

IODP Publications Editorial Style Guide

February 2012

IODP style resources

Primary resources

- General editorial (compound modifiers, capitalization, punctuation, etc.): *The Chicago Manual of Style* (16th edition [CMS16]).
- Spelling and usage: Merriam Webster's *Collegiate Dictionary* (11th edition).
- Geographic terms: Merriam Webster's *Geographical Dictionary* (3rd edition).
- Geological descriptors and terms: *IODP Dictionary* (iodp.tamu.edu/publications/resources/IODP_dictionary.pdf); *Glossary of Geology* (5th edition [GOG5]).
- Undersea features (spelling and capitalization): 2010 GEBCO Gazetteer of Undersea Features (www.gebco.net/data_and_products/undersea_feature_names/)
- Micropaleontological genus/species (spelling): Janus Paleo Database (iodp.tamu.edu/database/paleo/)

Secondary resources

- *Scientific Style and Format*, Council of Science Editors (7th edition [CSE7])
- *Suggestions to Authors of the Reports of the United States Geological Survey* (7th edition [STA7]) (www.nwrc.usgs.gov/lib/lib_sta.htm)
- *Stratigraphic Guide*, International Commission on Stratigraphy (ICS) ([www.stratigraphy.org/column.php?id=Stratigraphic Guide](http://www.stratigraphy.org/column.php?id=Stratigraphic%20Guide))

Additional resources

- American Chemical Society *Style Guide* (2nd edition [ACS2])
- American Medical Association *Manual of Style* (9th edition [AMA9])
- *Publication Manual* of the American Psychological Association (5th edition [APA5])
- U.S. Government Publishing Office *Style Guide* (2000 [GPO2000])

General IODP editorial guidelines

American English

Change British spellings to American (use the first entry in Merriam Webster's *Collegiate Dictionary*). Some common British/American English differences include the following types of words (CSE7:6.1):

- ize/yse (analyze vs. analyse)
- l/ll (fulfill vs. fulfil)
- ction/xion (connection vs. connexion)
- er/re (center vs. centre)
- or/our (color vs. colour)
- ense/ence (offense vs. offence)
- log/logue (analog vs. analogue)
- en/in (enclose vs. inclose)
- Diagraphs (paleontology vs. palaeontology)
- Simpler forms (sulfur vs. sulphur)
- Words derived from words ending with "e" (acknowledgment vs. acknowledgement)
- Doubled consonants (labeled vs. labelled)

Global English

Keep global writers/readers in mind while editing text. They may have problems with the following in English (CSE7:7.10):

- Preposition selection
- Position of the verb in the sentence
- Progressive verb tenses
- Phrasal verbs and idioms
- Incorrect use/omission of articles
- Gender carryover on nouns
- Literal translations

Acronyms and abbreviations

General guidelines

- The following acronyms may be used without definition (listed as main entries in Webster's with pronunciation; CMS16:10.3):

3-D	ATP	CD-ROM	DNA
DVD	EDTA	GPS	HTML
JPEG	GIF	laser	NASA
RAM	RNA	rRNA	ROM

- Less familiar abbreviations should be limited to terms that occur frequently enough to warrant abbreviation (~5 times or more within a chapter) (CMS16:10.3).
- Define content-specific acronyms at first usage by file (section) (e.g., define/redefine GRA in the "Physical properties" section. Other nonspecific acronyms (e.g., DSDP/ODP/IODP) should only be defined at first usage in a chapter.
- In running text, spell out United States as a noun; reserve U.S. for the adjective form (where the abbreviation is preferred) (CMS16:10.33).
- Compass points should be spelled out in formal text (CMS16:10.36). Lowercase should be used.
- The words "latitude" and "longitude" are never abbreviated in text or when standing alone (CMS16:10.37).
- When space restrictions require the names of months be abbreviated (i.e., operations tables), use the first 3 letters with no period (CMS16:10.40): Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.
- Time zones are given in parenthesis after a time (CMS16:10.42): 0015 h (UTC).
- Define in each table note acronyms that are used in the table headers or body.
- Define in each figure caption acronyms that are used in the figure.
- With the variety of platforms used in IODP, retain the platform definition (R/V, D/V, D/P, etc.) upon first introduction of the vessel name in each chapter or report. Italicize the vessel name but not the platform definition (CMS16:8.115):

R/V *JOIDES Resolution*

D/V *Chikyu*

Additional guidance

- Common IODP acronyms/abbreviations: *IODP Dictionary*.
- Program acronyms/abbreviations: “**Appendix A.**”
- Scholarly abbreviations: CMS16:10.43.
- Technology/scientific abbreviations: CMS16:10.52.
- SI unit prefix abbreviations: CMS16:10.57.
- Chemical element symbols/abbreviations: CMS16:10.66.
- U.S. 2-digit postal codes: CMS16:10.28.
- Canadian 2-digit postal codes: CMS16:10.29.

Sample identifiers

Complete sample identifiers should be used whenever possible in text, tables, figures, and captions.

What is a sample identifier?

A full sample identifier for an IODP sample includes the following, in order: Expedition, Site, Hole, Core, Core type, Section, Section half, Piece number (for some hard rock cores), and Interval. The section half is primarily specified only for reported data. Examples of full IODP sample identifiers:

319-C0009A-9R-1W, 5–7 cm.

324-U1356A-5R-3 (Piece 1, 0–10 cm)

- **Expedition:** official expedition number, which for IODP is a 300-series number)
- **Site:** sites are numbered in the order they are drilled for each drilling platform:

→*JOIDES Resolution* site numbers are prefaced with “U” (USIO):

Site U1362

→*Chikyu* site numbers are prefaced with “C” (CDEX):

Site C0002

→ESO site numbers are prefaced with “M” (mission-specific platform):

Site M0025

- **Hole:** each new hole drilled at a site is given a new letter, starting with “A”
- **Core:** each ~9.5 m core collected is given a number, starting with “1” at the top of the hole.
- **Core type:** type specifies which coring tool was used to collect the core or if there was no core retrieved:
 - H: advanced piston corer
 - X: extended core barrel
 - R: rotary core barrel
 - 1: drilled interval; no core retrieved
- **Section:** each core is cut into 1.5 m long sections for easier handling in the laboratory, numbered starting with “1” at the top of each core.
- **Section half:** each section is split lengthwise into two halves:
 - A: archive half (nondestructive tests; generally track measurements use “A”; photographs are taken from the archive half but the half designation does not need to be included in the photo interval ID)
 - W: working half (samples are taken from the core; generally all laboratory tests use “W”)
 - WR: whole-round sample (taken from the section before splitting; generally interstitial water and microbiology samples use “WR”).
- **Piece:** for some hard rock cores, pieces of the core are numbered sequentially from the top of the core. Piece numbers are not always used for all hard rock cores.
- **Interval** or offset from top of section: an interval represents a length of material that was collected from the section, the top and bottom of which are given in centimeters measured from the top of a section. An offset represents the distance from the top of the section at which a point measurement was taken (a measurement taken at a single spot on the core rather than on a collected sample from the core).

How to use sample identifiers

- Data value reporting: full sample identifier including core type, section half type or whole round, and interval in section or offset from top of section:

Sample 313-M0028A-16R-1A, 15 cm

- Core photographs: full sample identifier including interval photographed:

interval 330-U1375A-15X-6, 25–105 cm).

- Photomicrographs: full sample identifier including interval taken to make the thin section

Sample 329-U1368B-4R-2, 0–2 cm

- Biostratigraphy results: micropaleontological testing is generally performed on the core catcher samples, so results may be reported as a section (with the assumption that the sample came from the core catcher that accompanied that section:

Section 324-U1352A-5H-6

or as a sample without a section half or interval indication because the core catcher material is neither split nor measured from top to bottom:

Sample 324-U1352A-5H-6, CC

- Discussions of specific cores include Expedition, Site, Hole, Core, and Core type:

Core 325-M0051A-5R

- Sites and holes can be referenced without an accompanying expedition number:

Site U1353

Hole C0004A

Guidelines

- Add “Site,” “Hole,” “Core,” “Section,” or “Sample” before a sample identifier whenever possible in text and figures for clarity. Table headers by convention show “Core, section, interval (cm)” or an appropriate subset of this header for sample identifiers. See “**Headers**” in the “Tables” section.
- The first time a core, section, interval, or sample is mentioned in a paragraph, include the complete identifier:

Section 323-U1348B-5H-1

Subsequent references in that paragraph can drop Expedition, Site, and Hole:

Section 5H-1; Core 5H

- If the discussion is within a text section whose heading is a hole name, Expedition, Site, and Hole can be omitted from identifiers within that section.

Capitalization

Do capitalize

- “Leg,” “Site,” “Hole,” “Core,” “Section,” “Piece,” and “Sample” (but not “interval”) when preceding a number or identifier.
- “Expedition” when it is an official part of the expedition name, but not when it is a generic term:

Wilkes Land Expedition

FY10 expeditions

- Designations that precede a letter or numeral:

Anomaly M1

seismic Line 2

lithologic Unit IV

- Names of water masses (en.wikipedia.org/wiki/Water_mass/):

Antarctic Bottom Water

Circumpolar Deep Water

Antarctic Intermediate Water

North Atlantic Deep Water

Subantarctic Mode Water

Gulf Stream

- Formally named undersea features in which the word is part of the geographic name (www.gebco.net/data_and_products/undersea_feature_names/):

Abyssal Plain	Bank(s)	Basin	Borderland	Caldera	Canyon
Cap	Channel	Cone	Deep	Drift	Discordance
Escarpment	Fan	Fracture Zone	Gap	Gateway	Guyot
Hill(s)	Hole	Knoll	Levee	Mountains	Nose
Passage	Peak	Plain	Plateau	Promontory	Province
Reef(s)	Ridge	Rise	Saddle	Seachannel	Seamount
Shoal(s)	Sill	Spur	Strait	Tablemont	Terrace
Trench	Trough	Valley	Volcano		

- Formally named geographic locations and/or features (*Webster's Geographic Dictionary*):

Cape	Desert	Equator	Falls
Great Divide	Island	Lake	Mount
Northern Hemisphere	Peak	Peninsula	Point
Southern Hemisphere	North Pole	Mountains	Earth

- Formal geochronologic (eon, era, period, epoch, stage)/chronostratigraphic (eonothem, erathem, system, series, age) divisions (ICS:9; CMS16:8.134):

Cenozoic	Mesozoic	Paleozoic	Jurassic
Cretaceous	Paleogene	Neogene	Paleocene
Eocene	Oligocene	Miocene	Pliocene
Pleistocene	Holocene	Quaternary	

- Formally defined geological periods or events:

Laschamp Event	Greenhouse Earth	Ice Age
Last Glacial Maximum	ocean anoxic Event 2a	Younger/Dryas Event
Icehouse Earth	marine isotope Stage 5	Heinrich Event
Paleocene/Eocene Thermal Maximum		Laschamp Event

- Formally defined lithostratigraphic units (ICS5; STA7):

Group	Formation	Member
Bed	Flow	

- Formal magnetostratigraphic polarity units (ICS:8, 3B):

Chron C2n	Subchron C2n.1
Gauss Chron	Jaramillo Subchron

- Lower/middle/upper or early/middle/late for formally defined rock-stratigraphic, time-stratigraphic, or time units (CMS16:8.134/135; ICS:3-5a, STA7).

At this time, only the Cretaceous and Jurassic have formal divisions:

Early/Upper Cretaceous	Late/Lower Cretaceous	
Early/Upper Jurassic	Middle Jurassic	Late/Lower Jurassic

- Supragenus names (Domain, Kingdom, Phylum, Class, Subclass, Order, Suborder, Family, and Subfamily) and genus names *but not* species names (CMS16:8.119/125). See “**Appendix E**” for other taxonomic guidelines.

- Formally defined biostratigraphic units/zones (ICS:7):

Paralia sulcata Zone

Zone NN12

- Common nouns when an essential part of a proper name or list of names (CMS16:8.52):

Pacific Basin

Atlantic Ocean

Atlantic, Pacific, and Indian Oceans

- Each component of a compound word in titles or headings (CMS16:8.159):

Half-Life measurements

Core-Log integration

- A proper noun preceded by a hyphenated prefix (CMS16:7.85):

mid-Cretaceous

sub-Saharan

- The first word of each element of a list, regardless of punctuation.
- “Figure,” “Table,” “Plate,” “Movie,” and “Equation” when followed by a number or letter.
- IODP titles of persons even when used without personal names:

Co-Chief Scientist
Curator

Staff Scientist
Core Technician

Expedition Project Manager
Marine Laboratory Specialist

- Trademark names, if they must be used (www.inta.org/).

Preference is to substitute a generic term (CSE7:9.7.7). See “**Brand names/trademarks.**”

- The word “Internet” (CMS16:7.76).

Do NOT capitalize

- Structural features, even when preceded by a proper name:

anticline
forearc
pipe

arc
island arc
syncline

continental shelf
nappe
aquifer

fault
plate

- Informal stratigraphic terminology (ICS:3-5b):

assemblage
layer
deposit

bed
sequence
dike

facies
unit
sill

flow
strata
pluton

- Modifiers early/middle/late or upper/middle/lower unless formally defined as a division by the International Commission on Stratigraphy (ICS).
- Species and subspecies names (CMS16:8.119).

- English derivatives from Latin taxonomic names (CSE7:8.126):

discoasterids

ostracod

- Names of informal lithostratigraphic units (ICS:5).
- Proper names used as measurement units:

faraday
tesla

newton
watt

pascal

- Laws/theories (CMS16:8.147):

Boyle's law

- Names of chemical elements and compounds when spelled out (CMS16:8.148):

carbon

nitrogen

chlorine

- The generic term “web” when used alone or with other generic terms (CMS16:7.76).

Hyphenation and compounding

The decision whether to spell a compound term as open (two words), hyphenate, or close up as a single word is determined by its grammatical function and position in a sentence (CMS16:7.77). Note that over time commonly used hyphenated terms tend to become closed, and hyphenation practices in Program publications may evolve.

- Check the IODP Open Compound List (“**Appendix B**”) to avoid unnecessary hyphenation of unambiguous science and engineering terms used in the IODP *Proceedings*.
- Consult the *IODP Dictionary* and *Webster's Collegiate Dictionary* as primary resources for hyphenation guidance. Chicago allows exceptions to Webster's when closed spellings have become widely preferred by writers (e.g., website) (CMS16:7.79).
- Chicago prefers spare hyphenation; however, when in doubt, it is never incorrect to hyphenate adjectival compounds before a noun (CMS16:7.81, 7.85).

- For a list of compound hyphenation based on grammatical function and sentence position, see CMS16:7.85. Note the following guidelines:

→Chemical elemental and molecular names; always open:

Fe oxides

Mg carbonate

→Colors; hyphenated before a noun but not after:

reddish-brown oxidation

yellow-green clay

→Foreign phrases; open unless hyphenated in original language.

→Number + abbreviation; always open:

33 m length

→Number + noun; hyphenated before a noun:

a 250-page book

→Noun + enumerator/number; always open:

size 12 slacks

→Adverbs (more, most, less, least, very); usually open.

→Use an en-dash to connect a one-word noun to a two-word, unhyphenated noun in a compound adjective:

stable isotope–tagged sample

SYBR Green I–stained smear slide

→Use an en-dash to connect a hyphenated unit modifier to a one-word modifier, all of which form a compound adjective that modifies a noun:

strike-slip–driven structure

→Use an en-dash to connect two hyphenated modifiers used as a compound adjective:

logging-derived–density-calculated porosity

→Use an en-dash to indicate an interval between two periods of time:

Paleozoic–Paleocene

- For a list of compound hyphenation based on specific terminology, see CMS16:7.85.

- For a list of compound hyphenation based on prefixes, see CMS16:7.85 and CSE7:6.2.1.1. The following prefixes are generally closed up in a compound:

aero	after	ante	anti
auto	bi	bio	chemo
co	counter	cyber	de
di	electro	exo	extra
geo	hemi	hemo	hyper
hypo	infra	inter	intra
iso	macro	mega	meta
micro	mid	milli	mini
milti	neo	non	over
para	photo	physio	poly
post	pre	pro	proto
pseudo	re	semi	stereo
sub	super	supra	trans
tri	ultra	un	under

- When in doubt, close up the prefix (CSE7:6.2.1.1).
- Compounds formed with suffixes are almost always closed (CMS16:7.85).
- No hyphen is used with the following suffixes to form a noun (CSE7:6.2.2.2):

away	down	in	like
off	out	over	up

- For guidance on hyphenated line endings, see **“Line endings.”**

Dates

- Dates should normally include the year only at first use under each Order1 heading.
- Within the “Operations” section of expedition summary chapters, dates should include the year at first use in each site section.
- Dates follow the format XX Month YEAR (CMS16:9.36):

12 August 2005.

→Two days within the same month (XX and XX Month YEAR):

14 and 15 August 2005

→Time extending 3 or more days within the same month (XX–XX Month YEAR):

12–15 August 2005

→Time extending across 2 months (XX Month–XX Month YEAR):

2 September–4 November 2005

→Time extending across 2 calendar years (XX Month YEAR–XX Month YEAR):

12 December 2005–5 February 2006

→Day and month only (no year) (XX Month):

5 October

Stratigraphic terms

The International Commission on Stratigraphy (ICS) draws a clear theoretical distinction between types of stratigraphic units (ICS:10):

- **Lithostratigraphic** units are based on the lithologic character of rocks/sediments.
 - Lithostratigraphic units were formed during a specific interval of geologic time.
 - Lithologic units are not constrained by time, as rock types/lithologies can be repeated in the stratigraphic record over time.
- **Biostratigraphic** units are based on the fossil content of the rocks, which show evolutionary changes through geologic time that are not repeated in the stratigraphic record.
- **Magnetostratigraphic** units are based on a directly determinable property of the rocks, magnetic polarity, and are potentially recognizable globally. Magnetic reversals may narrow down (but cannot exactly define) a time period.
- **Chronostratigraphic** units encompass all rocks formed within certain time spans of Earth history, regardless of composition or properties.
- “Early,” “middle,” and “late” refer to geologic time and/or age:
 - the late Eocene
 - Early Cretaceous age
- “Upper,” “middle,” and “lower” describe location in the stratigraphic column:
 - Upper Cretaceous sediments
 - lower Eocene sequence
 - lower Zone NN15.

Grammar

Collective/Mass nouns

Mass nouns denote something uncountable because it is abstract or it is an indeterminate aggregation (collective noun).

- A mass noun can take a singular or plural verb form. The singular verb emphasizes the group, whereas a plural verb emphasizes the individual members of the group (CMS16:5.8).

In total, 15 m of sediment was collected.

A total of 15 samples were analyzed.

- When the mass noun is followed by a prepositional phrase (CMS16:5.9):
→If a definite article (the) precedes the noun, the mass noun controls and takes a singular verb:

The number of tests run in the lab was 265.

- If “a” or “an” precedes the noun, then the number of the noun in the prepositional phrase controls (may be singular or plural):

A large number of tests were run in the lab.

Taxonomic usage

In IODP volumes, three formal taxonomic designations are often used: Ostracoda, Foraminifera, and Bacteria. Capitalization and construction of these designations differs depending on whether the author is speaking of the formal taxonomic group or speaking informally of one or several species. See “**Appendix E**” for other taxonomic usage details.

