to other WWW pages or other Web sites anywhere in the world. The ability to move between documents and/or host computers by using links embedded in the text is called "hypertext". WWW pages may also be searched for key words or phrases.

[WWW](#) documents use the HyperText Markup Language (HTML) format for providing text and graphical hypertext. The HTML format is standardized and extensible. Web servers may provide back-end programs triggered by the reader's manipulation of the page. For example, a WWW page may present an interactive *form* or provide a front-end to a large database system.

[WWW](#) pages may include references or links to the other Internet services. For example, the user may click on a link that triggers an [FTP](#) download of a particular file or that makes a link to a Gopher menu. In this way, WWW subsumes many other Internet services.

5.2.1.3 FTP

File Transfer Protocol (FTP) is perhaps the oldest Internet-based service. Simply put, FTP allows users to retrieve files from sites on the network. FTP archives are maintained throughout the Internet. FTP users access files organized in hierarchical directories on specific hosts. There are many topic-specific FTP archives. For example, Microsoft maintains an archive for Visual Basic software and there are FTP general archives dedicated to electronic versions of popular manuals.

5.2.1.4 Gopher

Gopher is a precursor to [WWW](#) and presents information in a hierarchical menu. Users view a linear list of items which lead to other Gopher menus or to text. Gopher's simplicity allows it to easily run on almost any client interface, including text-based terminals. Like the WWW, Gopher items link easily to other Gopher items on other distant nodes. [Figure 5.2](#) shows one example series of Gopher menus.

