Cross-Media Publications and the Editor: The Ocean Drilling Program Experience

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The Ocean Drilling Program (ODP) is an international organization that explores the evolution and structure of Earth. ODP provides researchers around the world with access to a vast repository of geologic information recorded in seafloor sediments and rocks that are collected on six 2-month cruises each year. The Publication Services Department produces the *Proceedings of the Ocean Drilling Program*, a two-part publication series. The *Initial Reports* volume that is produced for each cruise contains a thorough record of cruise objectives and summarizes the cruise results; the *Scientific Results* volume documents postcruise research results.

In 1999 ODP changed the *Proceedings* publication format from casebound, archive-quality books to electronic formats for CD-ROM and the Web. This change was mandated to reduce the department's budget by $500,000, or 25%, and to broaden publication distribution. Directives were issued to publish short-form booklets containing a summary chapter and an accompanying CD-ROM containing the complete volume in PDF. Our staff took the initiative to make PDF and HTML versions of the volumes available on the Web. Unlike journals that replicate their print products on the Web, ODP redesigned the *Proceedings* to maximize its functionality as both an electronic and a print publication. Our editors were involved in this process, which also led to editorial style changes and challenges.

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New Design

The original printed *Proceedings* volumes averaged 800 pages and were produced with a traditional journal layout. The new-format volumes consist of a spiralbound hardcover printed booklet that contains the volume table of contents, a summary chapter, a user guide, and a CD-ROM. The CD-ROM contains all volume contents as PDF and/or ASCII files and any supplemental data sets that authors choose to publish. The entire volume content is also available on the Web (*www-odp.tamu.edu/publications/*) in PDF and HTML.

The cover design, front matter, layout of the table of contents and chapters, fonts, and pagination style were all updated. The page layout was changed from a two-column design using 9-point type to a design with one wide column (28 picas) containing the text and one narrow column (12 picas) containing abbreviated table and figure captions. Thumbnail versions of figures and plates are placed in the narrow column adjacent to the first callout in the text. Full-sized figures and tables appear after the references. The body and caption typeface is 10-point Stone Serif, and the table typeface is 7-point Stone Sans. Only the printed version of the first chapter is set with right- and left-hand pages. In the PDF version, all pages are set as right-hand pages with a deep left margin so that chapters can be printed and placed in a binder; each chapter begins with page 1. Authors are encouraged to publish color figures and plates, three-dimensional images, movies, and so on. Large tables can be produced in ASCII and linked from the PDF or HTML text. ODP does not limit the number of tables, figures, or plates that can be included in a chapter.

The electronic versions of the volumes include hypertext links and cross references, and some materials that were traditionally featured in print are now available in multiple digital formats. PDF bookmarks and fixed HTML frames with links to all chapter and volume components make navigation easy. Text references to tables, figures, plates, and other text sections link to the referenced materials, and e-mail addresses are linked to browser-generated e-mail dialogue boxes. Maps recording the drilling locations from past ODP cruises that were traditionally printed on the endsheets of the printed volumes are now presented in PDF on the CD-ROM and are provided in PDF, GIF, EPS, GMT, and ArcView on the Web.

The publication, production, and proofreading processes were all updated. ODP began publishing *Scientific Results* manuscripts in order of acceptance; this led to quicker publishing turnaround for peer-reviewed manuscripts (88% of *Scientific Results* papers are now published before the historical publication date of 4 years after a cruise). Once a paper has gone through peer review and been accepted, it is published on the Web in HTML format and PDF. Each chapter has an individual publication date. Four years after a cruise, the *Scientific Results* booklet containing a synthesis chapter from the cruise is printed and distributed with a CD-ROM that contains PDF versions of all the chapters that have been published on the Web.

The migration to electronic publication has added a host of steps to the volume production process. Our editors now tag hypertext links, insert cross references, and develop conditional text (text that differs between versions of a document) for the three formats of the publication while they are editing in FrameMaker. Production editors activate cross references and hypertext links, generate postscript files, produce CD-ROMs, prepare PDF files for the Web, and create HTML versions of each volume. Graphic designers produce figures in multiple formats for CD-ROM and Web versions of the publications.

Proofreading procedures have changed

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dramatically. In addition to the standard checks at galley-proof, page-proof, slick, blueline, and F&G stages, staff members check the destination of every link and bookmark in PDF files, proofread bookmarks for content and spelling, proofread article threads, check default page magnifications, and check the document information associated with each file on three platforms (PC, Macintosh, and UNIX). Editors check that the correct conditional text is used in each version of a chapter. CD-ROMs are checked before and after the master disk is burned, and the final CD-ROM product is spot-checked before distribution. For Web publications, all HTML and PDF files are read in house and reviewed by authors before publication to verify that links work, symbols converted correctly, no text was dropped, and so forth.