- Formal:

Ostracoda (Class)

Foraminifera (Phylum)

Bacteria (Domain and Kingdom)

- Informal:

ostracod(s) (not ostracode[s])

foraminifer(s), foraminiferal as the adjective

bacteria

Verb tenses

In general, procedures that took place during the expedition are described in past tense. Observations and data results from the expedition and theories or facts that are considered to be general truths are described in present tense. Procedures/data performed/generated at some undefined time in the past are described in present perfect tense.

- Shipboard procedures (e.g., methods): simple past tense (CMS16:5.124)

A 5 mL aliquot of interstitial water was analyzed for heavy metals.

We preserved microbiology samples for shore-based analyses.

- Results, observations, and statements of fact: present tense (CMS16:5.123)

Section 328-U1363A-2H-2 contains *E. huxlei*.

Ba reaches a maximum at 57.25 mbsf.

Organic carbon is calculated from TOC and IC.

- Discussion and conclusions: present tense or simple past tense, subject to consistency throughout the section (CMS16:123, 124)

These data indicate(d) that barium does not mobilize in the sediments.

We place(d) the Zone NN11/NN12 boundary in Core 52X.

- Other work or experimental results that were performed at specific time in the past: past tense (CMS16:5.124)

Howe et al. analyzed samples from Site 1134 and reported the results in Volume 128.

Blum et al. developed shipboard methods for physical properties.

- Actions that took place at an indefinite time in the past or continues to the present: present perfect tense (CMA16:5.126)

Several investigators have observed the same result.

To present, 150 expeditions have been conducted using the *JOIDES Resolution*.

Punctuation

Tagging and placement

The traditional system of using the same font style (italics, bold, color) for punctuation as the immediately preceding character should be reserved—if it must be used—for publications destined for print only (CMS16:6.4).

- Punctuation marks should appear in the same font style as the main or surrounding text rather than the immediately preceding text (CMS16:6.2).
- Punctuation marks following bold or colored text should be dealt with case by case, depending on how the bold/color is used in the sentence and if it is part of the bold/color (CMS16:6.3). See **“Text callouts and citations”** for specific instructions for color in hyperlinks.
- Colons and semicolons follow closing quotation marks, as do question marks and exclamation points unless they belong within quoted matter (CMS16:6.10).
- The en-dash is sometimes used as a minus sign, but minus signs and en-dashes are distinct characters: U+2212 and U+2013, respectively (CMS16:6.81).
- Use brackets within parenthesis in text, although British style is to embed sets of parenthesis. (CMS16:6.95):

Most intervals contain sections of green-yellow clays (clays in the third interval [12.54–13.87 mbsf] are reddish-brown) and have similar...

Specialized uses of punctuation in technical publications

- Period on the line (CSE7:5.2.1.2)

→Decimal point:

10.7 kg

→Chemical ring size:

bicyclo[2.2.2]octane

- Period raised above the line (CSE7:5.2.1.3)

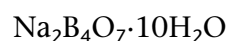
→Multiplication symbol:

$$x \cdot y = z$$

→Ellipses in mathematical expression:

$$x_1 + x_2 + \cdots x_n$$

→Chemical formulas:



- Question mark (CSE7:5.2.2)

→To indicate uncertainty:

Emiliana? huxlei

- Colon (CSE7:5.3.1.2)

→To demarcate elements in references:

4(1):125–127

→To separate parts of a ratio:

1:5 ratio

→Time datums:

234515 h

→Chemical names:

2,3:4,5-bis-O-(phenylmethylene)-altro-hexodialdose

- Comma (CSE7:5.3.3.3)

→Chemical formulas:

4,5-difluoro-2-nitroaniline

→As European convention for decimal point (change these to American style decimal):

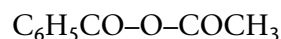
123,65 = 123.65

- En-dash (CSE7:5.3.5.3)

→In a range of values:

$$5^{\circ}\text{--}25^{\circ}\text{C}$$

→To represent chemical bonds in structural formulas:



→As a minus symbol if the proper symbol is not available.

- Parentheses (CSE7:5.3.6.2)

→Parts of a reference:

J. Geol., 14(1–2):15

→To group mathematical elements:

$$z = k(a + b + c)$$

→To group molecular components in a chemical formula:



→To specify oxidation state of a transition metal in text:

Fe(III)

→To indicate transfer of a species to another genus:

Hymenoxys herbacea (Greene)

- Square brackets (CSE7:5.3.7.2)

→Multiple bracketing in mathematical expressions:

$$z = k[(a + b) - \gamma(c + d)]$$

→Chemical formula bracketing:

bis(bicyclo[2.2.2]octadiene)platinum

→To enclose chemical concentrations:

[Na⁺]

→In fusion nomenclature:

benz[*a,h*]anthracene

→Ring size indicators in chemical formulas:

spiro[2.3]hexane

- Hyphen (CSE7:5.4.1.3)

→To represent single bonds in molecular formulas:

(CH₃)₂-CH-CH₂-CH(NH₂)-COOH

→Between an element symbol and the atomic or mass number:

C-4

iodine-131

→In molecular configuration prefixes:

S-benzyl-*N*-phthaloylcysteine

- Slash (CSE7:5.4.2)

→Mathematical symbol for division:

$x/(a + b)$

→In units:

m/s²

→As a character in a URL:

http://

- Prime symbol (CSE7:5.4.5)

→As locants in chemical names:

N,N'-dimethylurea

→To indicate minutes (single) or seconds (double) in coordinates:

52°33'05"N

Brand names/trademarks

- Trademarks should be capitalized if they must be used. A better choice is to substitute a generic term (CMS16:8.152).
 - Teflon (use fluoropolymer)
 - Mylar (use polyester film)
 - IonPac (should be able to delete without loss of meaning)
 - HayeSep (no generic term; we have to use it)
 - ChemStation (use chromatography workstation)
 - Scotty II gases (use analyzed gases)
 - Vacutainer (use vacuum-seal tube)
 - Pyrex (remove modifier and just use beakers, flasks, etc.)
 - Pentapycnometer (use pycnometer or five-chambered pycnometer)
 - Macor (use ceramic)
 - Whirlpak (use whirlpak).
- There is no legal requirement to use the registered ® or unregistered ™ trademark symbols, and they should be omitted whenever possible (CMS16:8.152).
- Some brands require a specific usage for their products in text, but these guidelines are not legally binding. In fact, Webster's lowercases some of the common trademark brands (CMS16:8.152).
- Names with specific corporate capitalization (iPod, eBay, LexisNexis) need not be capitalized at the beginning of a sentence or heading. Mid-caps can be left unchanged (CMS16:8.153).

Preferred usage guidelines

- For a list of prepositions used with common troublesome words, see CMS16:5.191. For example:
 - Compare *with* (literal comparison) vs. compare *to* (metaphorical comparison).
 - Different *from* (unless followed by a dependent clause, when different *than* is acceptable).
 - Juxtapose *with* (never *to*).

- For a glossary of problematic words and phrases (good usage vs. common usage), see CMS16:5.220.
- For a list of appropriate scientific word choices, see CSE7:7.3.2.
- For a list of unnecessary words and phrases and suggested substitutions, see CSE7:7.7.
- See “**Appendix C**” for IODP depth scale terminology.
- Avoid using circa (ca). If necessary, use only in a temporal sense (i.e., with dates or ages).
- Consult the *IODP Dictionary* and GOG5 for preferred spelling and usage of program-related terms.

Numbers, units, and symbols

Numbers

- In text, use Chicago's alternate rule (CMS16:9.3). Spell out single-digit numbers and use numerals for all numbers of 10 or greater.

- Letters in ordinals should not appear as superscripts (CMS16:9.6):

15th not 15th

- If several numbers occur within a paragraph or series of paragraphs, maintain consistency in the *immediate context* between numerals and spelled out numbers (CMS16:9.7).
- Start decimal fractions with a zero:

0.78 m.

In contexts where decimal quantities *must* be 1.00 or less (probabilities, correlation coefficients), a zero may be omitted before the decimal point (CMS16:9.19).

- Follow a decimal with a zero only to represent precision; 27°C and 27.0°C are not interchangeable.
- In the 24-hour system of expressing time, the digits may appear with no punctuation between hours/minutes/seconds (CMS16:9.40):

1145 h

092708 h

Include the colon in 24-hour times if fractions of seconds are included (CMS16:9.41):

09:27:08.8 h

- Omit commas from four-digit numbers. Do not use commas in numbers with more than four digits in page numbers, line numbers, and addresses (CMS16:9.55). Commas are permitted in four-digit numbers to maintain uniformity in a sentence, table, or figure:

5,500–12,000 μM

- Typeset fractions in text (but not in tables):

10³/₄ inch casing (text)

vs.

10-3/4 inch casing (table).

- Numerical ranges are expressed in one of the following formats (CMS16:9.58, 9.59):

→From...to:

ranges from 140 to 150 mm

→Between...and:

are between 140 and 150 mm

→En dash:

140–150 mm

(ranges from 140 up to and including, or *through* 150 mm)

- Retain all parts of the numbers in ranges in scientific notation (CSE7:12.1.5):

9.2×10^{-3} to 12.6×10^{-3}

- Some tables may use scientific E notation for exponential numbers:

1.98E–02 or 1.98E+02

The – or + is dependent on whether the exponent is negative or positive.

NOTE: Scientific notation (E) differs from the exponential function (e). Scientific notation is formatted as shown above and means to move the decimal a specific number of places to the left or to the right, whereas the exponential function is formatted as $1.67e^{3.98}$ and means to raise the first number to power of the exponent of *e*.

- Retain all parts of the number in ranges of very large numbers:

26 million to 35 million

Units

- A unit of measurement without a numeral should always be spelled out, even in scientific contexts (CMS16:9.16):

Microbial processes in deep sediment take place at rates that are sub-nanomolar cubic centimeters per day. (not sub-nM cm³/day)

- Use roman (not italic) type for units.
- Use singular forms with units:

lb not lbs

kg not kgs

- Place a period after a unit only at the end of a sentence.
- Do not hyphenate units that are part of a compound modifier:

a 5 mm wide vein

- Leave a space between a numeral and a letter unit:

16 km

3–4 cm

- Close up the space between a numeral and a symbol unit:

34.5%

2 σ

36°C

0.2°2 θ

–3.2‰

6N HCL.

- Do not repeat letter units in ranges:

10–15 mm

- Do repeat symbol units:

10%–15%.

Exceptions: 27°–29°C and 0.2°–.04°2 θ

- Repeat letter units when describing dimensions:

5 cm × 6 cm

- Spell out the unit “inch” to avoid confusion with the word “in.” Where appropriate, use the plural “inches.”
- Do not use hash marks to express inches or feet in text or tables, but they can be retained on engineering graphics:

16" casing

15' drill collars.

- Use SI (metric) units whenever possible. The following units are commonly used in IODP publications (see “**Appendix D**” for additional IODP units):

Quantity	Unit	Abbreviation
Length/Distance	meter	m
	kilometer	km
	nautical miles	nmi
Mass	gram	g
	kilogram	kg
	milligram	mg
	nanogram	ng
Time	second	s
	minute	min
	hour	h
	year	y
Temperature	degree Celsius	°C
	degree Kelvin	K
Volume	liter	L
	milliliter	mL
Pressure	bar	bar
	pounds per square	psi
	kilopascal	kPa

Equations and operands

- Operational signs (except / for division) should be surrounded by single spaces when they are preceded and followed by nonoperational terms:

$$x = y + z,$$

$$x = y/z,$$

$$R_0 = R_t \times [1 + 0.025 \times (T - 20)]$$

- When an operational sign is not preceded by a nonoperational term, do not put a space between it and the term it modifies:

an error of ± 3

contains <5 m of sediment

- Equations do not need to be numbered unless the author refers to an equation in text. In that case, number all equations in that chapter.
- Use italic type for single-letter variables (values) in equations and in the text referring to the equation.
- Use Roman (serif) type for numerals, punctuation, operators, units, nonmathematical symbols, multiple-letter abbreviations for variables, mathematical constants, and functions.
- Set superscripts and subscripts in sans font, 2 points smaller than equation text.

- Break equations in the following order (by preference):
 - Before the equals sign;
 - Before a plus or minus sign not enclosed in parens, brackets, etc.; or
 - Between parens or brackets that indicate multiplication of two parts; carry multi symbol to second line.
- Insert thin spaces around punctuation or italic type if type looks too close.
- If more than three variables/constants are defined, set definitions as a vertical list, and set other equations with two or more definitions in the same chapter the same way.
- If all equations in a chapter have three or fewer definitions, the editor can decide to use a run-in or vertical list for definitions.

Example equations

For all sediments,

$$w = M_{pw}/M_{wet}$$

where *w* is water content, a direct relationship exists between pore water mass and sediment mass.

A measure of resistivity (R_0) is obtained through the relationship:

$$R_0 = V/(I \times C) + T, \quad (3)$$

where

V = voltage,
I = current,
C = cell constant, and
T = temperature.

The cell constant is empirically derived and is a function of the cross-sectional area and length of sample through which the current passes.

Chemical formulas

- Numerals can occur at the beginning or within a chemical name, set off with hyphens [note that there is no space after commas between numbers in a chemical name]:

5,7-dihydroxy-3-(4-hydroxyphenyl)-4H-1-benzopyran-4-one

- Use italic type for chemical element symbols that denote attachment to an atom:

O,O,S-triethyl phosphorodithioate

- Use roman type for element symbols used with a type or reaction as a noun or adjective:

S-methylization

- Use italic type for capital H that denotes added hydrogen:

2H-pyran-3(*4H*)-thione

- Use Greek letters (not spelled out) to denote stereochemistry:

5 α , 10 α , 15 α , 20 α -tetraphenylporphyrin

- Use italic type for positional, stereochemical, configurational, or structural prefixes:

cis-diamminedichloroplatinum

trans-2,3-dihydroxy-1,2-dimercaptobutane

- Use italic type within square brackets in polycyclic aromatic compound names:

dibenzo[*a,h*]anthracene

Preferred symbol codes

In general, preference is given to default font (i.e., not Symbol font) ANSI codes to represent unit and mathematics symbols. The following is a list of some of the more common symbols used in IODP publications and their ANSI codes. For a complete list of symbols, characters, and codes, see the [Symbol font code reference page](#).

Name	Symbol	Default font code (Alt + code)
angstrom	Å	0197
plusminus	±	0177
minus (en dash)	–	0150
multiply	×	0215
multi dot	·	0183
degree	°	0176
per mil	‰	0137
em dash	—	0151
dagger	†	0134
double dagger	‡	0135
1/2	½	0189
1/4	¼	0188

Lists

Lists can be part of a sentence or paragraph (run-in list) or set off from the text (vertical list). Short, simple lists are best presented run-in with text, particularly if the introduction and list items form a complete, grammatically correct sentence. If the list needs to be prominent, is long, or contains more than several elements that are phrases, a vertical list may be more appropriate. Additionally, if each item of the list consists of one or more complete sentences, set in a vertical list.

Whether a list is run-in or vertical, enumerated or not, each item must be parallel in grammatical construction. See the following for examples of parallel construction.

Run-in lists

A run-in list may be enumerated with numbers or letters. If a run-in list is enumerated, enclose the number or letter for each list element in parentheses. Punctuate a run-in list like a sentence, using a colon to introduce the list only if the introductory clause is independent. Separate three or more list items with commas unless any one of the items requires internal punctuation, in which case use semicolons to separate list items.

Example: run-in numbered list

Visual core descriptions also contain a text description of each unit in each section of core that includes (1) the leg, site, hole, core number, core type, and section number; (2) the depth of the top of the section in meters below seafloor; (3) the unit number (consecutive downhole; subunits are designated by letters after the unit number, e.g., 1, 2a, 2b, etc.); (4) the rock name; (5) a summary description of the unit as it appears in the section, including a brief rock name and the rock type (e.g., pillow basalt or sheet flow); (6) the piece numbers included in the unit; (7) the type of contacts; (8) the Munsell color; (9) the phenocryst minerals, abundance, and size; (10) the groundmass grain size; (11) the vesicle abundance; (12) the nature of the alteration; and (13) a description of structures in the rock.

Example: run-in alpha list

Thin sections of basement rocks recovered during Expedition 301 were examined in order to (a) confirm macroscopic descriptions of brittle structures; (b) characterize the microstructure of the rocks; (c) provide information on the kinematics of brittle and brittle-ductile deformation; (d) identify time relationships between deformation, magmatic, and alteration processes; (e) assess the role of fluid in contributing to deformation; and (f) document major structural zones and downhole variations.

Example: run-in nonenumerated list

The terms heterogranular (different crystal sizes), seriate (continuous range in grain size), porphyritic (indicating presence of phenocrysts), glomerophytic (containing clusters of phenocrysts), hypocrystalline (100% crystals) to hypohyaline (100% glass), variolitic, intergranular (olivine and pyroxene grains between plagioclase laths), intersertal, subophitic, and ophitic were used to describe the textures of the mesostasis.

Vertical lists

Set vertical lists off from text sections and use the same type conventions as the rest of the body text. Numbered lists imply chronology or importance and, for this reason, should be used when the list elements need to show rank, order, or procedure. If there is no particular order to list elements, use a graphic element, such as a bullet.

- Vertical lists can be introduced by a phrase or a complete sentence.
- If the introduction is a complete sentence, follow it with a colon.
- If the introduction is a phrase, there is no introductory punctuation for the list.
- If the list elements are phrases that complete a sentence begun in the introduction, they are divided by commas or semicolons and a period follows the last element.
- If list elements are complete sentences, follow each element with a period.
- Lists with short elements (one or two words) can have no punctuation.
- Begin each element in all vertical lists with an uppercase letter.

Example: bulleted list

Drilling a short series of shallow holes into First Ridge would allow us to address several questions:

- What is the importance of *along-strike* vs. *across-strike* fluid flow in basement?
- What is the origin and significance of shallow seismic anomalies associated with areas of seafloor seepage?
- What is the extent and nature of subseafloor microbiological activity within shallow basement, and how does it relate to the upward seepage of basement fluids?

Example: numbered list

For a better understanding of the applied lithologic terminology, we give three examples:

1. An unconsolidated sediment containing 80% nannofossils, 13% silty clay, and 2% volcanic glass shards is termed “mud-bearing nannofossil ooze” (with minor volcanic glass shards;
2. A sediment containing 60% silty clay, 30% nannofossils, and 10% diatoms is termed “diatom-bearing nannofossil mud;” and
3. A friable sediment consisting of 50% nannofossils, 30% diatoms, and 20% foraminifers is referred to as a “foraminifer-bearing diatom nannofossil chalk.”

Example: plain list

The total abundance of all calcareous nannofossils for each sample was estimated as follows:

- V=very abundant (>20,000 specimens for 500 fields of view).
- A=abundant (2,001–20,000 specimens for 500 fields of view).
- C=common (51–2,000 specimens for 500 fields of view).
- F=few (11–50 specimens for 500 fields of view).
- R=rare (1–10 specimens for 500 fields of view [~3 traverses]).
- B=barren (none).

Species lists

Species lists or systematic paleontology descriptions are generally not included in the main body of text but are treated as an appendix. Species lists included in text should be moved into an appendix at initial edit. See “**Appendix E**” for more information.