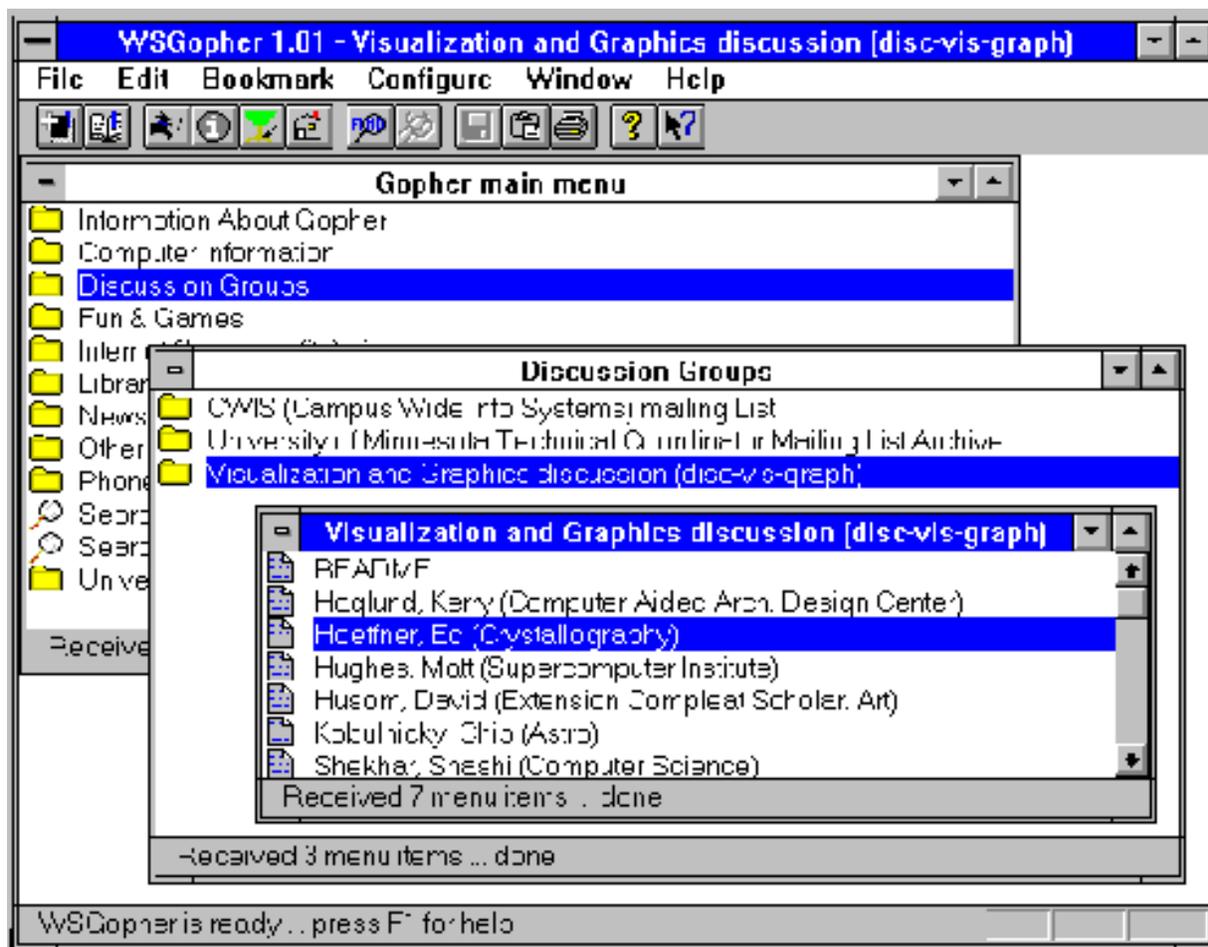


Figure 5.2 Example of an Internet Gopher

5.2.1.5 ListServers

One popular service is the *ListServer* (also known as a mail reflector). ListServers are an extension to E-Mail. ListServers are established for particular topics (similar to UseNet groups). Users send specific E-Mail "command" messages to the server to subscribe and unsubscribe from the list and to request lists of current subscribers. Once subscribed, users send messages to the group and, likewise, receive messages from the entire group. Since a ListServer is based on simple E-Mail mechanisms, any E-Mail user, on the Internet or not, may utilize the service. A potential Skyway service is one or more ListServers for topics such as "Human Factors in Aviation."

5.2.1.6 Other Services

Other, more exotic Internet services include [MUDs](#) and Video Conferencing. MUDs are text-based groupware programs originally intended for multi-player role-playing games. MUDs have been suggested as a new vehicle for real-time conferences where participants interact with each other in 'rooms' based on a particular sessions, topics, etc.

While seamless video requires higher bandwidth links, several real-time video conferencing systems exist on the Internet. The CU_SeeMe video conferencing system is a simple, low-bandwidth video system which has been employed in K-12 schools. The DRUMS system from Sprint integrates Silicon Graphics Indy systems, video cameras, and high-speed TCP/IP (Transmission Control Protocol/Internet Protocol) links to bring together professional studio video producers and their clients.

There are other important network-based services which are not necessarily Internet-based at all, but still may be accessed by the Internet. For example, Lotus Notes is a groupware product running on LANs (Local Area Networks) such as Novell. Corporations are using Lotus Notes for E-Mail, group scheduling, group coordination, etc.

5.3 The Skyway Internet-WWW Implementation

The present accessible Skyway is a collection of [WWW](#) documents. This implementation will be added to and changed as the results of the User Needs Survey are analyzed. The following sections of this report detail the status of this WWW effort. The first section considers how we access the Internet, and the following sections consider the actual WWW implementation.

5.3.1 Internet Service Providers

When discussing services, it is often important to distinguish between providing the service and consuming the service. Computer terminology for this is *client* vs. *server*. It is typically easier to be the client of an Internet service than to be the server. For example, there are now many popular and inexpensive packages in any bookstore that allow a user to access the Internet (and become a client). For instance, it is relatively easy to setup an IBM PC (or a Mac) to access the many [FTP](#) and [WWW](#) information sources now on the Internet. The Skyway must be a *server* publishing WWW information.

Several alternatives exist for the Skyway server. The server is where the Skyway information resides and is where the [WWW](#) and [FTP](#) protocols are implemented. One approach is to employ an Internet Service Provider's (ISP) UNIX machine and a [SLIP](#) connection. The ISP's machine maintaining the actual data storage is continuously connected to the Internet. Galaxy Scientific corporation connects to the ISP's machine as needed over a low-speed modem and uploads our information. This method is the most cost-effective for small scale prototyping, but offers the least control and poor cost-per-bit for larger scale data storage. Another approach is to establish an on-premises host which provides all data storage and server implementation. This approach requires more extensive set-up and hardware.

We are now using an off-site [ISP](#) host. Specifically, an Atlanta-based ISP named MindSpring, Inc., provides us with disk storage, [FTP](#), and [WWW](#) server access, and a [SLIP](#) account for approximately \$50/month plus \$1/Mbytes/Month storage fee.

We have investigated establishing an on-site host. Some cost estimates for doing so are shown in [Table 5.1](#).

Table 5.1 Cost Estimates for Establishing On-Site Skyway.