Challenging Editorial Issues

One of the most useful features of the electronic publication medium is the ability to link to related resources. Providing links from callouts to figures and tables, from one chapter to another, and to e-mail addresses was straightforward. However, other issues related to the structure and style of the new publication formats took more thought. This section highlights a few of the issues that ODP grappled with during the development of the new products.

Archive Publication Formats: What is the "archive" version of a publication once archive-quality bound books are no longer produced? When ODP began more than 15 years ago, the program's archive plan included precise specifications that required the *Proceedings* to be printed according to archive standards (bound volumes that would last 100 years). Unfortunately, an archive plan was not devised for the electronic publications as part of the new mandate.

Today, the CD-ROM is considered to be the so-called archive version of the *Proceedings* volumes. All volume materials must be produced in PDF, ASCII, or QuickTime, and free viewing software for
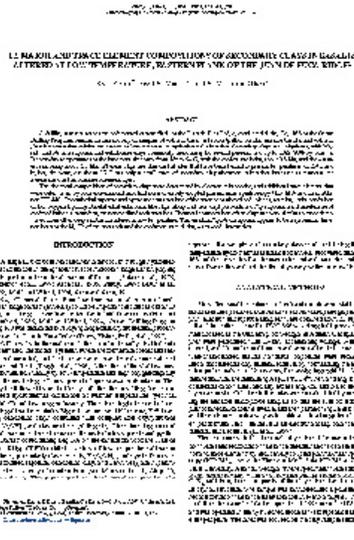
Old-style first page

New-style first page

Adobe Acrobat and QuickTime files is provided on each CD-ROM. That ensures that each volume will be viewable as long as computer hardware is compatible or as long as the CD-ROM disks remain functional. Material that must be viewed with proprietary software programs may be included on *Proceedings* CD-ROMs but must be listed as "supplementary material". In such cases the editor adds a publisher's note that states that supplemental data were provided by the authors and might not conform to ODP publication formats.

ODP drilling cruises will end in October 2003. During the final years of publication production, ODP will ensure that complete sets of the ODP volumes (print, booklet, or CD-ROM format) are placed at archive sites throughout the United States and in other ODP member countries (for example, the Library of Congress, specific academic geoscience libraries, and the National Geophysical Data Center). ODP stores four microform copies (two microfiche and two microfilm) of all *Proceedings* chapters. One set of copies is kept at ODP with a microfiche reader, and the other set is stored in a vault off site. The microform copies will be housed in a secure institution after the program ends. This archive plan is certainly more tenuous than the guarantee that books will last

100 years. The program's long-term goal is to house all digital *Proceedings* volumes in a Web-accessible digital library committed to migrating the volume files into new formats by the time the last *Proceedings* volume is published in 2007.

Citation Style: Is a manuscript published in different media the same publication? The first new-format *Scientific Results* chapter was published on the Web on 15 April 2000. The corresponding booklet and CD-ROM were produced in August 2000 and distributed in October 2000. Originally, the Publication Services Department envisioned that the *Scientific Results* papers that had been published on the Web would be "reprinted" on the CD-ROM in PDF. However, after much deliberation, we decided that the papers on the CD-ROM should not be classified as reprints. Every version of a paper is given its own citation (print, CD-ROM, Web PDF, and Web HTML). There were two reasons behind this decision. First, the Library of Congress designates print, CD-ROM, and Web publication formats as separate publications (with individual ISSN numbers). Second, the Web and CD-ROM versions of a volume are sometimes published in different years.

Errata and Updates: Should publications be modified or updated after initial publication on the Web? How should errata be handled for CD-ROM and Web publications? The Publication Services Department has instituted a "Chapter Notes" section for documenting the correction of errors and other changes, such as citation updates and author notes. When corrections or updates are made in a chapter, a text link is added that goes to the "Chapter Notes" section of the chapter. Each note documents what was changed and when the change was made.

This system provides a way to document corrections or updates that are made in a paper after publication. Our editors correct any errors that do not affect scientific interpretation. However, any other revisions require scientific review and approval by the Editorial Review Board, which is responsible for a volume's scientific content. Chapter notes are also a useful way of updating citations during the 2½-year period when papers are being published individually as part of a *Scientific Results* volume. By the time a volume is complete and the booklet or CD-ROM is produced 4 years after a cruise, references in older chapters could be out of date.

The following examples illustrate the style used in the "Chapter Notes" section:

N1. 19 March 2001—After this chapter was published, it was found that the photograph of *Calocycletta (Calocycletta) virginis* Haeckel was inverted. The correct image appears in this version.

N1. 5 November 2001—The URL listed in the Michael, P.J., 1999, reference has changed since it was cited by the author. The article can be found at <http: //g-cubed .org/gc2000/1999GC000025/ fs1999GC000025.html>.