Text callouts and citations: editing and tagging

Callouts to text sections, table of contents sections, figures, tables, and chapters within a volume are hyperlinked.

Beginning with the Expedition 331 ER volume and the Expedition 314/315/316 ERR data reports, a reference citation to the called out chapter is added to the usual text section, figure, table, etc., call out.

This means that the citation for the chapter being called out must be included in the reference list for the referring chapter.

Hypertext links are tagged “Blue type,” including any following punctuation (except parentheses). Links to text sections from figure captions are removed (leaving plain text) by Production when the HTML file is generated.

Citing in-volume text

Links can be made to any level of heading in any chapter in the volume, to sections or subsections of the table of contents, figures, tables, plates, or appendixes to any chapter in the volume or to core descriptions, thin sections, or smear slides for a specific sample, core, section, or hole.

Link language and tagging

- Link to an uniquely named section *in the same chapter*:

(see “**Lithostratigraphy**”)

- Link to a section that has the same header text as another section *in the same chapter*:

see “**Magnetostratigraphy**” in “Paleomagnetism”

where “Paleomagnetism” differentiates the linked section from other sections with the same header text.

- Link to a uniquely named section *in another chapter* in the same volume:

see “**Biostratigraphy**” in the “Methods” chapter (Expedition 329 Scientists, 2011).

for all depths (see “**Downhole logging**” in the “Site U1365” chapter [Expedition 329 Scientists, 2011b]).

- Link to a section *in another chapter* that has the same header text as another section in that chapter:

see “**Hard rock cores**” in “Magnetostatigraphy” in the “Methods” chapter (Expedition 329 Scientists, 2011).

where “Magnetostatigraphy” differentiates the linked section from other sections with the same header text.

- Link to an appendix *in another chapter* in the same volume:

See the “**Appendix**” in the “Site U1378” chapter (Expedition 329 Scientists, 2011).

- Reference to multiple text sections (no link):

XRD data are compiled in separate tables in the “Lithostatigraphy” sections of each chapter.

- Links to whole ER chapters in the same volume:

for Site U1347 (see the “**Site U1347**” chapter [Expedition 323 Scientists, 2010]).

For an explanation of these anomalies, see the “**Site U1370**” chapter (Expedition 329 Scientists, 2011c).

XRD analyses for all sites (see the “**Site U1301**,” “**Site U1302**,” and “**Site U1303**” chapters [Expedition 314/315/316 Scientists, 2009a, 2009b, 2009c])

- Links to specialty papers and data reports in the same volume call the chapter by authorship:

in the postcruise paleomagnetism research of **Morono** (2008)

(see **Siesser**, 1999)

(see **Brooks and Tegner**, 2005)

(see **Monteleone et al.** 1994)

For papers or reports with the same beginning author and more than one other author, use as many author names as necessary to differentiate between chapters:

(see **Long, Germaine, et al.**, 2008, and **Long, Dugan, et al.**, 2008)

- Links to in press and submitted chapters use the same language and hyperlinks as for a published chapter:

For analyses results, see **Screaton et al.** (in press).

The link opens a placeholder file containing the following text: “This paper has not yet been published.” When the chapter is published, it replaces the placeholder file in the link destination. The “in press” text will not be updated.

Citing figures, tables, equations, plates, and movies in the same chapter

Link language and tagging

- When cited in sentences, use regular sentence structure and spell out “Figure,” “Plate,” “Movie,” “Table,” and “Equation.”

Details of bathymetry at site locations appear in Figures **F1**, **F2**, and **F9**.

Figure **F8A** shows the relative stratigraphic position of the tephra sequence, and Figure **F8B** shows the position of the tephra sequence.

Diatom preservation for Hole U1334 is shown in Table **T3**.

Photomicrographs of smear slides are presented in Plate **P4**.

Porosity was determined using Equation **2**.

- When cited parenthetically:

→Abbreviate “Figure” as “Fig.” and “Plate” as “Pl.,” but spell out “Movie,” “Table,” and “Equation”:

Eight standard samples were run as calibration standards (Figs. **F3**, **F4**, **F6**).

Age assignments of the zones follow Berggren et al. (1992a) (Fig. **F10B**).

Pyroxenes are present near the bottom of the hole (Pl. **P2**).

→Use a semicolon between table, figure, movie, and plate listings:

Lithostratigraphy indicates a basement age of 52 Ma (Fig. **F1**; Table **T1**).

→Use a comma instead of “and” when referring to two or more figures, tables, movies, or plates;

Abundant foraminifers are present in this zone (Figs. **F1**, **F2**).

Interstitial water ratios and contents agree well (Tables **T1**, **T2**).

→If multiple parts of a single figure are cited, “figure” is singular:

This is in the relative stratigraphic position of the layers (Fig. **F8A, F8C**).

→If parenthetical information directly relates to the item cited, the information and call-out can be placed inside the same set of parenthesis, separated by a semicolon:

Such layering can be seen in the clay and ooze interval of the section (interval 10–35 cm; Fig. **F2**)

Citing figures, tables, equations, plates, and movies in a different chapter

Citing figures, tables, equations, plates, and movies in a different chapter follows the same guidelines for link language and tagging, except that the citation is added for the chapter which contains the referenced items.

Site 1088 is located on Agulhas Ridge (Figs. **F1, F5** in the “Expedition 345 summary” chapter [Expedition 345 Scientists, 2013]).

Porosity was determined using Equation **2** in the “Methods” chapter (Expedition 329 Scientists, 2011).

Postcruise analyses of oxygen contents confirm this theory (see Table **T5** in Teagle and Moore, 2010).

General considerations

- Figure, plate, movie, and table numbers are preceded by “F,” “P,” “M,” or “T,” respectively.
- Equation numbers are not preceded by “E.”
- Tag figure, plate, movie, table, and equation numbers and adjoining punctuation with the “Blue type” character tag.
- If a text reference refers to a figure in another volume or publication, lowercase the figure reference:

(see fig. F2 in Shipboard Scientific Party, 1998a; see table 1 in Frank et al., 1999).

- If all parts of a figure are cited, call out the entire figure.
- If a figure has multiple pages, either the entire figure or a figure part from each page of the figure must be cited.
- If several cited figure parts are all formatted on the same page, a range of figure parts can be cited together:

(Fig. **F2A–F2E**) instead of (Fig. **F2A, F2B, F2C, F2D, F2E**) if parts A through E are all shown on one page.

- Plates can be cited by plate number or by figure number within a plate. The link goes only to the plate number. To distinguish plate figures, “fig.” is not capitalized in plate call-outs:

This radiolarian structure was observed in several samples (Pl. **P1**, figs. 1, 2, 5, 7).

Citing prime data

Each *Proceedings* volume contains prime data in the “Core descriptions” section.

- VCDs and smear slide and thin section tables for each site are combined into a single PDF file. If the file is too large, when possible the initial PDF file will contain the VCDs and separate files will be created for the smear slide tables and thin section tables (see the Expedition 320/321 core descriptions for an example of handling a very large PDF file).
- If a prime data for a particular site is referenced from text, the link will open to the “Core descriptions” heading in the volume table of contents (frontmatter).

The characteristics of the sediments are defined on the basis of smear slide analyses (see Site U1301 smear slides in “**Core descriptions**”).

- If a particular site is not identified in a text callout, the link will also open to the “Core descriptions” heading in the volume table of contents.

The core description forms, or “barrel sheets” (see “**Core descriptions**”), summarize the data obtained during a visual inspection of the core.

Citing supplementary material

Each volume includes a supplementary material section that may contain data tables, figures, raw data, description logs, and so on. Contents of the supplementary material section are cited from text as follows: Data tables are given as supplementary material:

Velocity data for this site supports this theory (see C0001_DS.XLS in VELOCITY in “**Supplementary material**”).

The link opens the “Supplementary material” section of the volume table of contents, where the reader can select the appropriate folder and file as directed in the text. Links to supplementary files from the text do not open the data files directly; the supplementary data files are separated from the volume by an extra link through the volume table of contents. All supplementary material primary directories must be cited from the chapter. See “**Supplementary material**” for more information.

Citing references

All works included in a reference list must be cited in text, tables, figure captions, or other chapter material.

- Citation is by the last name of the author and date; for three or more authors, list the first author followed by “et al.”
- It is correct to use “et al.” possessively:

in Junker et al.’s (1977) interpretation

- To cite an entire volume of the DSDP, ODP, or IODP *Proceedings*, include the exact authorship of the volume (including Co-Chief Scientists and Staff Scientist).:

As in the Leg 178 *Initial Reports* volume (Barker, Camerlenghi, Acton, et al., 1999).

→DSDP authorship: iodp.tamu.edu/publications/wiki/references/DSDPREFS.pdf

→ODP authorship: iodp.tamu.edu/publications/wiki/references/ODPREFS.pdf

→IODP authorship: iodp.tamu.edu/publications/wiki/references/IODPREFS.pdf

- Cite ODP or IODP scientific reports (*Prospectus*, *Preliminary Report*, *Technical Notes*) like a journal article:

(Gieskes et al., 1991)

- For more than one parenthetical citation, separate citations by semicolons:

(Walker, 1970; Walker and Schott, 1972; Walker et al., 1976)

- If authors’ names and year of publication are identical in two or more successive references, identify them as a, b, c, and so on. See **“Reference lists”** for more information.
- For all citations to papers in other *Proceedings* volumes and in serial publications, use the following style:

→Published paper, single author:

(Smith, 1970).

→Published paper, two authors:

(Alt and Emmermann, 1985).

→Published paper, more than two authors:

(Weis et al., 1988; Berggren et al., 1985).

Exception: when citing an entire volume of the *Proceedings* (see notation above).

→Published papers from same year, multiple authors, same first author:

(Smith et al., 1990a, 1990b).

See “**Reference lists**” for additional information.

→Paper that is in press:

(Meyer et. al., in press).

→Submitted paper:

(Jones et al., submitted).

Citing unpublished papers and personal communication

- Do not include unpublished papers or personal communications in the reference list.
- Unpublished data citations should include the author’s first initial and be listed in text:

using the procedure described by G. Wheat et al. (unpubl. data).

If more information about the unpublished citation exists (link to URL or data of unpublished report), include this information in the parentheses to help the reader find the information if needed.

- Personal communication citations should include the author’s first initial and the year be listed in text:

using the procedure described by G. Wheat (pers. comm., 2007).

Citing software, databases, and user manuals

- Do not include cited software or databases in the reference list.
- If a user manual does not have the usual reference information, a URL link to the manual file can be included in the text.
- If available, include the URL in text where the software or database is cited:

using Petschick’s MacDiff version 4 (www.ccp14.ac.uk/ccp/ccp14/ftp-mirror/krumm/Software/macintosh/macdiff/MacDiff.html)

Reference lists

It is the author's responsibility to provide complete, accurate reference information. Query the author for cited works that are missing from the reference list. After you compile the reference list and place it on the server, notify the Reference Editor. The Reference Editor formats and edits the references.

In general, use CMS16 guidelines for scientific references for citation and reference style. All works explicitly referenced in the chapter (e.g., cited in text, taxonomic lists, tables, plates, figures, appendixes, or caption material) must be included in a reference list, with the following exceptions.

Do not include the following in the reference list:

- Software or databases,
- Personal communications,
- Unpublished data,
- Manuscripts in preparation, or
- Citations to chapters within the same volume.

Components of a reference

See "**Appendix F**" for examples of IODP reference formats.

Authorship

- Authors' names are listed in the order they appear in the publication using last name and first initial(s), with no space between multiple initials:

Byrne, D.E., Davis, D.M., and Sykes, L.R.

- If an author's name includes a suffix (Jr., II, III), this is placed after the author's first initials with a comma preceding (CMS16:16.41):

Ingle, J.C., Jr.

- For multiple authors, "and" is inserted before the final author's last name.
- Diacritical marks are included in authors' name(s).

Publication year

- “Submitted” is used if the article has not yet been accepted for publication. This also applies if the author has shown the article as “in review.” Include information for the journal to which the manuscript is submitted in the reference.
- “In press” is used if the article has been accepted but the publication has not yet been released, including chapters in *Proceedings* volumes. In press applies even if the abstract is available online through CrossRef (i.e., if there is no publication year specified on the online abstract, then “in press” is still applicable). Include information for the journal at which the manuscript is in press in the reference.
- For references with identical authorship and year, letters a, b, etc. are added to distinguish, using the title of the work to determine the alphabetical order:

as detailed in Smith and Jones (1990a; 1990b)

- For references with multiple authors and the same first author and year, the letter designation is determined by alphabetization of the authors.

Smith, Jones, and Brown, 1990

Smith, Jones, and Green, 1990

In this case, Brown comes before Green alphabetically so Smith, Jones and Brown would be designated as 1990a.

Article title

- Use sentence-case capitalization for titles of articles in journals or chapters in books.
- Do not capitalize a word immediately after a colon unless the word is a proper noun that requires capitalization.
- List city of publication in DSDP, ODP, and IODP citations using postal abbreviations without periods, preceded with a comma (e.g., College Station, TX, for ODP citations or Washington, DC, for DSDP and IODP publications). This is retroactive to all DSDP citations.
- If reference is a chapter within an edited volume, add editing authors’ names and title of volume.

Journal/Book title

- Series titles consisting of more than one word are abbreviated following the system used in the *Chemical Abstracts Service Source Index* (CASSI) published by the American Chemical Society.
- Consistent with CASSI policy, do not abbreviate serial titles consisting of one word only.

- Omit diacritical marks for abbreviated titles of foreign journals.
- Use title-case capitalization for titles of books, monographs, and special publications.
- For second, third, etc. editions of books, do not use superscripts (e.g., 2nd, 3rd, 4th not 2nd, 3rd, 4th).
- Follow book titles with a colon, city of publication, and name of publisher in parens. Do not include the page range if citing an entire book. Add the state abbreviation if not a dateline city:

In *Annual Book of ASTM Standards* (Vol. 04.08): Soil and Rock (I): West Conshohocken, PA (Am. Soc. Testing and Mater.)].

Volume, issue, and page range

- For articles in a journal, include the volume number, issue number (in parens), and page range. There should be no spaces between volume and issue number or between colon and page range. For an article that runs from page 231 to page 236 in issue 1–4 of volume 16 of a publication, the format would be:

16(1–4):231–236

- Use en-dashes to indicate page range.
- Do not include page ranges for Abstracts.

Digital object identifiers

When available, include the digital object identifier (DOI) at the end of the reference, after the period. Do not add a period after the DOI. The DOI will be linked when the references are edited.

Uniform resource locator

If a reference is available online but does not have an assigned DOI, add the URL after the reference, including the “http://” (this is different than URLs in text).

Reference list order

- Order reference lists alphabetically by author, then by date of publication (oldest publication date is listed first; most current, last), then by title (if authors and date are identical).
- Follow the word-by-word alphabetization method found in CMS16:16.58–16.61. Following this method, the last name Vance would fall before Vandamme but after van Zinderen.

Tables

- Tables are appropriate for presenting various kinds of information (CSE7:30.1):
 - Large amounts of data
 - Data for which precise numeric values are important
 - Data likely to be referenced as individual values
 - Comparisons of individual values or sets of values
 - Verification of calculations
 - Summaries of textual information
- Principles of table construction include the following (CSE7:30.1):
 - Table with caption and footnotes should be complete enough to be understood without reference to the text
 - Tables should be orderly, logical, and as simple as possible
 - Units, symbols, and data are consistent with those in the text
 - Tables containing similar types of information have parallel formats
 - Tabular data are not duplicated in figures or text

Table editing and formatting

- Table editing and formatting in FrameMaker should be completed before the postcruise meeting.
- Editors may make editorial and formatting changes to the submitted table file, adding notes to Production indicating what changes were made, and mark any additional changes to be made by Production on a print-out of the table.
- Edit tables for consistency and logical presentation; also check totals (CMS16:3.79).
- Ensure that numerical ranges do not overlap or leave data gaps between them (CMS16:3.81).
- Check that numerical precision is appropriate (CMS16:3.81). See **“Table text formatting”** for details.

Format consistency

- A consistent style for titles, column heads, abbreviations, and the like should be selected and followed for all tables in a single volume (CMS16:3.48).
- Check for consistency by reviewing all similar tables together during editing before the postcruise meeting. If this can't be done, make copies of specific tables to use as a template. Both Editors and Production should check to make sure similar tables are formatted consistently from site to site, but consistency is ultimately the Editor's responsibility.
- Common table inconsistencies include the following:
 - Datum event tables: genus names spelled out vs. genus names abbreviated, use of terms like "first appearance" vs. "first occurrence," column headers "datum" vs. "event."
 - Interstitial water chemistry tables: chemical symbol vs. spelled out chemical names, use or not of valence charges, units in each cell vs. spanned.
 - Standardize abbreviations throughout the volume:

BD = below detection (not BDL) [Note: In certain instances, BDL may be more correct than BD. Use this only if the shipboard geochemists specifically request it.];

NA = not applicable or not analyzed (not N/A). [Note: If NA is used for "not applicable" in one table, you may want to suggest the author use NM = not measured (not N.M.) instead of using NA = not analyzed in other tables.]
 - Query dashes in cells and blank cells.
- Tables are generally set up with the independent variables in the first column and dependent variables along the top row. This can be reversed for a table with few rows (CMS16:3.49).

Horizontal/vertical rules

- Most tables require only 3 horizontal rules: above and below the header row and below the last row, above the table notes (CMS16:3.50).
- Vertical rules should be used sparingly, generally only in range charts (CMS16:3.50).

Columns

Headers

- Column heads should be as brief as possible (abbreviations are acceptable if defined in the notes) (CMS16:3.54).
- Spanner heads should seldom exceed two levels (CMS16:3.55), and should be avoided where possible to accommodate accessibility tools (GPO2000). If spanned headings are used, the HTML table cells should be marked up to associate header cells with data cells (Section 508).
- When a column contains sample identifiers or parts of sample identifiers (see “**Sample identifiers**”), the header should contain the names of the parts included in the body of the column. For example:

Core, section, interval (cm)	Depth (mbsf)	Dry sample weight (g)	Coarse fraction weight (g)	Coarse fraction (%)	Fine fraction (%)
329-U1365A- 1H-1, 25–30	5.88	51.49	3.58	6.95	93.05
2H-2, 45–46	13.31	36.93	0.35	0.93	99.07
3H-1, 140		Tooth sample			

Core, section	Depth (mbsf)	Preservation	Abundance
329-U1367C- 1H-CC	7.17	G	C
329-U1367B- 2H-CC	13.42	VG	C
3H-CC	21.90	M	P

Core	Depth (mbsf)	O ₂ (μM)
329-U1367C-		
1H	0.10	151.2
2H	0.20	147.8
3H	0.35	145.4
4R	0.50	142.8
5R	0.65	144.9

Hole, core, section, interval (cm)	Depth (mbsf)	Dry sample weight (g)	Coarse fraction weight (g)	Coarse fraction (%)	Fine fraction (%)
329-					
U1365A-1H-1, 25–30	5.88	51.49	3.58	6.95	93.05
U1365A-2H-2, 45–46	13.31	36.93	0.35	0.93	99.07
U1365B-1H-1, 140		Tooth sample			

Text

- Single-entry numbers with decimals: align on decimal [*Table decimal X*].
- Single-entry numbers without decimals: flush right in middle of column [*Table decimal*].
- Numeric ranges: center in column.
- Sample identifiers: flush left [*Table text*].
- Unit numbers: flush left [*Table text*].
- Text: flush left [*Table text*].
- Mixed numbers and letters: align numerically [*Table decimal*].
- Multiple values with common symbol: align on symbol.
- Multiple values with no common symbol: align on decimal [*Table decimal*].
- Combination of data with some operational signs: align on decimal [*Table decimal*].
- Every item has an operational sign: align on operational sign.
- Range data that include other numbers: center all [*Table center*].
- Roman numerals: flush left [*Table text*].
- Table spacing between columns should be no less than 0.5 pica and no more than 1 pica width.
- Spacer columns should be no more than 0.5 pica wide.