Item	Cost	UA	Description
------	------	----	-------------

Sparc Server 5	\$15,351	one time	includes storage and software
----------------	----------	----------	-------------------------------

ISDN Setup \$250 one time high-speed communications

ISDN \$95 monthly dedicated line cost

Dedicated TCP/IP link \$375 monthly link to the Internet

With our off-site [ISP](#), our responsibility included authoring and uploading our [HTML](#) documents. With an on-site host, we would be responsible also for installing and maintaining the service, specifically for managing a [WWW](#) and [FTP](#) server.

5.3.2 The Skyway, WWW, HTML, and HTML Authoring

Initially, we implemented parts of the *Human Factors Guide* on the World-Wide Web. WWW provides adequate support for the text and graphics in this document. Future FARs, reports, etc., may also be published in WWW format.

Internet users work with Universal Resources Locator (URLs) when navigating on the net. URLs function as precise addresses by which Internet resources are located. It has become increasingly common for organizations to include a central [WWW](#) URL along with their standard business address. The current Skyway URL is:

<http://www.mindspring.com/~galaxy/skyway.html>

One significant advantage of the [WWW](#) is its widespread availability. Web browsers are available for most common platforms. The popular MOSAIC viewer, for example, is available for MS-Windows, for the Macintosh, and for UNIX platforms.

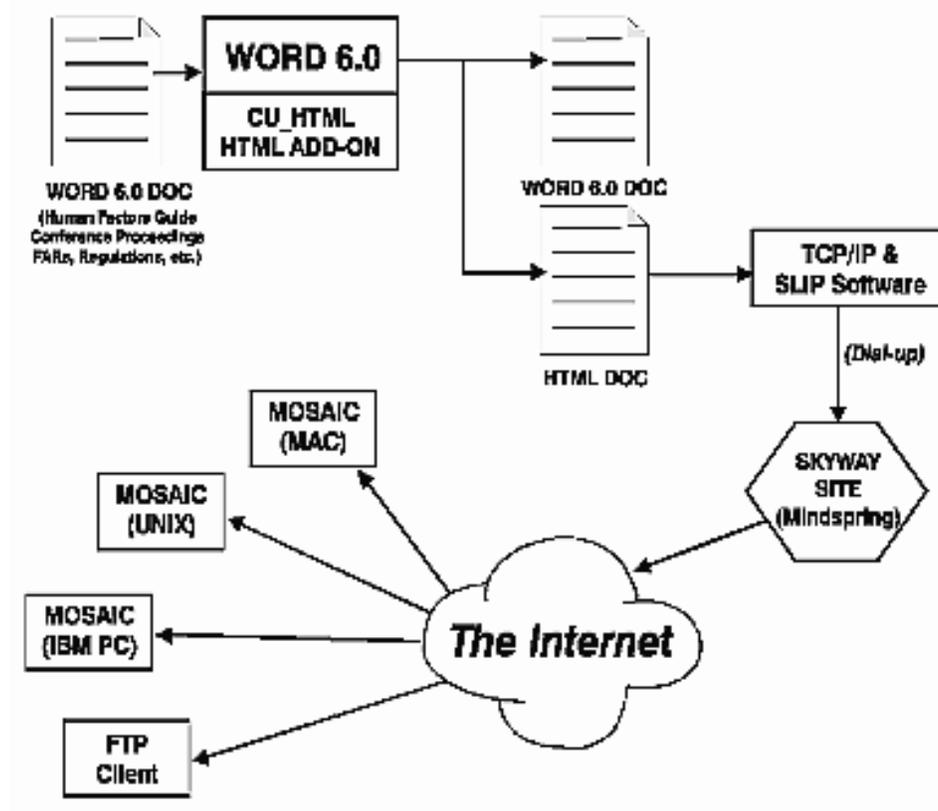


Figure 5.3 Current Skyway Implementation

Authoring the [HFG WWW](#) version (and WWW information in general) requires utilizing the [HTML](#) format. HTML is a dialect of [SGML](#); a much larger specification. HTML is a simple text-based markup language like LaTeX or TROFF. Much HTML markup work is done manually. While this method works fine for typical 'pages,' larger document databases, such as the Skyway, require a more sophisticated and scalable approach. Since Galaxy primarily utilizes Microsoft Word 6.0 for desktop publishing, we investigated tools that directly convert Word to HTML. CU_HTML is one such tool; it meshes well with Word 6.0. CU_HTML uses Word 6.0 templates and macros to transform Word 6.0 documents automatically into the HTML format. This approach is depicted in [Figure 5.3](#).