At this time most "Chapter Notes" sections only contain one entry; however, this system was designed to allow additional notes to be added to any manuscript after publication. The examples below illustrate chapter notes that evolved after the papers

Old-style page with figure and table

were published:

N1. Dupont, L.M., Donner, B., Schneider, R., and Wefer R., submitted. Mid-Pleistocene environmental change in tropical Africa began as early as 1.05 Ma. *Geology.*

8 January 2002—Dupont, L.M., Donner, B., Schneider, R., and Wefer R., 2001. Mid-Pleistocene environmental change in tropical Africa began as early as 1.05 Ma. *Geology,* 29:195-198.

N1. 1 June 2001—Moerz et al. (in press, this volume) present a velocity analysis at the Site 1103 location that is based on sonic logging. The seismic velocity analyses presented in this report and in that of Moerz and co-authors have a degree of overlap that is not discussed in either paper. We suggest that the interested reader take into consideration both papers for a complete understanding of the velocity structure at Site 1103.

29 January 2002—Moerz et al. (this volume) was published on 28 November 2001.

The main benefit of the chapter-note system is that notes are tied to each

New-style page with thumbnail column and links to figures and tables

individual chapter. One obvious disadvantage is that when a chapter-note page is added after a chapter's publication, the pagination of the paper changes in PDF publications. We decided to allow this because ODP's citation style includes the day, month, and year when a chapter was accessed on the Web, and all annotations are dated, so there is sufficient documentation for the reader.

Reference List Links: Should links be made from reference lists in Web publications to other publications that are available on the Web? ODP provides links to other *Proceedings* publications that are available on the Web. However, the issue of whether to link to non-*Proceedings* papers is tougher. Including links to as many papers as possible makes an article more functional for the reader but entails many potential problems. URLs change, so there is no assurance that a link will always work.

Is it the publisher's responsibility to verify all URLs? If so, when should this be done—when the paper is being edited or just before it is published? Many electronic journals are subscription-based and require member passwords. Some electronic journals will not grant other publishers permis-

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sion to link directly to papers. What should ODP do if the editor identifies a URL that does not work? Is ODP responsible for searching out the correct URL and adding it to the paper? Does this process require the author's permission?

After much deliberation, the department staff decided to follow these guidelines: We provide links to URLs included in any peer-reviewed papers. The editor checks all URLs during editing. If a URL is faulty, the editor attempts to identify an accurate URL on the Web or queries the author. If a change is required, the original URL is retained in the reference list and the new URL is added as a chapter note.

Publication Format–Specific Text: How should publication format–specific text be handled in cross-medium products? Although the ODP editors try to use generic wording whenever possible, format-specific text must sometimes be used in *Proceedings* publications. Conditional text is used in such cases. For example, the chapter and volume citation styles vary for each publication format (such as Web HTML and Web PDF). Therefore, different versions of the chapter citations must be created by the editor and activated by the production editor at the appropriate stage of publication.

Summary

Our department fulfilled its mandate to reduce the publishing budget while increasing volume functionality and distribution.

Although some authors still prefer bound volumes to cross-medium publications, ODP authors recognize that electronic publications contain many useful features, such as high-speed search capability, that are unavailable in bound volumes. In addition, CD-ROM and Web-based publications enable cost-effective, worldwide distribution of scientific literature. Paleontologists have taken advantage of the ability to publish high-resolution color plates, and petrologists have heralded the opportunity to include large ASCII data sets with their publications. Having the volumes available in a variety of electronic formats increased the functionality of these scientific publications. Electronic volumes are superior for copying data tables and figures, searching volume text, viewing color core-photograph images and figures, and linking to other program-related resources and data. Access to the volumes online provides readers with Web access to both HTML and PDF versions for either on-screen or paper reading. About 35,000 readers accessed the *Proceedings* volumes online during the last year, which is much higher readership than could be reached by distributing some 1000 booklets and CD-ROMs per volume.
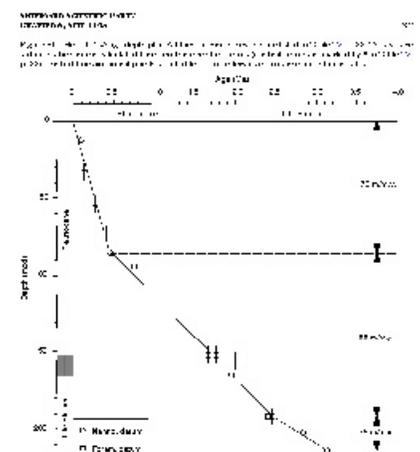
Although Publication Services staff members experienced growing pains during the development of the new products, they enjoyed the challenge. Now that producing the new products is a routine part of their duties, they are focusing on refining

New-style table

New-style figure

the publications as new software features become available.