Table text formatting

- Do not typeset fractions in table text (use 6-3/4 inch, etc.).
- Add a zero before the decimal point (if missing) but do not add zeroes following the decimal point. Check the LIMS report for the table (if appropriate) to verify how many decimal places should be reported for the particular component (depth, concentration, etc.). If the table is not derived from LIMS, query the author. Note that the number of significant digits may vary within an analyte because of extraction techniques and instrument sensitivity:

[Author: Do you want to express all depth values (or data) to the same precision?]

[Author: Do you want to report all depth, density, and velocity measurements two places past the decimal?]

[Author: Do you want to report all measurements within the depth column and the density column to two places past the decimal?]

- When using decimal alignment, align on decimal regardless of the number of digits on either side of the decimal. Center decimal-aligned material in the column based on the widest entry [*Table decimal X*].
- When any number in a table is greater than 9999, all numbers in the table that are 1000 or greater should contain a comma.
- Set sample identifier numbers flush left and indented 1 pica [*table text*] under the expedition-site-hole identifier [*table text no indent*].
- Top-justify text in vertically spanned table cells in PDF, except for zone/ages in biostratigraphy range charts, which should be centered vertically and horizontally in the spanned column. In HTML these will be centered vertically.
- Within-column entries in tables are first word initial cap, although abbreviated words in the body of the table (e.g., tr for “trace”) should be lowercase. Time- and rock-stratigraphic terms must appear as they appear in the text, following the rules for formal and informal nomenclature. Thus, in the entry “lower Eocene,” lower is not capitalized, even when it is the first word in the column.
- Dashes (em-dashes) and blank cells: blank cells should be left empty, not filled with dashes; query the author if a table presents an unexplained mixture of blanks and dashes. Define dashes and blank cells in the table note.
- Use en-dashes for negative signs and ranges of values in tables.
- When the first (far left) table header entry is wider than the widest point of the data in the column, center the data under the header. When the first column of data at its widest point is wider than the table header, set the data flush left and center the header entry over the column.

- Check that all headers have units, where appropriate, and that units are in agreement with style preferences.
- In column headings, use the singular instead of the plural: Age (Ma) vs. Ages (Ma) or Unit vs. Units.
- Do not use “units” in the body of a table if they are defined in the column header.
- When the table body (not units in headers) contains abbreviations, define them in the table note. See **“Table notes”** for more information.
- When using symbol designations to reference note information, use this order:

asterisk * (not superscript)
 dagger † (superscript)
 double dagger ‡ (superscript)
 double asterisk ** (not superscript).

Do not superscript any of these symbols in the table notes.

- Asterisk, dagger, double dagger, etc. (see above) definitions should be placed at the beginning of the note.
- Keep columns as narrow as possible (but avoid taking this to an extreme). Check: (1) does the column header make the column too wide? If so, stack the header, and (2) does one line contain more information that forces the column to be too wide? If so, move some of the information into a footnote, wrap the text, or make the table landscape orientation.
- Balance column heading width based on column width. Unit information can be on the same line as the column heading text if this is the best way to balance the width of the heading.

Table captions

Editing

- Captions should be succinct and should not suggest any interpretation of the data (CMS16:3.52).
- Explanatory material should be kept to a minimum in table captions; move explanatory material to the table notes. If a general note can be expressed as a brief phrase, it may be added parenthetically to the caption (CMS16:3.76).
- Captions should be in noun form and participles are preferred to relative clauses (i.e., avoid “which” or “that”) (CMS16:3.52).
- Captions end with a period.

- Standardize caption wording so the hole or site number appears at the end of the caption. When a table is not specific to a site or hole, include the expedition number.

Table T1. Coring summary, Hole U1320A.

Table T3. Lithostratigraphic units, Site U1320.

Table T4. Operations summary, Expedition 327.

- If a less common acronym will be used only in the table caption, spell it out. If it is a common acronym used throughout the volume, you can use the acronym.

Placement, width, and tagging

- Set captions flush left.
- Captions run the full width of the page (portrait and landscape).
- Captions on oversized pages run the width of a normal-size page.

Captions for multipage tables

- If a table is two pages long, use the following sample wording in the caption:

[Page 1] **Table T8.** Coring summary, Site 1094. (Continued on next page.)

[Page 2] **Table T8 (continued).**

- If a table is more than two pages long, use the following sample wording in the caption:

[Page 1] **Table T8.** Coring summary, Site 1094. (Continued on next five pages.)

[Pages 2 through next-to-last page] **Table T8 (continued).** (Continued on next page.)

[Last page] **Table T8 (continued).**

Captions for oversized tables

- The table page in both the PDF and HTML versions of the chapter contains only a caption with a hyperlink to the oversized PDF table file.

Table T2. Radiolarian range chart, Site U1306. This table is available in an **oversized format**.

Captions for PDF tables not translated to HTML

- The table page in the HTML version of the chapter contains only a caption with a hyper-link to the table in the PDF version of the chapter.

Table T5. Planktonic foraminifer abundance and preservation, Site U1360. ([See PDF version.](#))

Table notes

Editing

- Table notes should be organized with notes that apply to the whole table first (including definitions of symbols used in the table), followed by notes that apply to specific parts of the table. Notes that apply to significance levels should be last (CMS16:3.74).
- Table note information should be placed in the order in which it appears in the body of the table, as read from left to right then top to bottom (CMS16:3.77), except in range charts (see [“Range chart table note exceptions”](#)).
- If a general note can be expressed as a brief phrase, it may be added parenthetically to the table caption (CMS16:3.76).
- If multiple tables contain the same abbreviations, repeat the note that defines them rather than referring or linking to another table note. Check each table to see if all abbreviations are used and add or delete when necessary.
- If identical tables appear in every site chapter, review the tables and eliminate table note abbreviations for any information that doesn’t appear in a specific chapter.
- The table note should be placed below the first occurrence of the table bottom rule.
- Use commas to separate table note items when describing things that can be conceptually grouped together. Use periods between table note items that are not grouped. See examples below.

APC = advanced hydraulic piston corer, XCB = extended core barrel, RCB = rotary core barrel.

IC = inorganic carbon, CaCO_3 = calcium carbonate, TC = total carbon, TOC = total organic carbon, TN = total nitrogen, TS = total sulfur. TOC concentrations are calculated from the difference between IC and TC concentrations. C/N ratios are calculated from TOC and TN concentrations and are given as atom/atom ratios.

Placement, width, and tagging of notes

Tables are centered on the page horizontally, but the table notes start from the left. If the table is narrow and the note is short, it looks strange because the note is not under the table but below and to the side. For this reason, there are two table note tags.

- If the table is >20 picas wide (>1/2 page wide), use `<table note>` tag. This sets the table note flush left.
- If the table is <20 picas wide (<1/2 page wide) AND the note is <25 picas wide (<1/2 page wide), use the `<table note 2>` tag, which puts the note in a 42 pica box centered under the table. [Note: The caption starts from the left of the text box.]
- If the table has multiple columns across the page (see **“Long, thin tables”**):
 - Note is under the bottom rule of the last column.
 - The bottom of the last line of the note text is aligned with the bottom of the last line of the other columns.
 - The beginning of the note text is offset to the left. The amount of the offset is determined by the width of the table columns on the page. Production will adjust the note tag to accommodate each table.

Types of tables

ASCII tables

- If a table will be included in ASCII, add the standard table note for ASCII tables:
 - If the table is presented in its entirety in both chapter and ASCII add this table note:

This table is also available in **ASCII**.
 - If a sample of the table appears in the chapter, add this table note:

Only a portion of this table appears here. The complete table is available in **ASCII**.
- The ASCII table is created from the Frame file after the Galley Proof stage.
- The ASCII table page should include the following header:


```
IODP Proceedings, Volume 301
Chapter title, Table T1. Color reflectance results.
```
- Move the table notes from the bottom of the table and insert them between the page header and the table caption.
- Remove quote marks that may have been inserted on conversion to ASCII.

- Unstack stacked headers and separate each column by a single tab. [Note: the columns may appear on screen as if they do not line up correctly. This can be checked by opening the text file in Excel.]
- Save the file with the naming convention 101_T1.TXT [manuscript number, table number, extension in all caps] in the volume “Tables” directory.

Range charts

- In species lists in headers, insert a vertical rule after every five genus/species. Also place vertical rules after sample identifier, depth, age, zone, abundance, and preservation columns. At the end of a page or the end of the table, do not add the last rule if there are six or seven columns remaining but do add the rule if there are eight or nine columns. *A page should not end with a rightmost vertical rule.*
- Use horizontal rules across either the zone column(s) only or the entire table width to delineate top and bottom of zones (if the author has specified this on the original table), but do not add table spaces above and below the rules.
- If horizontal rules are used, vertically span the rows and center the label both vertically and horizontally in the PDF.
- Abbreviate terms in the “Abundance” and “Preservation” columns and run the column headers vertically. Center the abbreviation letters in each column. Define the letters used in the body of the table in the table note. See “**Table notes**” above and “**Range chart table note exceptions**” below for examples.
- Alphabetize genus names unless they are presented in groups.
- Check headers carefully to make sure all genus and species names are spelled out and in italic type but terms like “acme,” “ssp.,” “cf.,” and question marks are in roman text *<default font>* text.
- If a range chart is more than one page wide, repeat the identifying information on each page (Age; Zone; Core, section, interval; Depth; Abundance; and Preservation).
- Very large range charts may not be included in the chapter but instead will be linked to an oversize PDF table file. See “**Oversized tables**” for instructions on how to handle these cases.
- Some range charts may fit in the PDF version of the chapter but will not translate well into HTML. See “**PDF tables not translated to HTML.**”

Range chart table note exceptions

- Table notes for range charts are the exception to the rule that definitions are given in the order that the symbol is found in the table.
- When abbreviations denote a range of size, preservation, or abundance but appear in a random order within the table, group the abbreviations by type and list them from largest to smallest.
- Use “Abundance” not “Group abundance” in the footnote if the terms relate to species as well as to the “Group abundance” columns.
- Check definitions used in table notes against what is listed in the Methods chapter or site chapters. For example:

Abundance: A = abundant, C = common, F = few, R = rare, T = trace. Preservation: VG = very good, G = good, M = moderate, P = poor. For more specific definitions, refer to **“Biostratigraphy”** in the “Methods” chapter (Expedition 334 Scientists, 2012).

Splice tie point tables

Use the terms “tie to” and “append to” instead of “tie” and “append.”

Table layout

During formatting, each table is set in a separate FrameMaker file. When the galley is made, Production copies all tables into the chapter file. The table is centered horizontally on the page. If a table does not fit on one page, Production will separate it into as many pages as necessary. Multiple tables may be placed on a single page.

Long, thin tables

Tables with very few columns but many rows can be “split” into two or more columns per page. Production will set long, thin tables into multiple columns on one page during galley preparation (do not mark multiple columns at earlier stages).

- The length columns (number of rows) on the page should be the same. If necessary, they can vary by one row.
- If the columns cannot be distributed evenly on the page, the last column should be the column that has the fewest rows.
- If there is no note for the table, the bottom rules for each column should align with each other across the page. See **“Placement, width, and tagging of notes”** if the table has a note.

Large tables

- At Production's discretion, large tables to be included in the PDF version of a chapter may be laid out on ledger (8.5 inches × 11 inches) or legal (11 inches × 17 inches) page masters. These tables are not translated to HTML. See "**PDF tables not translated to HTML.**"

Caption guidelines for large tables

- Sizes in picas of the text boxes for the three sizes of figure pages:
 - Letter: 42.5 pc x 56.0 pc
 - Legal: 42.5 pc x 74.0 pc
 - Ledger: 56.0 pc x 93.5 pc
- The maximum width of a figure caption for each of these sheets sizes is 56.0 pc.
- Best uses for pages if figure and caption do not fit on the same page:
 - If a figure cannot fit on the 42.5 X 56.0 with the caption, the caption will appear on a preceding page.
 - If a figure cannot fit on the 42.5 X 74.0 with the caption, the image and caption will then be placed on the ledger sheet size.
- For production of Phase II chapters, Production will place the individual files for the legal and ledger size figures and tables, in the same folder with the chapter files. Do not delete or move these files. The naming convention is MS#_F##.FM
- If there are any changes to the captions in these individually prepared figure or table files, please have the editor make a note on the galley and the production editor will make the change. If the editor wants to make the corrections to these captions, please have the editor note that they made the changes and insert the correction in both the Frame chapter file and the individual figure or table file.

Long, wide tables

- If a table is more than two landscape pages wide or longer than 10 pages, Production will determine whether it can be converted to HTML.

Landscape tables

- Landscape tables are built on landscape master pages in FrameMaker. When viewed on screen, these pages appear rotated to the landscape position.
- Regardless of width, tables are centered.
- Table caption and notes run the full width of the page for all landscape tables.

Oversized tables

A PDF version of each oversized table is produced as a separate file and placed in the EXP_REPT\OVERSIZE directory. Other tables wider than two typeset pages will be treated as oversized tables (plotter version, no 8.5 × 11 print option), as will tables two pages wide and more than four pages long and tables more than eight pages long (subject to Production's judgment). Oversized tables will not be split onto multiple pages.

Because an oversized table would not be legible if reduced to a standard page size and will not translate well into HTML, the table page in both the PDF and HTML versions of the chapter contains only a caption with a hyperlink to the oversized PDF table file. See "**Captions for oversized tables.**"

Slug formatting guidelines

In most cases, oversized figures and tables are prepared as separate PDF files. Captions are paired with the appropriate figure or table and arranged on an oversized sheet. The following slug will be placed by Art/Production in the upper left corner of the page. For example:

IODP *Proceedings*, Volume 301
Chapter title, Table T1. Caption text goes here.

PDF tables not translated to HTML

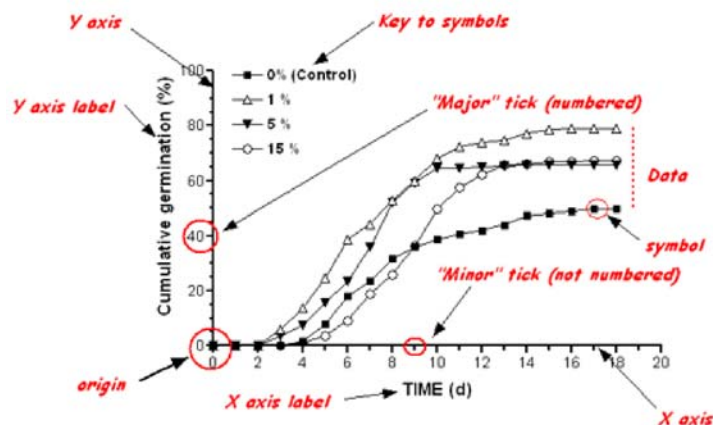
If Production determines that a table, other than an oversized table, included in the PDF version of the chapter should not be converted to HTML, only the caption will be shown on the HTML table page with a link to the table in the PDF version of the chapter. See "**Captions for PDF tables not translated to HTML.**"

Figures

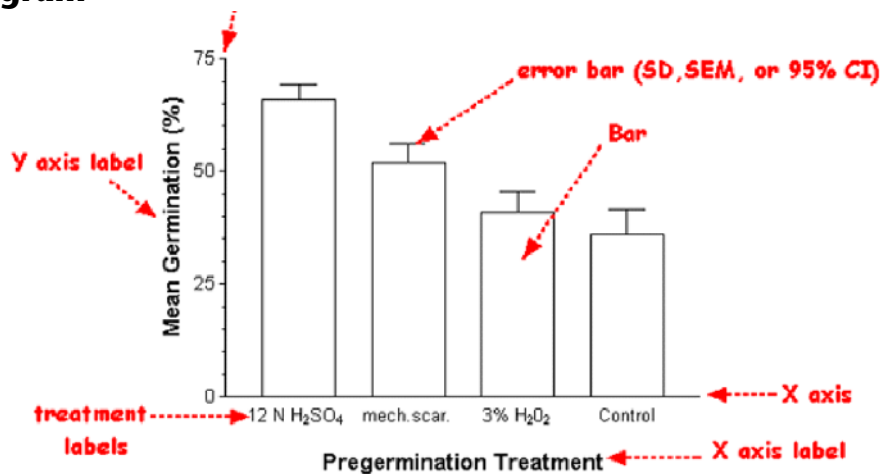
- Figures include graphs, charts, photographs, maps, and other types of illustrations.
- Figures are used for 3 primary types of presentation (CSE7:30.2)
 - Data for which trends or proportions are the important characteristic
 - Visual aids for understanding of complex concepts
 - Drawings or photographs of items under discussion

Parts of a figure

Plot



Histogram



Editing

- Compare each figure against the original printout. Look at axis labels and units, symbols, text, placement of data points, and legend or key.
- Add A, B, C parts to the figure if the caption contains parts or if individual figure parts are cited in text. Conversely, add figure parts to the caption if shown on the figure but not in the caption provided.
- Every figure that contains symbols or patterns has a key on the figure or definitions in the caption. Current preference is a key (for color consistency).
- Leave dashes or hyphens as they are submitted. If a dash/hyphen is confusing or difficult to interpret or if grave inconsistency exists on a single page, discuss with lead artist/art section head on a case-by-case basis.

EXCEPTION: Use en-dashes on figures to signify subtraction in an equation.

- Bathymetry on keys and maps should be consistent with each other (with or without negative/hyphens). Leave bathymetry as submitted on the map graphic, either with or without negative/hyphens, as this is generally a result of the software used to generate the map. Bathymetry is an indication of meters below sea level and whether shown as a negative or positive number, the scientific meaning is the same.
- In maps, use compass directions (N, S, E, W) for longitude and latitude. Do not use negative numbers.

IODP sample identifiers

- Core numbers should be accompanied by a core letter.
- Add “U” before USIO hole and site numbers.
- Complete/correct core, section, or sample identifiers to IODP style (see “**Sample identifiers**”).

Text

- Change British spellings to American.
- Capitalize the first word of labels (both words if separated by a slash).
- Capitalize early/middle/late and upper/lower per style regardless of first word.
- Text does not overwrite data or features and is legible.
- Text font is sans.
- Text size is in proportion to figure and is consistent across like figures.