Currently, the Skyway consists of an introductory Skyway [WWW](#) page which can be reached from any Internet Web browser using the [URL](#):

<http://www.mindspring.com/~galaxy/skyway.html>

[Figure 5.4](#) shows this page viewed from MOSAIC running on MS-Windows.

There are two hypertext links. One link takes the user to the Galaxy Scientific homepage; the other, to the *Human Factors Guide*. [Figure 5.5](#) shows the MOSAIC page introducing the *Human Factors Guide*.

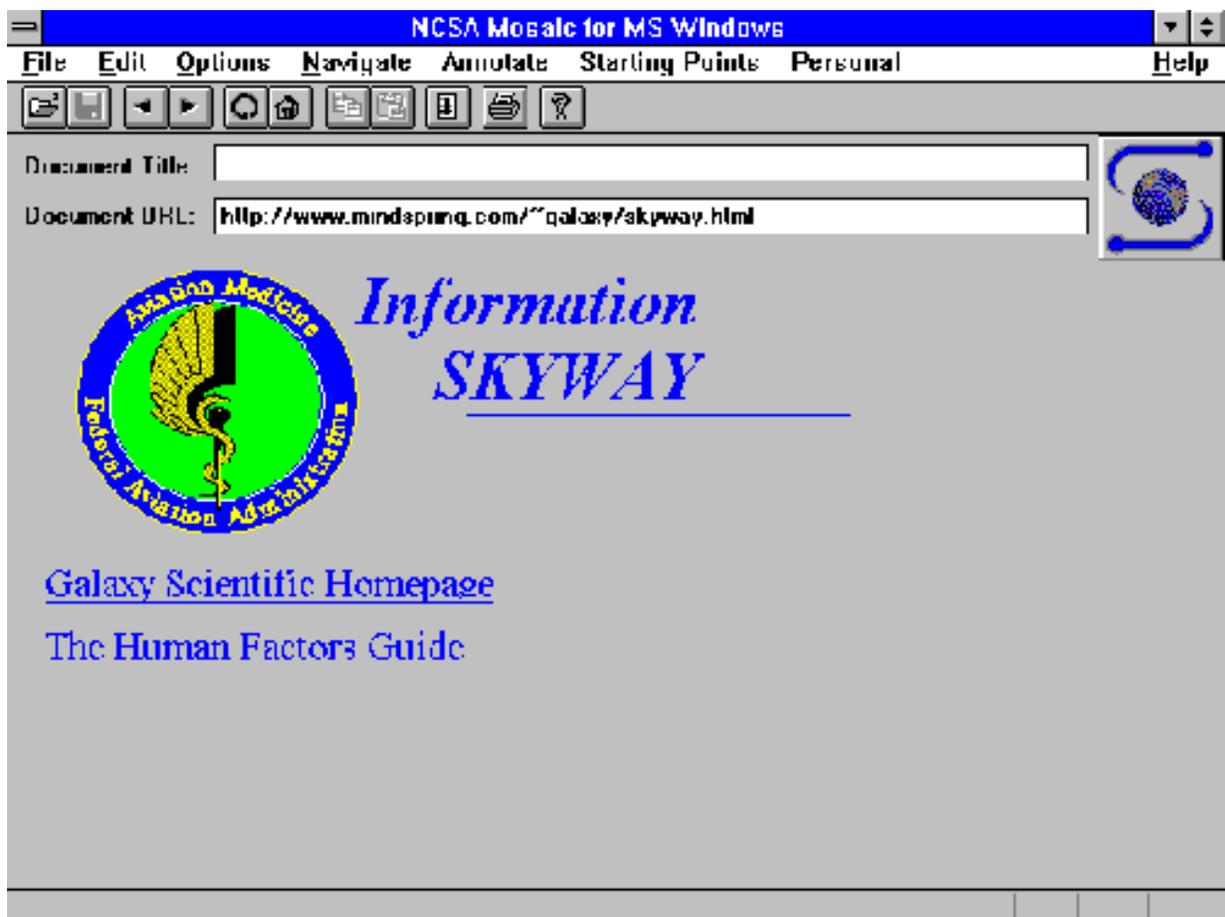


Figure 5.4 Skyway WWW Page as Viewed from MOSAIC Viewer

Only Chapter 1 is present now. The text of Chapter 1 is broken into several subpages for general hypertext organization and to minimize the amount of time a user must wait while information is being downloaded. In addition to the text, chapter figures and tables can be found. For example, [Figure 5.6](#) shows the MOSAIC page containing one particular graphic.