- Text is free of misspellings and typos.
- Stratigraphic terms are abbreviated (if necessary) as follows:

Age/Stage	Abbrev.	Age/Stage	Abbrev.	Age/Stage	Abbrev.
Cenozoic	Cenoz.	Mesozoic	Mesoz.	Quaternary	Quat. or Q
Tertiary	Tert. or T	Cretaceous	Cret.	Jurassic	Jur.
Neogene	Neog.	Paleogene	Paleog.	Pleistocene	Pleist.
Pliocene	Plio.	Miocene	Mio.	Oligocene	Oligo.
Eocene	Eoc.	Paleocene	Paleoc.	Danian	Dan.
Maastrichtian	Maast.	Campanian	Camp.	Santonian	Sant.
Coniacian	Coniac.	Turonian	Tur.	Cenomanian	Cenom.
Albian	Alb.	Aptian	Apt.	Barremian	Barrem.
Hauterivian	Haut.	Valanginian	Val.	Berriasian	Berrias.
Portlandian	Port.	Kimmeridgian	Kimm.		

- Symbol and superscript/subscript sizes are in proportion to text and figure (superscripts/subscripts should be approximately 2 points smaller than text).
- $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ are used correctly.
- T.D. is changed to TD.
- TWT or TWTT is changed to “Two-way traveltime.”
- Check “*P*-wave velocity” and “*S*-wave velocity” for italicized P and S. Shorthand symbols use uppercase P and S subscripts (V_P , V_S).
- Make sure figure part letters are the correct font and weight.
- Make sure delta and mu symbols the correct font and code.
- *N* vs. *n*: *N* = total number of the group from which data were drawn; *n* = data drawn from a portion of the total group. Query author if *n* is used to verify it’s usage.

Numerals/Equations

- Proper spacing exists between numerals and units.
- Proper spacing exists around operands in equations.
- Italicize variables in equations (e.g., *x*, *y*, *R*, R^2).

- If scale bars appear in images, treat as follows:
 - If embedded in the image, Art will leave them in the image without masking, regardless of legibility.
 - If on a layer, Art will remove them and place them just below the figure.

Column headings

- Use singular labels: Age (Ma) not Ages (Ma).
- Use “Lith. unit” for both lithostratigraphic and lithologic unit columns.
- Use “Lithology” for graphic lithology columns.
- “Core/recovery” columns should be handled consistently throughout each volume, at artist’s discretion.
- Identify the unit type for all “Unit” columns as Lith., Logging, Basalt, Igneous, Seismic, Physical properties, etc.
- Use “Unit” rather than “Unit/Subunit” in figure column headings.
- Check the volume style sheet for unit naming conventions and ensure that unit designations are consistent throughout the volume (roman or arabic numerals, uppercase or lowercase letters for subunits; ideally, each kind of unit used in a volume should have a unique naming convention).
- Stack label and units if they will not fit on one line.

Figure legends/keys

- Maximize space and avoid reduction of figure. Legend placement in order of preference:
 - Inside plot
 - Right of graph aligned with bottom axis
 - Centered under graph and across
 - Centered under graph and down
- Legend text should be smaller than axis label text

Units

- NGR/natural gamma ray/natural gamma radiation: counts or cps
- MS/magnetic susceptibility/susceptibility: 10^{-x} SI, instrument units or IU, standard units or SU

- Inclination/Inc. (also Declination/Dec.), orientation, dip: degrees (°) in header or included in numerical axis labels
- Gamma radiation/gamma ray: API or gAPI (use volume style)
- Stable isotopes: ‰, ‰ PDB, ‰ VPDB, ‰ SMOW
- Total organic carbon/TOC/OC, inorganic carbon/carbonate/IC/CaCO₃, sulfur/TS, nitrogen/TN: % (interstitial water) or wt% (rock, sediment)
- Age: Ma, ka, y BP or k.y. BP
- Time: m.y. or k.y.
- Linear sedimentation rate (LSR)/Mass accumulation rate (MAR):
 →LSR = depth deposited per time (cm/m.y.)
 →MAR = depth deposited per area per time (cm/m²/m.y.)
- Density/Bulk density/Wet bulk density/GRA density/MAD density/LWD density: g/cm³ (never g/cc) or kg/m³
- Color reflectance/Reflectance/Lightness/L*a*b*: % (if axis is labeled 10, 20, 30, etc.) or fraction (no unit) if axis is labeled 0.1, 0.2, 0.3, etc.
- Porosity: % (if axis is labeled 10, 20, 30, etc.) or fraction (no unit) if axis is labeled 0.1, 0.2, 0.3, etc.
- Ratios: no units unless comparisons are not equivalent (e.g., Sr/Mg may be μM/mM or mM/M)

Common geochemistry symbols and units (interstitial waters):

Analyte (abbrev.)	Unit	Analyte (abbrev.)	Unit	Analyte (abbrev.)	Unit
pH	none	Alkalinity	mM	Salinity	none
Sulfate (SO ₄ ²⁻)	mM	Chloride (Cl ⁻)	mM	Ammonium (NH ₄ ⁺)	μM or mM
Ammonia (NH ₃)	μM or mM	Calcium (Ca ²⁺)	mM	Magnesium (Mg ²⁺)	mM
Lithium (Li ⁺)	μM	Strontium (Sr ²⁺)	μM	Barium (Ba ²⁺)	μM
Iron (Fe ²⁺ or Fe _{tot})	μM	Manganese (Mn ²⁺)	μM	Sodium (Na ⁺)	mM
Potassium (K ⁺)	mM	Nitrate (NO ₃ ⁻)	μM	Phosphate (PO ₄ ³⁻)	μM
Boron (B)	μM	Borate (B ₃ BO ₃)	μM	Silicate (H ₄ SiO ₄)	μM
Trace elements	μM or ppb				

Common geochemistry symbols and units (sediment and rock):

Analyte (abbrev.)	Unit	Analyte (abbrev.)	Unit	Analyte (abbrev.)	Unit.
Silicon dioxide (SiO ₂)	wt%	Titanium dioxide (TiO ₂)	wt%	Aluminum oxide (Al ₂ O ₃)	wt%
Iron oxide (Fe ₂ O ₃)	wt%	Magnesium oxide (MgO)	wt%	Manganese oxide (MnO)	wt%
Calcium oxide (CaO)	wt%	Sodium oxide (Na ₂ O)	wt%	Potassium oxide (K ₂ O)	wt%
Phosphorous pentoxide (P ₂ O ₅)	wt%	Loss on ignition (LOI)	wt%	Trace elements	ppm or mg/kg

Types of figures**Plots**

- Plot labels are consistent on like figures.
- If “Depth” is the vertical (y-) axis label, x-axis labels appear at the top of the plot.
- For other plots, x-axis labels appear at the bottom of the plot.
- Numerical scale values appear on the same axis (top or bottom) as labels and units.
- Generally, at least one minor tick exists between each numeral value. The number of minor ticks should be consistent on the x- and y-axes for each plot (Art will decide).
- Include enough numbers on axes for clarity but not so many it is hard to read.
- Remove grid lines from plots.
- If one unit is stacked with the label, stack them all on that figure for consistency.

Biostratigraphy figures

- Close up zone letters/numbers: NN10, CN7, etc.
- Italicize genus and species names and check spelling against taxonomic list.

Spreadsheets and data forms

- Some figures (usually in Methods chapters) are examples of shipboard log sheets or other forms. These should not be copyedited or formatted.
- Maps
- Remove negative signs before bathymetry contours on maps, if possible.
- Include N, S, E, W orientation on both axes.
- Include scale bar.

- Close up spaces between degrees, minutes, and directions.
- Add “Hole” or “Site” to identifiers on maps.
- Italicize undersea features.

Animated figures

Animated GIFs in figures will be made into a QuickTime movie for the PDF file and left as an animated GIF for the HTML file.

Captions

- Figure captions may consist of a word or two, an incomplete or complete sentence, several sentences, or a combination (CMS16:3.21).
- Short captions should be a single line (2 at most) to fit within the HTML navigation frame (CMS16:3.39).
- Art sizes images relative to the size of the corresponding figure caption at initial formatting (before the postexpedition meeting). Revisions to a figure caption that increase or decrease its length by one or more lines requires Art/Production to adjust the image size and position accordingly.

Placement, width, and tagging

- Figure captions are set flush left and run the maximum width of the page.
- Legal and ledger size master pages are available in Frame for oversized figures.

Captions for multipage figures

- If a figure is two pages long, use the following sample wording in the caption:

[Page 1] **Figure F13.** Percent blue and red reflectance at Site 1090. (Continued on next page.)

[Page 2] **Figure F13 (continued).**

- If a figure is more than two pages long use the following sample wording in the caption:

[Page 1] **Figure F13.** Percent blue and red reflectance at Site 1090. (Continued on next four pages.)

[Pages 2 through next-to-last page] **Figure F13 (continued).** (Continued on next page.)

[Last page] **Figure F13 (continued).**

- If a figure is more than two pages long and has a very long caption that will not fit onto the first figure page with the figure, use the following wording in the caption:

[Page 1] **Figure F31.** The Nb/Y vs. Zr/Y plot (Fitton et al., 1997) has been used to distinguish between basalts derived from the Icelandic plume (data within the diagonal lines labeled “Icelandic plume”) and mid-ocean-ridge basalt (MORB) derived from the North Atlantic asthenosphere, Expedition 313. (Figure shown on next two pages.)

[Page 2] **Figure F31 (continued).** (Caption shown on previous page.)

[Pages 3 through next-to-last page] **Figure F13 (continued).** (Continued on next page.)

[Last page] **Figure F31 (continued).**

- If the caption cannot fit on the page with the figure, run the caption at the top of the preceding page and indicate that the figure is shown on the next page. For example:

[Page 1] **Figure F19.** Variation in oxygen isotopic ratios of deep-sea benthic foraminifers from the Atlantic Ocean relative to the global sea-level curve inferred from seismic stratigraphic analysis (after Barrett, 1994), Expedition 313. (Figure shown on next page.)

[Page 2] **Figure F19 (continued).** (Caption shown on previous page.)

- Do not add “**Figure F19 (continued).**” at the top of the figure if the full space is needed to present the figure.

Captions for multipart figures

- Art will label multipart figures with “A,” “B,” “C,” etc. Use a nonbreaking space to keep letter and caption together on one line.
- If the caption for each part of the figure is a complete sentence or thought, the letter designating the figure part will be set in bold and followed by a period, preceding the figure part description. For example:

Figure F2. A. Bathymetry of eastern New Zealand region, with positions of major fronts at the ocean surface and the Antarctic Circumpolar and Pacific Deep Western Boundary currents. **B.** Meridional salinity cross section through the Pacific Ocean (data after Levitus, 1982), with location of Expedition 313 sites projected onto the plane of the section.

Figure F8. Interstitial water inorganic geochemistry profiles, Site U1365. **A.** Chloride. **B.** Magnesium. **C.** Salinity. **D.** Lithium. **E.** Barium. **F.** Sulfate.

- If the caption for each part of the figure is only a part of a complete sentence or thought, put the letter designating the figure part in parenthesis and set the letter (only) in bold. For example:

Figure F4. Geologic cross sections (**A**) through the eastern South Island and adjacent shelf and (**B**) from the shelf edge across the Campbell Plateau to the Southwest Pacific abyssal plain, Expedition 313.

Figure F8. Interstitial water inorganic geochemistry profiles for (**A**) chloride, (**B**) magnesium, (**C**) salinity, (**D**) lithium, (**E**) barium, and (**F**) sulfate, Site U1365.

- For multipart figures that are also multipage figures, set caption parts on the same pages as the corresponding figure parts.

→If figure is two pages long:

[Page 1] **Figure F4. A.** Variation of vein intensity, Hole 735B. (Continued on next page.)

[Page 2] **Figure F4 (continued). B.** Variation of vein dip, Hole 735B.

→If figure is more than two pages long:

[Page 1] **Figure F4.** Variation of vein intensity. **A.** Hole 1088A. (Continued on next four pages.)

[Pages 2 through next-to-last page] **Figure F4 (continued). B.** Hole 1088B. (Continued on next page.)

[Last page] **Figure F4 (continued). C.** Hole 1088C.

Captions for oversized figures

- In the HTML version of the chapter and if a legible thumbnail version of the figure can be placed with the caption on either a portrait or landscape page layout in the PDF version:

Figure F2. Site survey MCS data showing the position of Expedition 324 sites drilled. The data are presented as migrated time sections. (This figure is also available in an **oversized format**.)

- In the PDF version of the chapter if a legible thumbnail is not available:

Figure F8. Site survey MCS data showing the position of Expedition 324 sites drilled. The data are presented as migrated time sections. This figure is available in an **oversized format**.

Additional caption information

- Make sure that the site or hole number is included in the caption, even if it is also in the figure itself. When a figure is not specific to a site or hole (e.g., some Methods figures), include the expedition number.
- “After...” means possible redrafting but no changes to information in figure.
- “Modified from...” means there have been minor changes made to the original figure.
- “Adapted from...” means substantial changes have been made.
- Define all acronyms and symbols shown on the figure in the caption.
- Symbols in the key or caption must match those used in the figure.
- Use “solid” and “open” symbols rather than “white,” “filled,” etc.
- Do not specify color of symbols in caption if the shape is unique (“squares” rather than “green squares”).
- Do not define symbols both in the caption and in a key.
- Make sure core photograph intervals match captions; add information from originals if missing.
- Make sure photomicrograph image light (plane-polarized or cross-polarized as recorded on photomicrograph log) matches caption.
- To facilitate electronic text searches, specify “photograph,” “photomicrograph,” “histogram,” “plot,” etc. in full captions in an efficient way that does not greatly extend the caption length.
- See “**Appendix G**” for sample plate and photomicrograph captions.

Figure layout

- Seismic profiles, bathymetry maps, and figures with extensive detail should be reproduced full size or reduced as little as possible.
- When authors submit figures in landscape orientation, try to keep the same orientation to maintain legibility in the final presentation. In particular, seismic profiles, bathymetry maps, and figures with extensive detail should be reduced as little as possible.
- Page layout in order of preference (at Art’s discretion) is shown below. Space available for caption and figure on letter-, legal-, and ledger-size pages is indicated in parens.

Letter-sized figures

- Portrait with caption on 8.5 inch × 1 inch (letter size) page (42.5 × 56.0 pica text box).
- Landscape with caption on 8.5 inch × 11 inch (letter size) page (56.0 × 42.5 pica text box).
- Maximum width of figure caption is 56.0 picas.
- If figure cannot fit on page with the caption, the caption appears on the preceding page.
- Fit figures on a letter-size page whenever possible and only go to the larger sheet sizes when the science cannot be effectively presented letter size.

Legal-sized figures

- Portrait or landscape on 8.5 × 14 inch (legal size) page (42.5 × 74.0 pica text box).
- Maximum width of figure caption is 56.0 picas.
- If figure cannot fit on page with the caption, the image and caption will be placed on the ledger-size sheet.

Ledger-sized figures

- Portrait or landscape on 11 × 17 inch (ledger size) page (56.0 × 93.5 pica text box).
- Art will notify Production and mark the hard copy if a figure is to be placed on a larger sheet size. Production must format these figures separately because FrameMaker does not allow multiple page sizes in a file.

Oversized figures

A PDF version of each oversized figure is produced as a separate file and placed in the EXP_REPT\OVERSIZE directory. See **“Captions for oversized figures.”**

- In the HTML version of the chapter, the oversized figures are presented in a smaller format in with a link in the caption to the full-size, stand-alone PDF version.
- In the PDF version of the chapter, a reduced version of each oversized figure is produced and placed on the appropriate figure page as a full-page thumbnail view. This allows readers to print a small but complete version of the figure to a standard printer.
- If a figure is too large to be legible in thumbnail form on an 8.5 × 11 inch page in the PDF version of the chapter, the chapter figure page should contain only a caption with a hyperlink to the oversized PDF figure file.

Typesetting guidelines

Lists

Instructions for tagging aligned vertical lists:

- For the lists in the Methods chapters that have equals signs (F = fine, G = good, etc.), use the `<List>` tag, which has a tab setting every quarter-pica.
- After the text is tagged, delete the space before the equals symbol and add enough tabs to move the equals symbol over to clear the longest letter in the list. It may take 6–8 or even more tabs to do this.
- Then delete the space after the equals sign and add tabs to leave approximately the same space before and after the symbol.
- When Production prepares the galley, they will change the “left” setting in the `<List>` tag so the indented wrap aligns with the first word after the equals sign. This may be a different “left” setting for each list, depending on how wide the letters defined are.
- These instructions also apply to variable definitions in list form after an equation.

Fonts

- Italics may be used for isolated words and phrases from a foreign language if they are likely to be unfamiliar to the readers (CMS16:7.49).
- Foreign words and phrases familiar to most readers and listed in Webster’s dictionary should appear in roman type (CM16:7.52).
- Commonly used Latin words and abbreviations should not be italicized (CMS16:7.53)
- Do not use capitalized letters in sans serif font to represent shape. This does not necessarily aid comprehension and tends to look clumsy (CMS16:7.63).

Superscripts/Subscripts

Superscripts/subscripts are set in sans font, 2 points smaller than text font.

- Titles and headers
- Keep the top line longer than the other lines when possible.
- Keep prepositional phrases intact.

- Break on either side of “and” and “the” to best balance the title.
- Capitalize only the first word of a header or title (both words if separated by a hyphen or slash), along with proper nouns (sentence case).

Line endings

- One-letter word divisions are not permissible (CMS16:7.32).
- Break hyphenated words at the hyphen if possible (CSE7:6.3).
- A numeral used with an abbreviated unit of measure is best left intact when possible (CMS16:7.40; CSE7:6.3).
- A number or letter used in a run-in list should not be separated from what follows it (CMS16:7.41).
- At least 4 characters of a chemical name should appear on each line if divided (CSE7:6.3).
- Do not divide a word so the word on the second line looks like a word alone (pathologic, not patho-logic) (CSE7:6.3).
- Do not divide single syllable or short multisyllable words (CSE7:6.3).
- URLs are allowed to break as they naturally will at the end of a line. If a URL must be broken, CSE7:7.42 offers these rules:
 - After a colon or a double slash,
 - Before or after an = sign or ampersand, or
 - Before a single slash, period, other punctuation, or symbol.
 - Do not break a URL at a hyphen or add a hyphen to force a break.

Chapter appendixes

Placement

- IODP style is to use the American spelling “appendixes” rather than “appendices.”
- Place appendixes at the end of the chapter text, after the references, figures, and tables. Start the first appendix on a new page, and run in other appendixes after the first appendix.
- The order of a full chapter with appendixes and appendix figures and tables is as follows:
 - Text
 - References
 - Figures
 - Tables
 - Appendixes
 - Appendix Figures
 - Appendix Tables

Naming appendixes

- If there is one appendix, label it “Appendix.”
- If there is more than one appendix, label them alphabetically: “Appendix A,” “Appendix B,” and so on.
- If there is more than one volume appendix, each receives a roman numeral.
- The “Appendix” header should be tagged Order1-APPENDIX.
- Each appendix should have a title, tagged Order2-APPENDIX on the line below the Order1-APPENDIX header.

Figures/Tables in appendixes

- Table and figure numbers in an appendix are preceded with the letter “A”: Table **AT8**, Figure **AF1**.
- If there are multiple appendixes in a chapter, identify the specific appendix by letter in the call out:

...see Table **AT1** in “Appendix A.”