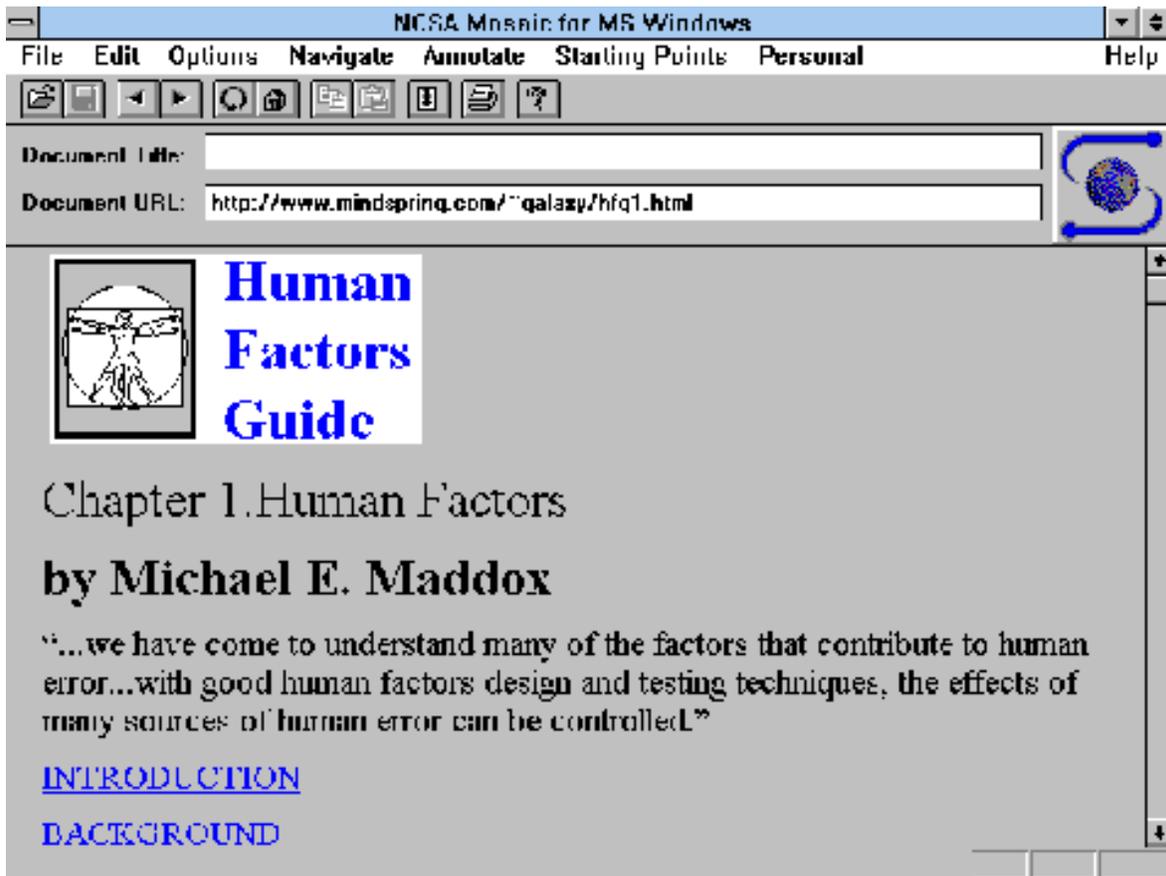


Figure 5.5 Human Factors Guide WWW Page

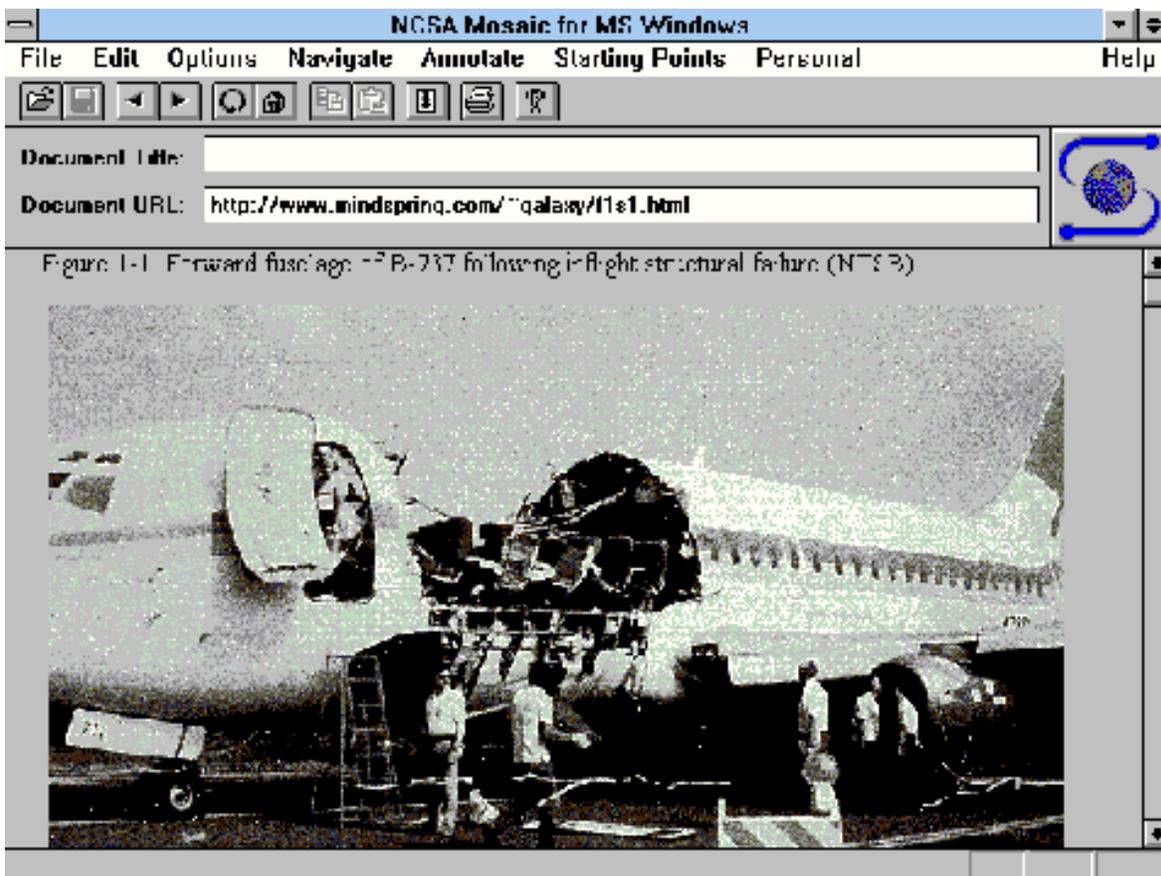


Figure 5.6 Graphic from Chapter 1 of the Human Factors Guide

Encoding Chapter 1 of the *Human Factors Guide* has shown that the [WWW](#) is a viable medium for disseminating information. While many existing WWW pages are quite small, our effort explores issues associated with larger documents. Advantages of WWW publishing include world-wide immediate access, multi-platform support, and instantaneous updates.

5.4 Existing Aviation and Human Factors On-Line Resources

Table 5.2 [FAA](#) Supported Public Access On-Line [BBSs](#)

Name of Service	Phone #
Airports BBS	(202)267-5205
Air Traffic Operations Service BBS	(202)267-5331 (800)446-2777
Air Transport Division BBS	(202)267-5231
Pilot Examiner BBS	(405)954-4530 (800)954-4530
FAA Headquarters BBS	(202)267-5697
Office of Environment & Energy BBS	(202)267-9647
Navigation and Landing BBS	(202)267-6547

Aviation Rulemaking Advisory BBS (202)267-5948

Orlando [FSDO](#) BBS (407)648-6963

(407)648-6309

(800)645-3736

(800)645-FSDO

Portland [MMEL](#) BBS (207)780-3297

Safety Data Exchange BBS (800)426-3814

Aeromedical Forum BBS (202)366-7920

Contel Dual User Access Terminal System (DUATS) (800)767-9989

CompuServe Information Service (CIS) GO AVIATION

We surveyed existing public aviation- and human factors-related sources. While this survey is incomplete, if for no other reason than that these sources change continuously, the results provide a glimpse of the existing electronic landscape and indicate the existing demand in this area. The first area we explored was dial-up Bulletin Board Systems (BBSs), as shown in [Table 5.2](#). We then surveyed existing Aviation/Human Factors Internet-based services, as shown in [Table 5.3](#). Finally, we surveyed Aviation/Human Factors CD-ROM databases, as shown in [Table 5.4](#).