Volume structure

Table of contents

Each *Proceedings* volume table of contents is structured as follows:

- Preliminary pages
- Expedition reports
 - Chapters (expedition summary, methods, site, and specialty chapters)
 - Core descriptions (VCDs, smear slides, thin sections, other)
- Expedition research results
 - Data reports (postexpedition research chapters)
 - Synthesis (postexpedition research synthesis)
- Supplementary material (supplemental data sets organized by chapter)
- Drilling location maps (expedition, IODP, ODP, and DSDP)
- Expedition-related bibliography (IODP, journal, book, and conference publication list)

Preliminary pages

Preliminary pages contain the front matter for the volume in the following sections:

- Title page
- Publisher's notes

Until further notice, Australian Research Council (ARC) and New Zealand Institute for Geological and Nuclear Sciences (GNS), Australian/New Zealand Consortium will be listed last in the funding agencies list.
- Foreword
- Integrated Ocean Drilling Program
 - IODP-MI
 - IODP member organizations
- Implementing organizations
 - IODP European Implementing Organization

→IODP Japanese Implementing Organization

→IODP U.S. Implementing Organization

- Expedition science participants
- Operational and technical staff
- Acknowledgments (optional)

Expedition reports and research results

Data reports and synthesis papers are added to the table of contents as “in press” chapters upon acceptance and are listed in order of acceptance. Once published, links to HTML and PDF versions are opened.

Supplementary material

Supplementary material can be included in the volume associated with expedition reports or research results. Supplementary material can be any information or data the author wants available to supplement their results. Some examples of supplementary material include data sets in proprietary format (seismic data in SEG-Y format, X-ray diffraction data in McDiff format), data tables in Microsoft Excel format, data sets in ASCII or database formats, figures illustrating data sets, and so on. Supplementary material is not edited for volume style and is not converted to accessible formats but is rather presented as submitted by the author. Provide Production with introductory descriptive text that contains what data is included and in what format it is presented for the table of contents for each *Proceedings* chapter that contains supplementary material. Supplementary material is listed on the table of contents by chapter authorship (e.g., Smith for a chapter with one author, Smith and Jones for a chapter with two authors, Smith et al. for a chapter with three or more authors). If there is more than one multi-authored manuscript with the same first author, the second author’s name (or more) is added (e.g., Expedition 308 supplementary material contains sections for Long, Flemings, Dugan, et al. and Long, Flemings, Germaine, et al.) to distinguish the chapters from each other.

The Supplementary material section of the table of contents contains a link to a README.TXT file that shows a complete directory structure of the volume supplementary material. Provide text to add to the README file to accompany each addition of supplementary material to the volume. Put the date at the bottom of the README file: Last Updated: 12 May 2008.

In the volume directory structure, supplementary material folders are named according to manuscript number, and each manuscript folder contains as many subfolders or files as needed to organize the material in an understandable fashion. Subfolders or files are listed on the volume table of contents with links to the supplementary data sets. Readers should be given enough information in the chapter to find the appropriate data in the Supplementary material directory (e.g., see folder CRSC in “**Supplementary material.**”). The link opens the table of contents to the “Supplementary material” section, from which the reader can select the “CRSC” link and open the data set.

Example from the *Proceedings of the Integrated Ocean Drilling Program*, Volume 308 table of contents:

Supplementary material

Supplementary material for this volume includes physical properties (vane shear and water contents in Microsoft Excel and ASCII formats), downhole temperature and pressure measurements (APCT, DVTPP, and T2P data in Microsoft Excel and raw data formats), and Rhizon geochemistry data in Microsoft Excel. See **README.TXT** in the SUPP_MAT directory for a full listing of directories and files, or see the Directory structure for the names of the main subdirectories.

DOWNHOLE

PHYSPROP

RHYZON

Consolidation data in Microsoft Excel format are included for Long, Flemings, Germain, et al. (2008).

CRSC

Pressure, temperature, and TruView data for DVTPP and T2P deployments in Microsoft Excel format are included for Long, Flemings, Dugan, et al. (2008)

APP_A

APP_B

Expedition-related bibliography

The Expedition-related bibliography contains all citations that we are aware of that relate to a specific expedition, including the *Scientific Prospectus*, *Preliminary Report*, *Proceedings* volume, expedition results chapters, and research results chapters, *Scientific Drilling* reports, and journals, books, and conferences as notified by scientific participants. The bibliography is updated often with new citations.

Errata

Additional information added to the volume after publication is listed on an errata page. A link is added from the appropriate section of the table of contents.

Note: The term “Errata,” although plural in meaning, is also used for single instances of errors. This allows for any future additions of errors without having to change the title headings.

Example 1: From the *Proceedings of the Integrated Ocean Drilling Program*, Volume 314/315/316 table of contents:

Expedition reports

Chapters

Expedition 315 Site C0001 [HTML](#) | [PDF](#) | [Errata](#)

Expedition 315 Scientists

In this example, the Errata link opens a new window containing the following notation:

**ErratafortheProceedingsoftheIntegratedOceanDrillingProgramVolume314/
315/316**

Expedition 315 Site C0001 chapter:

The caption for Figure F50 was corrected. (8 July 2009)

Expedition 316 summary chapter:

The 4000 and 6000 m labels in the Figure F1A bathymetry key were corrected. (22 June 2009)

StructuralandseismicstratigraphicframeworkoftheNanTroSEIZEStage 1 transect chapter:

Figure F5 has been corrected. (10 August 2009)

Expedition 315 supplementary material:

The C0001_STRUCT_DATA.XLS and C0002_STRUCT_DATA.XLS files, which contain structural data from Expedition 315, have been corrected. (26 August 2009)

Expedition 316 supplementary material:

The C0004_STRUCT_DATA.XLS, C0006_STRUCT_DATA.XLS, C0007_STRUCT_DATA.XLS, and C0008_STRUCT_DATA.XLS files, which contain structural data from Expedition 316, have been corrected. (26 August 2009)

Example 2: From the *Proceedings of the Integrated Ocean Drilling Program*, Volume 304/305 table of contents:

Supplementary material

Supplementary material for this volume includes expanded coring summary tables, Formation MicroScanner data, geochemistry data, glass log, igneous petrology logs, alteration logs, vein logs, microbiology logs, metamorphic petrology logs, thin section metadata, paleomagnetism data, thin section photo sheets, physical property data, and structure logs (see [README.TXT](#) in the SUPP_MAT directory for more details).

[CORESUMM](#)

[FMS](#)

[GEOCHEM](#)

[GLASS](#)

[IGN_PETR](#) | [Errata](#)

In this example, the Errata link opens a new window containing the following notation:

Errata for *Proceedings of the Ocean Drilling Program* Volume 304/305

Expedition 305 supplementary material:

The file 305IGPET.XLS, which contains supplementary igneous petrology data from Expedition 305, has been added to the electronic volume. (15 January 2008)

Appendix A: IODP acronyms and abbreviations

ACRONYM	Organization or Term
ACEX	Arctic Coring Expedition
ACORK	advanced circulation obviation retrofit kit
AESTO	Advanced Earth Science and Technology Organization
AF	Academy of Finland
AGI	American Geological Institute
AGU	American Geophysical Union
ANDRILL	Antarctic Geological Drilling
APCT	advance piston corer temperature tool
APLACON	Alternate Platform Conference
APP	Annual Program Plan
BCR	Bremen Core Repository
BGS	British Geological Survey (U.K.)
BoG	Board of Governors (JOI)
BRG	Borehole Research Group
BSR	bottom-simulating reflectors
CAB	Curatorial Advisory Board
CDAQ	common downhole data acquisition (system)
CDC	Conceptual Design Committee (U.S. SODV)
CDEX	Center for Deep Earth Exploration
CDP	Complex Drilling Project
CGU	Canadian Geophysical Union
CMCR	Center for Advanced Marine Core Research
CMO	Central Management Office
CMT	Conversion Management Team (U.S. SODV)
CNR	Consiglio Nazionale delle Ricerche (Italy)
CNRS	Centre National de la Recherche Scientifique (France)
CNSF	Coalition for National Science Funding
COE	College of Exploration
COMPLEX	Conference on Multiple Platform Exploration of the Ocean
CONCORD	Conference on Cooperative Ocean Riser Drilling
CoOL	Conference on Ocean Literacy
CORE	Consortium for Oceanographic Research and Education
CORK	circulation obviation retrofit kit
COSEE	Centers for Oceanographic Research and Education
no acronym	Consortium for Ocean Leadership (see Ocean Leadership) (formerly JOI)
CRISP	Costa Rica Seismogenesis Project
DESCINFO	Descriptive and Interpretative Information Capture
DFG	Deutsche Forschungs Gemeinschaft (German Research Foundation)
DLESE	Digital Library for Earth System Education
DNSRC	Danish Natural Science Research Council
DSDP	Deep Sea Drilling Project
D/V	Drilling Vessel
DVTP	Davis-Villinger Temperature Probe
DVTPP	Davis-Villinger Temperature Pressure Probe
EC	European Commission
ECORD	European Consortium for Ocean Research Drilling
ECORD-net	EC Research Area Network
ECR	East Coast Repository
EDP	Engineering Development Panel (formerly TAP)
EGU	European Geophysical Union

EIS	environmental impact statement
EMA	ECORD Managing Agency
ENSO	El Niño Southern Oscillation
E&O	Education and Outreach
EOR	expedition objective research
EPC	European Petrophysics Consortium
EPSP	Environmental Protection and Safety Panel
ESO	ECORD Science Operator
ESSAC	ECORD Science Support and Advisory Committee
ESSEP	Environmental Science Steering and Evaluation Panel
GCR	Gulf Coast Repository
GEPON	Geoscience Education and Public Outreach Network
GIFT	Geophysical Information for Teachers
GRICES	Gabineta de Relacoes Internacionais da Ciencias e do Ensino Superior (Portugal)
GSA	Geological Society of America
HBCU	Historically Black Colleges and Universities
HYACE	hydrate autoclave coring equipment
IAVCEI	International Association of Volcanology and Chemistry of the Earth's Interior
ICDP	International Continental Scientific Drilling Program
IFREE	Institute for Frontier Research on Earth Evolution
IGME	Institute of Geology and Mineral Exploration (Greece)
IIS-PPG	Industry-IODP Science Program Planning Group (formerly ILP)
ILWG	Industry Liaison Working Group
ILP	Industry Liaison Panel, predecessor to IIS-PPG
IMAGES	International Marine Past Global Changes Study
INSU	Institut National des Sciences de l'Univers (France)
InterMARGINS	International Margins Program
InterRidge	An initiative for international cooperation in ridge-crest studies
IO	implementing organization
IODP	Integrated Ocean Drilling Program
IODP-MI	Integrated Ocean Drilling Program Management International
ION	International Ocean Network
IRIS	Incorporated Research Institutions for Seismology
iSAS	Interim Science Advisory Structure
ISP	Initial Science Plan (for IODP)
ISSEP	Interior Science Steering and Evaluation Panel
IWG	International Working Group
IWGSO	International Working Group Support Office
JALDT	Joint Applications Development, Lab Capability, Data Management Team (formerly JTT)
JAMSTEC	Japan Agency for Marine-Earth Science and Technology
JASIT	Joint Alliance Systems Integration Team
JASMT	Joint Alliance Systems Management Team
J-DESC	Japan Drilling Earth Science Consortium
JEDT	Joint Engineering Development Team
JEODI	Joint Expedition Project Management Team
JEPMT	Joint Expedition Project Management Team (formerly JOT)
JIT	Joint Information Team
JOI	Joint Oceanographic Institutions, Inc. (now Consortium for Ocean Leadership)
JOI Alliance	Former term for USIO; members are JOI, LDEO, and TAMU
JOIDES	Joint Oceanographic Institutions for Deep Earth Sampling
JOT	Joint Operations Team (see JPMT)
JPIO	Japan Implementing Organization

JPT	Joint Platform Team
JREPORT	Joint Outreach, Education, Public Relations Team
JTT	Joint Technology Team (see JALDT)
KCC	Kochi Core Center
LDEO	Lamont-Doherty Earth Observatory, Columbia University
LIP	large igneous province
M&A	Management and Administration
MCVT	Ministerio de Ciencia Y Tecnologia (Spain)
MENRT	Ministerio de l'Education Nationale, de la Recherche de la Technologie (France)
MEXT	Ministry of Education, Culture, Sports, Science, and Technology (Japan)
MOST	Ministry of Science and Technology (People's Republic of China)
MOU	Memorandum of Understanding
MRC	Micropaleontological Reference Centers
MREFC	Major Research Equipment and Facilities Construction (NSF)
MSP	Mission-Specific Platform
NAGT	National Association of Geosciences Teachers
NanTroSEIZE	Nankai Trough Seismogenic Zone Experiment
NCMR	National Center for Marine Research (Greece)
NERC	National Environmental Research Council (U.K.)
NSDL	National Science Digital Library
NSF	National Science Foundation (U.S.)
NSTA	National Science Teacher's Association
NWO	Netherlands Organisation for Scientific Research
Ocean Leadership	Consortium for Ocean Leadership
OD21	Ocean Drilling in the 21 st Century (Japan)
ODASES	Ocean Drilling and Sustainable Earth Science
ODL	Overseas Drilling Limited
ODP	Ocean Drilling Program
OEAW	Austrian Academy of Sciences
OGS	Istituto Nazionale di Oceanografia di Geofisica Sperimentale (Italy)
OOI	Ocean Observing Initiative
OPCOM	The former Operations Committee (now Operations Task Force)
ORION	Ocean Research Interactive Observatory Networks
ORTF	Operations Review Task Force (formerly REVCOM)
OTF	Operations Task Force (formerly OPCOM)
PAC	Program Advisory Committee
PEAT	Pacific Equatorial Age Transect (expeditions)
PEIS	Programmatic Environmental Impact Statement (USIO)
PETM	Paleocene/Eocene Thermal Maximum
PMO	Program Member Office
POC	platform operating cost(s)
PPG	Program Planning Group
PPSP	Pollution Prevention and Safety Panel, predecessor of EPSP
QA/QC	quality assurance/quality control
RANNIS	The Icelandic Centre for Research
REVCOM	Review Committee (see ORTF)
SAC	Sample Allocation Committee
SAFOD	San Andreas Fault Observatory at Depth
SAS	Science Advisory Structure (IODP)
SASEC	Science Advisory Structure Executive Committee
SBTF	Simulated Borehole Test Facility
SciMP	Scientific Measurements Panel, predecessor of STP
SEDIS	Scientific Earth Drilling Information Service
SIC	systems integration contract cost(s)
SMCS	Sample Material Curation System

SNF	Swiss National Science Foundation
SOC	science operating cost(s)
SODV	Scientific Ocean Drilling Vessel
SPC	Science Planning Committee
SPPOC	Science Planning and Policy Oversight Committee
SSDB	Site Survey Data Bank
SSEP	Science Steering and Evaluation Panel
SSP	Site Survey Panel
STP	Science Technology Panel (formerly SciMP)
TAMU	Texas A&M University
TAMRF	Texas A&M Research Foundation
TAP	Technology Advice Panel, predecessor to EDP
TAWG	Technical Advice Working Group
TE&SS	Technical, Engineering, and Science Support
TFAC	Test Facility
ToR	Terms of Reference
USGS	U.S. Geological Survey
USIO	U. S. Implementing Organization
USSAC	U.S. Science Advisory Committee (for Scientific Ocean Drilling)
USSSP	U.S. Science Support Program
no acronym	U.S. Systems Integration Contractor
VR	Swedish Research Council
VSAT	very small aperture terminal
WBE	work breakdown element
WCR	West Coast Repository
WG	working group

Appendix B: IODP *Proceedings* list of open compounds

To avoid unnecessary hyphenation of unambiguous science and engineering terms used in the IODP *Proceedings*, treat the following words as open compounds in both the noun and adjectival forms:

A

acoustic impedance
air fall
air gun
alternating field
ash fall

B

barrel sheet
bulk density
bottom water

C

check shot
color reflectance
compressional wave
core catcher
contact probe

D

debris flow
drill collar
drill floor
drill pipe
drill string
drilling fluid
dry bulk

E

echo sounder
end cap
end point
equal area projection

F

fluid flow

G

gamma ray
gas hydrate
geomagnetic field
geomagnetic reversal
greenhouse gas
ground water
guide horn

H

hand specimen
hanging wall
hard rock
headspace gas
heat flow
heat flux

I

ice sheet
inorganic carbon
insertion probe
interstitial water
island arc

L

lower hemisphere

M

magnetic anomaly
magnetic field
magnetic polarity
magnetic susceptibility
magnetic reversal
major element
minor element
moon pool
mud clast

N

needle probe
negative polarity
reflection

O

ocean water
organic carbon
organic matter

P

physical properties
plate tectonic
pore fluid
pore water
port call
positive polarity
reflection

R

rare earth element
reef front
rig floor

S

sea level
sediment accumulation
seismic reflection
seismic stratigraphic
seismic wave
shear wave
shear zone
site survey
smear slide
squeeze cake
stainless steel
sonic velocity
source rock
sulfate reduction
surface water

T

terrigenous matter

thin section

tool string

top drive

total inorganic

carbon

trace element

triple combination

(triple combo)

W

wall rock

water column

water depth

water table

wet bulk

Appendix C: IODP depth scale terminology

The most recent version of the IODP Depth Scales Terminology document is at www.iodp.org/program-policies/.

Scientists should describe the depth scale submethods used, if any, in the “Methods” chapter. Subsequent depth scale acronyms do not need the submethod defined when defining the acronym for the first time, but do need a link to the appropriate section dealing with depth scales in the “Methods” chapter:

Magnetostatigraphy measurements were not taken below 345 m core composite depth below seafloor (CCSF-B) (see “**Depth scales used during Expedition 346**” in the “Methods” chapter [Expedition 346 Scientists, 2012]).

Examples of when to use depth scales:

- Describing drilling and downhole measurement strategy: mbsf
- Describing seismic profiles and geology of the area (based on data previously acquired): mbsf
- Jetting tests: mbsf
- Washing/reaming/drilling in before coring: mbsf
- Coring: m CSF
- Overdrilling/drilling over with APC: m CSF
- Pipe stuck: m CSF
- Coring attempts in rough area, fractured zones, dikes, sand, rock: m CSF
- Downhole measurements on coring line (DVTP, SET, APCT): m CSF
- Downhole tool string measurements (triple combo, FMS): m LSF
- Composite depths (constructed on ship or postexpedition): m CCSF
- TWT converted to seismic depth/synthetic seismograms: SSF

Definitions

Depth: A distance measured on a depth scale. A numeric value with units specified in the depth scale definition.

Depth scale: is a linear scale defined by the following parameters:

- Origin
- Path
- Unit of length (IODP recommends SI)
- Method/tool by which the scale was created.
- If any one of these parameters changes, a new depth scale is defined because stratigraphic features may be represented at different nominal depths.
- Submethods further qualify depth scales and are noted as appropriate. Multiple submethods typically do not occur for one hole and it is therefore not practical to define a depth scale type for each sub-method.

Depth map: Series of pairs of control points, each pair representing depth values from two depth scales, the FROM scale and the TO scale. Depth values from the FROM depth scale are interpolated between the control points on the TO depth scale. A depth map has the following information associated with it:

- TO scale name (the scale to be used for rendering the data)
- FROM scale name (the scale mapped to the TO scale)
- Method used for associating control points, Date, Author

For all depth scales:

Path: All paths are Measured Depth; True Vertical Depth would constitute a new depth scale.