Table 5.3 Aviation/Human Factors Internet-Based Services

Type of Service	Reference	Information Provided
-----------------	-----------	----------------------

WWW	http://www.faa.gov	FAA Home Page
-----	---	---------------

WWW	http://www.dtic.dla.mil/iac/cseriac/iac.html	CSERIAC Home Page
-----	---	-------------------

WWW	<unable to locate at this time>	Embry-Riddle Avion WWW Site
-----	---------------------------------	-----------------------------

WWW	http://www.virtual-airline.co.uk/virtual/ OR http://www.demon.co.uk/virtual/	"The Virtual Airline" "Knowledge and Resources for the Airline Industry."
-----	--	--

WWW	http://www.sonic.net/aso/	Aircraft Shopper On-line
-----	---	--------------------------

WWW	http://www.CdnAir.CA/	Airline: Canadian Air
-----	---	-----------------------

WWW	http://www.iconz.co.nz/airnz/airnz.html	Airline: Air New Zealand
-----	---	--------------------------

WWW	http://www.winternet.com/~tela/nwa-info.html	Airline: Northwest
-----	---	--------------------

WWW	http://www.winternet.com/~tela/nwa.html	Northwest (travel survey)
-----	---	---------------------------

WWW	http://www.seanet.com/Bazar/Aeroflot/Aeroflot.html	Airline: Aeroflot
-----	---	-------------------

Usenet	rec.aviation.....	(hierarchy of many subgroups)
--------	-------------------	-------------------------------

Usenet sci.aeronautics Discussion group for Aeronautics

Usenet sci.aeronautics.airliners Airliner Technology

Mailing lists listserv@cunyvm.cuny.edu Discussion Group for Airline Industry
Message to send: subscribe airline

Table 5.4 Aviation/Human Factors CD-ROM Databases

CD-ROM Summit Aviation Database of [FARs](#), [ACs](#), [ADs](#)

CD-ROM [ATP](#) Database of FARs, [JARs](#), [SBs](#)

CD-ROM [ACS](#) Database of FARs, JARs, SBs

CD-ROM CounterPoint Publishing Database of [CFR](#) and [FR](#)

5.5 Summary and Conclusions

We need more analysis to determine Skyway requirements accurately. This is proceeding. Meanwhile, the [WWW](#) is proving to be a promising delivery vehicle for digital documentation. Purely as a hypermedia delivery system, it works well. Advanced WWW features and other Internet services promise innovative new ways to integrate and engage the Aviation and Human Factors community.

5.6 Future Plans

Once we have received and evaluated more User Needs Surveys and obtained a clearer picture of our user, we will discuss with the [FAA](#) how the Skyway should fit into the overall FAA information plan. Also, we are in the process of implementing the next-generation Skyway node, which will be much more powerful and flexible.

Finally, we are planning the next set of Skyway services including archives, newsletters and more experimental services.

5.7 References

Nejmeh, B.A. (1994). *Internet: A strategic tool for the software enterprise*. Communications of the ACM, Vol. 37, No. 11, pp. 23-27.

Pitkow, J. and Recker, M. (1994). Results from the First World-Wide Web user survey. *Computer Networks and ISDN Systems*, 27, pp. 243-254.

Stefanac, S. (1994). *Multimedia Meets the Internet*. NewMedia, Nov., pp. 56-63.

Chapter 5 - Appendix Draft of User Needs Survey

The "Information Skyway" will be an electronic system for disseminating safety-related information from the Federal Aviation Administration (FAA). This system may also be used to distribute other types of FAA-produced information, such as regulations concerning commercial and general aviation. As the first step in producing this system, Galaxy Scientific Corporation is conducting a survey and designing a proof-of-concept prototype for the FAA. The survey and prototype will be used to determine the feasibility of hosting and maintaining an on-ramp to the Information Superhighway.

Please help design the Information Skyway by filling out this survey. The data from this survey will be used to determine the form and content of an electronic information system being built by the [FAA](#) Office of Aviation Medicine. The information obtained from this survey is confidential, and you do not need to identify yourself.

This survey is designed to be easy to fill out electronically; for multiple choice questions, replace the '_' character with an 'X'. For questions that require text, just type your answer after the question.

After you have filled out this survey, please return it to Galaxy Scientific. E-Mail is preferred, but you can also return it via fax or regular mail.

ATTN: Electronic Information Survey



Galaxy Scientific Corp.

2310 Parklake Drive NE, Suite 325

Atlanta, GA 30345

phone: 404-491-1100

fax: 404-491-0739

email: galaxy@mindspring.com

----- Notice -----

This information collection conforms to legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The information you provide will be used only for statistical purposes and will not be published or released in any form that would reveal specific information reported by an individually identifiable respondent. This questionnaire has been approved by the Office of Management and Budget, and has been given OMB Approval Number 2120-0587.

AGENCY DISPLAY OF ESTIMATED BURDEN:

The public reporting burden for this collection of information is estimated to average five minutes per response. If you wish to comment on the accuracy of the estimate or make suggestions for reducing this burden, please direct your comments to [OMB](#) and the [FAA](#) at the following addresses:

Office of Management and Budget US Department of Transportation

Paperwork Reduction Project Federal Aviation Administration

----- Electronic Information Survey -----

A. INFORMATION NEEDS

1. What types of FAA-produced aviation information do you currently use? (choose all that apply)

- FARs
- Airworthiness Directives
- Guidance materials (Advisory Circulars, etc.)
- Technical publications
- General Aviation Airworthiness Alerts
- Other (please describe below)

2. What FAA-produced information WOULD you use if given easy access?

- Regulations (FARs, Airworthiness Directives, etc.)
- Guidance materials (Advisory Circulars, etc.)
- Technical publications
- General Aviation Airworthiness Alerts
- Human factors information
- Other (please describe below)

3. What non-FAA safety-related aviation information do you currently use? (choose all that apply)

- Service Bulletins
- Government and Commercial Standards (please describe)
- Conference proceedings and magazines
- Informal discussions
- Other (please describe below)

4. What non-FAA safety-related aviation information WOULD you use if given easy access? (choose all that apply)

- Service Bulletins

Government and Commercial Standards (please describe)

Conference proceedings and magazines

Informal discussions

Other (please describe below)

5. What computer data transfer and communications hardware do you have access to?

CD-ROM

Modem

Internet

6. What type of computer(s) do you use?

DOS without Windows

DOS with Windows

Macintosh

UNIX

Mainframe

Other (please describe)

7. What aviation-related electronic resources do you currently use?

FAA bulletin boards

Commercial on-line services (America On-line, CompuServe, etc.)

CD ROM-based Commercial Services (Aircraft Technical Publications, Aviation Compliance Services, Summit Aviation, etc.)

Internet newsgroups and mailing lists

Other (please describe below)

8. Do you take part in any electronic discussion groups related to aviation?

Yes

No

9. If (8) is No, would you take part in any aviation-related electronic discussion groups if you had access?

Yes

No

10. If you are involved in General Aviation, what electronic information resources would you use?

- Flight training material
- Maintenance information
- Aviation medicine
- Accident/incident reports
- Other (please list below)

11. Would you use a computer to submit safety-related information if you had a computer and appropriate software?

- Yes
- No

12. Do you use any of the following PC-based flight simulation software?

- Microsoft Flight Simulator
- IFT-PRO
- AssureSoft
- FS-100 Desktop Cockpit
- Other

B. OTHER COMMENTS

1. Describe what you would like to see in the Information Skyway.
2. What do you like/dislike about existing aviation-related electronic information sources?
3. How would an electronic repository of safety-related aviation information affect your decision making?

C. ABOUT YOURSELF (OPTIONAL)

1. Your main job responsibility:

- Aviation maintenance
- Researcher
- Student
- Pilot

- Document management
- Regulatory
- Management
- Other (please describe below)

2. Sector of your work:

- Part 121 airline
- Part 135 airline
- General aviation
- Military
- Government (other than military)
- Academic
- Other (please describe below)

3. What is your most advanced pilot certificate?

- Student
- Recreational
- Private
- Commercial
- Airline Transport
- Certified Flight Instructor
- None

4. Do you have an instrument rating?

- Yes
- No

5. About how many TOTAL flying hours do you have?

6. Contact information (may be used to gather more information, but will not be disclosed or distributed)

Name:

Address:

City/State/Zip:

Phone:

Email:

Thank you for your cooperation, please return this survey to Galaxy Scientific Corp. via fax or E-Mail.

fax: 404-491-0739

email: galaxy@mindspring.com