Unit: The unit used in all schemes is m; if another unit is used (e.g., ft) it would constitute a new depth scale.

Drillers depth scale

The drillers depth scale is based on the length of drill pipe lowered below the drill floor.

Depth Scale Name	Acronym	Origin	Method Description	Sub-Method	Path	Unit	Previous Name	Previous Unit
Drilling depth below rig floor	DRF	Drill floor	Add the lengths of all drill string components deployed beneath the rig floor, from bit to the point on the rig floor where the length of the deployed portion of the last string is measured.	Describe sub-method of measuring drill string component length and length deployed at rig floor.	Measured depth	m	Depth	mbrf
Drilling depth below seafloor	DSF	Seafloor	Subtract the distance between rig floor and sea level from an estimate of sea floor depth at the drilling depth below rig floor scale using one of the sub-methods.	A. Tag seafloor B. Mudline core C. Visual control D. Inherit depth E. Other	Measured depth	m	Depth	mbsf

Logging while drilling (LWD) and measurement while drilling (MWD) depth scale

LWD measures in situ formation properties with instruments that are located in the drill collars immediately above the drill bit. Measurements are made shortly after the hole is cut and before it is adversely affected by continued drilling or coring operations.

Depth Scale Name	Acronym	Origin	Method Description	Sub-Method	Path	Unit	Previous Name	Previous Unit
LWD depth below rig floor	LRF	Drill floor	Add the lengths of all drill string components deployed beneath the rig floor, from bit to Kelly Bushing where the length of the deployed portion of the last string is measured. Account for constant offset of measured area for each sensor.	Describe sub-method of measuring traveling block position with time.	Measured depth	m	Depth	mbrf
LWD depth below seafloor	LSF	Seafloor	Subtract the distance between rig floor and sea level from an estimate of seafloor depth at the LWD below rig floor scale using one of the sub-methods	A. Tag seafloor B. Visual control C. Inherit depth D. Other	Measured depth	m	Depth	mbsf

Mud depth scale

Mud logging is the process of collecting, analyzing and recording the meaningful solids, fluids, and gasses brought to the surface by the drilling fluid (mud).

Depth Scale Name	Acronym	Origin	Method Description	Sub-Method	Path	Unit	Previous Name	Previous Unit
Mud depth below sea level	MSL	Sea level	Estimate lag time between cutting of fragments and their arrival at the rig floor and associate with drill bit depth times.	Describe sub-method used to determine lag time/lagged depth	Measured depth	m	Depth	N/A

Wireline depth scale

The wireline depth scale is based on the wire length between downhole tool and shipboard winch.

Depth Scale Name	Acronym	Origin	Method Description	Sub-Method	Path	Unit	Previous Name	Previous Unit
Wireline log depth below rig floor	WRF	Drill floor	Measure length of wireline extended beneath the rig floor.	Describe sub-method.	Measured depth	m	Depth	mbrf
Wireline log depth below seafloor	WSF	Seafloor	Subtract the distance between rig floor and sea level from an estimate of seafloor depth at the wireline depth below rig floor scale using one of three sub-methods.	A. Seafloor signal B. Drilling depth C. Inherit depth D. Other	Measured depth	m	Depth	mbsf
Wireline log speed-corrected depth (below seafloor)	WSSF	Seafloor	Correction for irregular motion of the tool during logging using accelerometer data; used for high-resolution logs such as microresistivity (FMS).	Describe sub-method if applicable.	Measured depth	m	Depth	mbsf
Wireline log matched depth (below seafloor)	WMSF	Seafloor	Pick log data from one run as a reference and map other run data using several tie points.	Describe reference log and number/ type of tie points used.	Measured depth	m	Depth	mbsf

Core depth scale

The core depth scale is based on the actual length of core recovered and the driller's depth. It can vary with time as core expands or contracts. Technically it is not a depth but it could be used to derive a depth by cumulating all core lengths.

Depth Scale Name	Acronym	Origin	Method Description	Sub-Method	Path	Unit	Previous Name	Previous Unit
Core depth (below seafloor)	CSF	Seafloor	Measure core sample or measurement offset below the core top and add it to the core top's drilling depth below seafloor; apply one of the sub-methods.	A. Let overlap if long B. Scale if long C. Other	Measured depth	m	Depth	mbsf
Core composite depth	CCSF	Seafloor	Align cores from one hole or multiple adjacent holes based on one of the sub-methods. The result is a newly constructed depth scale.	A. Append if long B. Scale by factor C. Correlate features D. Splice E. Other	Measured depth	m	Depth	mcd

Seismic depth

The seismic depth is based on the time traveled of seismic wave converted to a depth.

Depth Scale Name	Acronym	Origin	Method Description	Sub-Method	Path	Unit	Previous Name	Previous Unit
Seismic depth scale	SSF	Seafloor	Convert seismic traveltime to depth domain	A. Use local/regional velocity model B. Use ties to borehole data referenced to depth C. Use log (and core) data for seismic modeling (synthetic seismogram) D: Use check shot for interval velocity E: Combination of above method(s) F: Other	Measured depth	m	Depth	m

Appendix D: Common IODP units

Inorganic geochemistry

Measurement	Unit	Abbreviation
Loss on ignition (LOI)	weight percent	wt%
Salinity	dimensionless	
Dissolved constituents (Sr, Ba, Fe, Mn, Li, B, Si, Cu, Mo, Ni, V, Zn)	micromolar	μM
	parts per billion	ppb
Dissolved cations/anions (alk, Cl, SO ₄ , Ca, Mg, K, Na)	millimolar	mM
Dissolved anions (PO ₄ , NO ₃ , NH ₄)	micromolar	μM
Major element oxides in sediment/rock (SiO ₂ , TiO ₂ , Al ₂ O ₃ , Fe ₂ O ₃ , MnO, MgO, CaO, Na ₂ O, K ₂ O, P ₂ O ₅)	weight percent	wt%
Trace elements in sediment/rock (Ba, Cr, Sc, Sr, V, Y, Zr, Zn, Co, Cu, Nb, Ni)	parts per million	ppm
Elemental ratios	dimensionless	
Total N and total S in sediment	weight percent	wt%
Dissolved oxygen	micromolar	μM
	micrograms per liter	μg/L
pH	dimensionless	
Manheim squeezer pressure	megapascal	MPa
Solution concentration	molar	M
Solution concentration	normal	N
Standard deviation	same as measurement	

Organic geochemistry

Measurement	Unit	Abbreviation
Total organic carbon (TOC)	weight percent	wt%
Total carbon (TC), inorganic carbon (IC)	weight percent	wt%
Total inorganic carbon (TIC)	weight percent	wt%
Hydrogen index	milligrams hydrocarbon per gram sediment	mg HC/g sediment
Oxygen index	milligrams CO ₂ per gram sediment	mg CO ₂ /g sediment
Hydrocarbon gases (C ₁ , C ₂ , C ₃ , C ₄ , etc.)	parts per million by volume	ppmv
C ₁ /C ₂ ratio	dimensionless	
Biogenic opal	weight percent	wt%
GC-MS ion scan range	mass per atomic number	<i>m/z</i>

Lithostratigraphy

Measurement	Unit	Abbreviation
XRD wavelength	Angstrom	Å
XRD plot <i>x</i> -axis unit	degree 2-theta	°2θ
XRD plot <i>y</i> -axis unit	counts	counts
Mineral composition by thin section	percent or modal percent	% or mod%
Calcium carbonate by smear slide	percent	%
Grain size	phi	Φ
Color reflectance wavelength	nanometer	nm
Color reflectance unit (<i>L</i> *, <i>a</i> , <i>b</i>)	percent	%
Brightness/Lightness	percent	%

Paleomagnetism

Measurement	Unit	Abbreviation
NRM and ARM intensity	ampere per meter	A/m
Magnetization	ampere meter squared per kilogram	Am ² /kg
Magnetic moment	ampere per square meter	A/m ²
Applied field	tesla or millitesla	T or mT
Inclination and declination	degrees	°
Magnetic susceptibility (<i>κ</i>)	dimensionless (SI)	
Coercivity (<i>B</i>)	millitesla	mT

Physical properties

Measurement	Unit	Abbreviation
Density (GRA, bulk, dry, grain) (<i>ρ</i>)	grams per cubic centimeter	g/cm ³
Moisture	weight percent	wt%
Temperature	degrees celsius	°C
	degrees kelvin	K
Thermal conductivity	watts per meter degree kelvin	W/(m·K)
Compressional wave (<i>P</i> -wave) velocity	meters per second	m/s
	kilometers per second	km/s
Natural gamma radiation	counts per second	cps
Heat flow	milliwatts per square meter	mW/m ²
Porosity (<i>φ</i>)	percent	%
Vane shear strength	kilopascal	kPa
Pressure	bar	bar

Microbiology

Measurement	Unit	Abbreviation
Perfluorocarbon tracer in sediment	nanograms PFT per gram sediment	ng PFT/g sediment
Seawater contamination of cores	microliter seawater per gram sediment	μL seawater/g sediment
Radioactivity	milliCurie	mCi
Radiotracer activity	bequerel or kilobequerel	Bq or kBq
Microbial growth	colony formation unit	cfu
Cell counts	cells per cubic centimeter	cells/cm ³

Biostratigraphy/Age models

Measurement	Unit	Abbreviation
Sedimentation rate	meters per million years	m/m.y.
	centimeters per thousand years	cm/k.y.
Accumulation rate	grams per square centimeter per million years	g/cm ² /m.y.
Age	millions of years old	Ma
	thousands of years old	ka
Time span (duration)	millions of years	m.y.
	thousands of years	k.y.
Carbon stable isotope (δ ¹³ C)	permil	‰
Oxygen stable isotope (δ ¹⁸ O)	permil	‰

Downhole logging

Measurement	Unit	Abbreviation
Photoelectric effect	barns per electron	b/e-
Barrels		bbl
Resistivity	ohm meters	Ωm
Thermal gradient	degrees per meter	°C/m
Velocity	milliseconds per foot	ms/ft
Acceleration	milliseconds per square second	ms/s ²
Azimuth	degrees	°
Gamma radiation	American Petroleum Institute units	gAPI
Formation thorium and uranium	parts per million	ppm
Formation potassium	weight percent	wt%
TAP tool pressure	pounds per square inch	psi

Operations

Measurement	Unit	Abbreviation
Rate of penetration	meters per hour	m/h
Ship speed	knots	kt
Ship distance traveled	nautical miles	nmi
Weight on bit	kilo-pounds	klb
Time	Universal Time Coordinated	UTC
Pumping rate	gallons per minute	gpm
PDR frequency	kilohertz	kHz
Pressure	pounds per square inch	psi
Mud weight	pounds per gallon	ppg or lb/gal

Seismic

Measurement	Unit	Abbreviation
Acoustic impedance	grams per square centimeter per second	$\text{g}/(\text{cm}^2 \cdot \text{s})$
Two-way traveltime	seconds or milliseconds	s or ms

Mechanical properties

Measurement	Unit	Abbreviation
Stiffness modulus	kilopascal	kPa
Strain	percent	%
Effective stress	kilopascal or megapascal	kPa or MPa
Permeability	square meters	m^2
Diffusivity	square meters per second	m^2/s
Sediment consolidation	cubic centimeters	cm^3
Applied flow rate	cubic centimeters per second	cm^3/s
Viscosity	pascal seconds	$\text{Pa} \cdot \text{s}$

NOTES: $\mu\text{M} = \mu\text{mol}/\text{L}$, $\text{mM} = \text{mmol}/\text{L} = \text{meq}/\text{L}$, $\text{W}/(\text{m} \cdot \text{K}) = \text{W}/(\text{m} \cdot \text{C})$, 1 bar = 100 kPa

Appendix E: Species lists and systematic paleontology

Species lists or systematic paleontology descriptions are generally not included in the main body of text but are treated as an appendix. Species lists included in text should be moved into an appendix at initial edit. Species lists and systematic paleontology descriptions are tagged with the <tax text> tags.

Species nomenclature

- The full, formal species designation consists of four parts:
 - Latin genus name
 - Latin species name
 - Surname of the “author” (discoverer and/or namer)
 - Official date when the species was “published” (named).
- Genera and species names are always italicized, the name and date of the species author, whether or not it is in parentheses, is set in roman type (default font):

Coccolithus radiatus Kamptner, 1955

- A name in parenthesis indicates that the author described the species but referred it to a different genus (CSE7:8.123):

Reticulofenestra minutula (Gartner, 1967) Haq and Berggren, 1978

Actinocyclus ingens (Baldauf) Whiting and Schrader, 1985

- The complete four-part species description is not necessary, especially if there is an alphabetized systematic description or species list included in an appendix. If there is no list, it is preferable that the full four-part designation be used for the first occurrence, but not all authors will do so.
- The author and date that often follow the Latin genus and species name do not constitute a bibliographic reference but are part of the formal nomenclature. A corresponding bibliographic entry in the reference list is required only if the author of the chapter has cited page, plate, or figure references.

- The genus name is always capitalized and the species name is never capitalized. This is applied in text, titles, tables, indexes, etc. The words “genus” or “species” are not capitalized when used as a classification (CMS7:8.119):

the genus *Reticulofenestra*

the species *abies*

- A subspecies name following the binomial species name is also italicized (CMS7:8.121):

Noctilio labialis labialis

- A genus name used as a common name is not italicized or capitalized:

discoasters

reticulofenestrids

- Verify genus and species name spellings against the taxon database during initial edit.

Genus abbreviation

- In text the genus name can be abbreviated using only the first letter of the genus, italicized and followed by a period, for each mention of a genus either with each particular species after the first or in a list of several species of the same genus. The genus name should be spelled out at first mention (CMS7:8.120).

Core 183-1139A-3R contains common to very abundant *yclicargolithus abisectus*, *C. floridanus*, *Coccolithus miopelagicus*, *Helicosphaera carteri*, *H. granulosa*, common *Calcidiscus leptoporus* and *C. macintyreii*, and common *Discoaster variabilis*, which place it in the combined CN5a/CN3 Zone (middle Miocene).

A relatively pure nannofossil ooze in the top of Section 183-1139A-1R-1 consists of very abundant *Emiliania huxleyi* (90% of the assemblage), which indicates the *E. huxleyi* acme of Gartner (1977) with an age of ~84 ka or less. The second section of the core contained few *E. huxleyi* is assigned to the lower portion of the *E. huxleyi* Zone.

- If both the species and the subspecies are the same, the first one can be abbreviated (CMS7:8.121):

Noctilio l. labialis

- Some biostratigraphers prefer that a genus name at the beginning of a sentence be spelled out, whether it is the first or subsequent mention.
- In tabular and graphic material in which species are listed alphabetically by genus name and when the author has provided a full species list to accompany the chapter, the genus name may be abbreviated. The species name is never abbreviated. Generally, genus names should be added to range charts and biostratigraphic event tables.

Abbreviations

A variety of abbreviations are found attached to species names. These abbreviations are not italicized. Sometimes “ssp.,” “var.,” or “f.” may be inserted before a subspecies name (CSE7:8.121).

Species: sp. and var.

The abbreviations “sp.” and “var.” without a following name indicate that the species or variety is unknown or unspecified. The plural “ssp.” refers to a group of species (CSE7:8.122). The genus name should never be abbreviated with sp. or var.: *Discoaster* sp.; never *D.* sp.

Confer: cf.

The abbreviation cf., meaning confer or compare, is included after the genus name if there is doubt about the species identification [note: the comparative genus name can be abbreviated]:

Discoaster cf. *D. sublodoensis*

Reticulofenestra sp. cf. *R. samodurovii*

Gephyrocapsa sp. cf. *sinuosa*

Prunopyle cf. *titan*

Affinity: aff.

The abbreviation aff. after the genus name means that the species is closely related to the one given but is possibly a different species. Aff. implies less certainty than cf. Again, the second genus name can be abbreviated:

Gephyrocapsa aff. *G. oceanica*

Ceratocyrtis sp. aff. *C. stigi*

Other abbreviations

- Other abbreviations inserted between genus and species names are not italicized and include
 - subsp. (subspecies)
 - var. (variety)
 - f. (forma)
 - s.s. (sensu stricto)
 - s.l. (sensu lato)
 - n. sp. (new species)

- Examples:

Reticulofenestra spp. (<3 µm)

Cornutella clathrata s.s. *profunda*

Stephanopyxis turris var. *trispinosus*

Distephanus speculum notabilis f. *notabilis*

Question marks

The author may include a question mark if there is some doubt about the identification of the fossil; the position of the question mark indicates different levels of doubt. The question mark should not be separated from the genus or species name by a space and should not be italicized. Parentheses around the question mark should be removed.

- A question mark before or after the genus name indicates that the entire identification is in doubt:

Helicosphaera? *carteri*

?*Helicosphaera* *carteri*

Amphistylus? sp. A

- A question mark after the species name indicates that the genus identification is certain but the species identification is not:

Reticulofenestra umbilicus?

Species list formatting/tagging

Simple species list

A simple species list, consisting only of the formal species name with or without references and/or plate citations is formatted as follows:

- The first line of the entry is set flush left, with carryover lines indented <tax hanging indent>.
- The font size of tax text is one point smaller than body text.
- The genus names of each entry are spelled out.

Actinocyclus ehrenbergii Ralfs in Pritchard, 1861; Hustedt, 1929, p. 525, pl. 1, fig. 298.

Actinocyclus ellipticus var. *javanica* Reinhold, 1937; Barron 1985a

Actinocyclus tennellus (Jørgensen) Andrews, 1976, p. 14, pl. 3, figs. 8, 9; as *A. ehrenbergii* var. *tenella* (Jørgensen) Hustedt, 1929, p. 530, pl. 1, fig. 302.

Extended species description

The extended species description is used if descriptive material, remarks, or other information is given in addition to the usual one- or two-line entry.

- The primary entry is tagged <tax hanging indent>.
- Additional information is given in a new paragraph, first line indented <tax text>.
- List entries should be separated by a 6 point space <tax hanging indent space above>.
- The genus name of each entry should be spelled out.

Crucidentricula nicobarica (Grunow) Akiba and Yanagisawa, 1986, p. 486, pl. 1, fig. 9, pl. 2, figs. 1–7, pl. 5, figs. 1–9; Akiba, 1986, pl. 26, figs. 1–4; Yanagisawa and Akiba, 1990, p. 232, pl. 1, figs. 23–29.

Remarks: *Crucidentricula paranicobarica* vars. described by Akiba and Yanagisawa (1986) are tabulated together.

Actinocyclus ingens var. 1 (Pl. **P1**, figs. 7, 12).

Description and Remarks: This precursor form to *A. ingens* is characterized by closely packed areolae and light silicification of the central area. In Hole 1138A, *A. ingens* var. 1 has a lowest occurrence in Sample 183-1138A-23R-CC (210.85 mbsf), just below the FO of *A. ingens* s.s.

Araniscus lewisianus (Greville) Komura, 1998, pp. 6–8, figs. 20–22, 87–104, and text fig. 1.

Basionym: *Coscinodiscus lewisianus* Greville; Schrader, 1973, p. 703, pl. 8, figs. 1–6, 10, 15; Schrader, 1976, p. 631, pl. 14, fig. 3; Harwood and Maruyama, 1992, p. 702, pl. 6, fig. 13.

Azpeitia harwoodii Bohaty and Shiono n. sp. (Pl. **P3**, figs. 1–6, 10–13).

Synonym: *Azpeitia* sp. B of Shiono, 2000a (doctoral thesis), pl. 34, figs. 1–6; pl. 35, figs. 1–6.

Description: Valve is heavily silicified and circular in outline. Two to three areolae are present on the mantle between the valve face and valve edge. Some specimens display a weakly developed central hyaline ring on the exterior of the valve and/or increased silicification between the central areolae.

Type Level and Locality: Sample 183-1138A-11R-6, 100–101 cm, Hole 1138A, Central Kerguelen Plateau.

Holotype: Pl. **P3**, fig. 1 (high and low focus).

Type Specimen: Slide deposited in the California Academy of Science microfossil slide collection, CAS Slide Number 221034, CAS Accession Number 619994.

Stratigraphic Distribution: *A. harwoodii* is documented in Pliocene sections from both the Southern and North Pacific Oceans. The stratigraphic range for *A. harwoodii* in Hole 1138A (corresponding to Core 183-1138A-11R), falls within Subchron C2Ar, with an estimated age range of ~4.2–3.7 Ma.

In the northwest Pacific, *A. harwoodii* is recorded in Pliocene samples from DSDP Hole 579A. In this section, rare specimens of *A. harwoodii* were observed in middle Pliocene Sample 86-579A-11-2, 30–31 cm. The Pliocene interval of Hole 579A is assigned an age of ~3.6–3.4 Ma, which is a slightly younger occurrence than documented at Southern Ocean Site 1138.

Remarks: A pseudonodulus on the valve margin of *A. harwoodii* was not identified in SEM examination of specimens from Hole 1138A but was, however, noted on some specimens from Hole 579A (Shino, 2000b, pl. 34, fig. 4). Pending further SEM work on this taxon, we have elected not to include the presence of a pseudonodulus as part of the description of *A. harwoodii*.

A. harwoodii belongs to the “*Azpeitia nodulifera* group” described by Shiono and Koizumi (2002) and is taxonomically similar to *Azpeitia nodulifera* (see Fryxell et al., 1986, p. 19, 20, figs. XVII, XVIII-1, 2, 4, 5, and XXX-3, 4), a modern species found in warm-water regions. *A. harwoodii*, however, is typically smaller in diameter (18–55 μm) than *A. nodulifera* (20–100 μm).

Paleoecology: Given the warm-water affinity of modern taxa in the “*Azpeitia nodulifera* group” (Hasle and Syvertsen, 1996), the presence of *A. harwoodii* at Sites 579, 1138, and 1165 may be associated with local Pliocene warming at these sites in the North Pacific and Southern Oceans.

Derivation of Name: This species is named in honor of Dr. David Harwood at the University of Nebraska-Lincoln for his contributions to the development of Southern Ocean diatom biostratigraphy.

Authorship: The description of this new taxon is co-authored by Dr. Masamichi Shiono at Hokkaido University, Sapporo, Japan.

Systematic paleontology

Systematic paleontology is a section containing an extended, formal description of anything from two or three to a hundred species, usually including level(s) of subheads above the species level (genus, family, class, order, etc.) and subheads within the species description itself.

- All entries down to and including the species designation should be marked for bold and centered <tax centered family> and <tax centered family space above>
- Tag <tax centered> for the non-bolded plate entry.

Subclass RADIOLARIA Muller, 1858
Order POLYCYSTINA Ehrenberg, 1838; emend. Riedel, 1967
Suborder SPUMELLARIA Ehrenberg, 1875
Family COLLOSPHAERIDAE Muller, 1858
Genus POLYSOLENIA Ehrenberg, 1872; emend. Nigrini, 1967

***Polysolenia murrayana* (Haeckel)**
 (Pl. **P2**, fig. 2)

Choenicosphaera murrayana (Haeckel) Benson, 1966, p. 120, pl. 2, fig. 3.

Polysolenia murrayana (Haeckel) Nigrini and Moore, 1979, p. 517, pl. 2, figs. 4a, 4b.

Subfamily ARTISCINAE Haeckel, 1881, emend. Riedel, 1967
Genus OMMATARTUS Haeckel, 1881, emend. Riedel, 1971

***Ommatartus avitus* Riedel**
 (Pl. **P1**, figs. 9–11)

Ommatartus avitus riedel, Riedel and Sanfilippo, 1971, p. 1588, pl. 4, fig. 6; Zachariasse et al., 1978, p. 10, pl. 2, fig. 9.

Remarks: The polar caps of this species frequently are broken, so it is sometimes difficult to distinguish this species from *O. penultimus*. *O. avitus* is characterized by its tuberculate (knobby) cortical shell. In this study, the extinction of *O. avitus* (~3.2 Ma) is considered a chronostratigraphic datum level.

Genus BACHMANNOCENA Locker, 1974, emend. Bukry, 1987

Remarks: For discussion on our use of *Bachmannocena* see McCartney and Wise (1990).

***Bachmannocena apiculata* (Schulz)**

Mesocena oamaruensis apiculata Schulz, 1928, p. 240, fig. 11.

Bachmannocena apiculata (Schulz); Bukry, 1987, pp. 403–404; McCartney and Wise, 1990, pl. 2, figs. 6–10; McCartney and Harwood, 1992, pl. 1, fig. 9.

Remarks: This taxon is not subdivided into multiple subspecies (see Bukry, 1987) in this study because of the low number of specimens that were observed and the lack of biostratigraphic significance.

***Bachmannocena circulus* (Ehrenberg)**

Mesocena circulus (Ehrenberg), Ehrenberg, 1844, p. 65.

Bachmannocena circulus (Ehrenberg); Bukry, 1987, p. 404; McCartney and Harwood, 1992, pl. 2, figs. 1, 2; McCartney et al., 1995, pl. 4, figs. 1, 7; pl. 8, fig. 8.

Remarks: *B. circulus* has a large polygonal ring with small pointed spines. It was the dominant taxon in Sample 183-1138A-15R-CC, occurring two cores below the base of the *Distephanus speculum speculum* f. *pseudofibula* plexus. In low latitudes, *B. circulus* can be abundant in the Pliocene but is less common in the Miocene (McCartney et al., 1995).

***Bachmannocena diodon diodon* (Ehrenberg)**

Mesocena diodon Ehrenberg, 1844, pp. 71, 84.

Bachmannocena diodon (Ehrenberg); Bukry, 1987, p. 404.

Bachmannocena diodon diodon (Ehrenberg); McCartney et al., 1995, pl. 4, fig. 8.

Remarks: This taxon was abundant in Sample 183-1138A-21R-CC and co-occurs with the dominant *B. circulus*.

***Bachmannocena elliptica* (Ehrenberg)**

Dictyocha (Mesocena) elliptica Ehrenberg, 1840, p. 208; Ehrenberg, 1854, pl. 20(1), fig. 44a, 44b.

Mesocena elliptica (Ehrenberg); Bukry, 1978a, p. 819, pl. 6, figs. 6–13.

Bachmannocena elliptica (Ehrenberg); McCartney et al., 1995, p. 145.

Remarks: Only three specimens of this taxon were found in Sample 183-1138A-21R-CC. These specimens were fairly small, 30–50 µm, in comparison with other silicoflagellates viewed in this study, which placed them in *B. elliptica* rather than the somewhat larger and typically younger *Bachmannocena quadrangula*.

Genus *CORBISEMA* Hanna, 1928, emend. Frenguelli, 1940

***Corbisema triacantha* (Ehrenberg)**

Dictyocha triacantha Ehrenberg, 1844, p. 80.

Corbisema triacantha (Ehrenberg); Busen and Wise, 1977, p. 713.

Genus *DICTYOCHA* Ehrenberg, 1837

***Dictyocha aculeata* (Lemmermann)**

Dictyocha fibula var. *aculeata* Lemmermann, 1901, p. 261, pl. 11, figs. 1, 2.

Dictyocha aculeata (Lemmermann); Dumitrica, 1973, p. 907, pl. 9, figs. 5–10; McCartney et al., 1995, pl. 9, fig. 2.

***Dictyocha calida calida* Poelchau**

Dictyocha calida Poelchau, 1976, p. 169, pl. 1, figs. c, d; pl. 3, figs. a–f.

Dictyocha calida calida Poelchau; Bukry, 1979a, p. 560, pl. 1, fig. 7; McCartney et al., 1995, p. 146.

***Dictyocha extensa extensa* (Locker)**

Dictyocha varia f. *extensa* Locker, 1975, pp. 99–101, figs. 1/2, 3/3.

Dictyocha extensa (Locker); Locker and Martini, 1986, pp. 903, 904, pl. 2, figs. 10–12; pl. 11, fig. 3; McCartney et al., 1995, pl. 3, figs. 2–5; pl. 5, figs. 3, 7; pl. 8, fig. 8.

Remarks: This is an important taxon in the late Miocene and Pliocene of low latitudes, where it and *D. varia* form an evolutionary transition (see McCartney et al., 1995). It was found in the upper Miocene and lower Pliocene, with a single specimen in the lower Miocene. This taxon is typically more abundant at lower latitudes (see McCartney et al., 1995).

***Dictyocha fibula fibula* Ehrenberg**

Dictyocha fibula Ehrenberg; Locker, 1974, p. 636, pl. 1, fig. 6 (= lectotype).

Dictyocha fibula fibula Ehrenberg; Locker and Martini, 1986, p. 904, pl. 5, figs. 1, 2; pl. 11, figs. 8, 9; McCartney et al., 1995, pl. 2, fig. 1; pl. 5, fig. 5.

Remarks: This group of dictyochid silicoflagellates is abundant in Miocene sediments of low and middle latitudes and are less abundant in higher latitudes. Specimens of *D. extensa* were smaller in size and had a higher basal ring aspect ratio than those of *D. fibula*. In this study, we accept Locker's (1974) designation of a large skeleton with a short-axis bridge as the lectotype for *D. fibula*; note that there is an error in the remarks for this taxon in McCartney et al. (1995), which states that the lectotype has a long-axis bridge.

Appendix F: Reference format examples

Program-related publications

DOIs for Program-related publications use the publication date that reflects when the information was the most current (usually the original publication date), even if Web publication and DOI assignment was at a later date.

DSDP

Reference to entire DSDP *Initial Reports* volume

Bader, R.G., Gerard, R.D., et al., 1970. *Init. Repts. DSDP*, 4: Washington, DC (U.S. Govt. Printing Office). [doi:10.2973/dsdp.proc.4.1970](https://doi.org/10.2973/dsdp.proc.4.1970)

Chapter from DSDP *Initial Reports*

Stelting, C.E., Droz, L., Bouma, A.H., Coleman, J.H., Cremer, M., Meyer, A.W., Normark, W.R., O'Connell, S., and Stow, D.A.V., 1986. Late Pleistocene seismic stratigraphy of the Mississippi Fan. *In* Bouma, A.H., Coleman, J.M., Meyer, A.W., et al., *Init. Repts. DSDP*, 96: Washington, DC (U.S. Govt. Printing Office), 437–456. [doi:10.2973/dsdp.proc.96.119.1986](https://doi.org/10.2973/dsdp.proc.96.119.1986)

DSDP *Technical Notes*

Nierenberg, W.A., and Peterson, M.N.A. (Eds.), 1984. Drill-in-casing system. *DSDP Tech. Note*, 2. [doi:10.2973/dsdp.tn.2.1984](https://doi.org/10.2973/dsdp.tn.2.1984)

DSDP *Technical Reports*

Nierenberg, W.A., and Peterson, M.N.A. (Eds.), 1984. Design and operation of an Advanced Piston Corer. *DSDP Tech. Rept.*, 21. [doi:10.2973/dsdp.tr.21.1984](https://doi.org/10.2973/dsdp.tr.21.1984)

ODP

Reference to entire ODP *Proceedings, Initial Reports*

Wefer, G., Berger, W.H., and Richter, C., et al., 1998. *Proc. ODP, Init. Repts.*, 175: College Station, TX (Ocean Drilling Program). [doi:10.2973/odp.proc.ir.175.1998](https://doi.org/10.2973/odp.proc.ir.175.1998)

Chapter from ODP *Proceedings, Initial Reports*

Wefer, G., Berger, W.H., Richter, C., and Shipboard Scientific Party, 1998. Facies patterns and authigenic minerals of upwelling deposits off southwest Africa. *In* Wefer, G., Berger, W.H., and Richter, C., et al., *Proc. ODP, Init. Repts.*, 175: College Station, TX (Ocean Drilling Program), 487–504. [doi:10.2973/odp.proc.ir.175.116.1998](https://doi.org/10.2973/odp.proc.ir.175.116.1998)

Reference to entire ODP *Proceedings, Scientific Results*

Weissel, J., Peirce, J., Taylor, E., Alt, J., et al., 1991. *Proc. ODP, Sci. Results*, 121: College Station, TX (Ocean Drilling Program). [doi:10.2973/odp.proc.sr.121.1991](https://doi.org/10.2973/odp.proc.sr.121.1991)

Article in ODP Proceedings, Scientific Results

Watts, K.F., Varga, L.L., and Feary, D.A., 1993. Origins, timing, and implications of Miocene to Pleistocene turbidites, debris flows, and slump deposits of the Queensland Trough, northeastern Australia (Site 823). *In* McKenzie, J.A., Davies, P.J., Palmer-Julson, A., et al., *Proc. ODP, Sci. Results*, 133: College Station, TX (Ocean Drilling Program), 379–445. **doi:10.2973/odp.proc.sr.133.248.1993**

ODP Technical Notes

Gieskes, J.M., Gamo, T., and Brumsack, H., 1991. Chemical methods for interstitial water analysis aboard *JOIDES Resolution*. *ODP Tech. Note*, 15. **doi:10.2973/odp.technote.15.1991**

IODP

Scientific Prospectus

Channell, J.E.T., Sato, T., Kanamatsu, T., Stein, R., Malone, M.J., and the Expedition 303/306 Project Team, 2004. North Atlantic climate. *IODP Sci. Prosp.*, 303/306. **doi:10.2204/IODP.SP.303306.2004**

Preliminary Report

Expedition 311 Scientists, 2005. Cascadia margin gas hydrates. *IODP Prel. Rept.*, 311. **doi:10.2204/iodp.pr.311.2005**

Reference to entire IODP Proceedings

Riedel, M., Collett, T.S., Malone, M.J., and the Expedition 311 Scientists, 2006. *Proc. IODP*, 311: Washington, DC (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.311.2006**

Chapter from IODP Proceedings

Expedition 311 Scientists, 2006. Expedition 311 summary. *In* Riedel, M., Collett, T.S., Malone, M.J., and the Expedition 311 Scientists, *Proc. IODP*, 311: Washington, DC (Integrated Ocean Drilling Program Management International, Inc.). **doi:10.2204/iodp.proc.311.101.2006**

Article in Science Drilling

Ferdelman, T., Kano, A., Williams, T., and the IODP Expedition 307 Scientists, 2006. IODP Expedition 307 drills cold-water coral mound along the Irish continental margin. *Sci. Drill.*, 2:12–16. **doi:10.2204/iodp.sd.2.02.2006**

Nonprogram publications

Abstract

Weis, D., Gautier, I., and Mennessier, J.P., 1988. MD48 dredged basalts (S. Indian Ocean): Nd, Sr, Pb isotopic study-Kerguelen type signature. *Chem. Geol.*, 70:58. (Abstract)

Article in conference proceedings (short form)

Espitalié, J., Madec, M., Tissot, B., Mennig, J.J., and Leplat, P., 1977. Source rock characterization method for petroleum exploration. *Proc. 9th Annu. Offshore Technol. Conf.*, 3:439–448.

Article in conference proceedings (long form)

Martini, E., 1971. Standard Tertiary and Quaternary calcareous nannoplankton zonation. In Farinacci, A. (Ed.), *Proc. 2nd Int. Conf. Planktonic Microfossils Roma*: Rome (Ed. Tecnosci.), 2:739–785.

Article in a journal

Archie, G.E., 1942. The electrical resistivity log as an aid in determining some reservoir characteristics. *J. Pet. Technol.*, 5:1–8.

Haq, B.U., Hardenbol, J., and Vail, P.R., 1987. Chronology of fluctuating sea levels since the Triassic. *Science*, 235:1156–1167.

Jany, I., Mauffret, A., Bouysse, P., Mascle, A., Mercier de Lépinay, B., Renard, V., and Stephan, J.F., 1987. Relevé bathymétrique Seabeam et tectonique en décrochement au sud des Iles Vierges (Nord-Est Caraïbes). *C.R. Acad. Sci. Ser. 2*, 304:527–532.

Okada, H., and Bukry, D., 1980. Supplementary modification and introduction of code numbers to the low-latitude coccolith biostratigraphic zonation (Bukry, 1973; 1975). *Mar. Micropaleontol.*, 5:321–325.

Article in a multivolume work

Bryant, W.R., Bennett, R.H., and Katherman, C.E., 1981. Shear strength, consolidation, porosity, and permeability of oceanic sediments. In Emiliani, C. (Ed.), *The Sea* (Vol. 7): *The Oceanic Lithosphere*: New York (Wiley), 1555–1616.

Article in press

Wei, W., in press. Calcareous nannofossils of subantarctic cores and Eocene glacial record reassessed. *Palaeogeogr., Palaeoclimatol., Palaeoecol.*

Article in a serial publication of a society

Berggren, W.A., Kent, D.V., and Van Couvering, J.A., 1985. The Neogene: Part 2. Neogene geochronology and chronostratigraphy. *In* Snelling, N.J. (Ed.), *The Chronology of the Geological Record*. Geol. Soc. London Mem., 10:211–260. [Note the use of “Part”. A period separates it from the title of the article.]

Brindley, G.W., 1980. Quantitative X-ray mineral analysis of clays. *In* Brindley, G.W., and Brown, G. (Eds.), *Crystal Structures of Clay Minerals and Their X-ray Identification*. London Mineral. Soc. Monogr., 5:411–438.

Blackwell, D.D., 1971. The thermal structure of the continental crust. *In* Heacock, J.G. (Ed.), *The Structure and Physical Properties of the Earth's Crust*. Geophys. Monogr., 14:169–184. [Note: This series is published by Am. Geophys. Union, but uses its own CASSI abbreviation.]

Jansa, L.F., Enos, P., Tucholke, B.E., Gradstein, F.M., and Sheridan, R.E., 1979. Mesozoic-Cenozoic sedimentary formations of the North American Basin: Western North Atlantic. *In* Talwani, M., Hay, W., and Ryan, W.B.F. (Eds.), *Deep Drilling Results in the Atlantic Ocean: Continental Margins and Paleoenvironment*. Maurice Ewing Ser., 3:1–57.

[Note: This series is also a part of the Geophys. Monogr. series published by Am. Geophys. Union, also with its own CASSI abbreviation.]

Article submitted

Nielsen, M.E., and Fisk, M.R., submitted. Specific surface area and physical properties of subsurface basalt samples from the east flank of the Juan de Fuca Ridge. *Earth Planet. Sci. Lett.*

ASTM standards

ASTM International, 1989. *Annual Book of ASTM Standards for Soil and Rock: Building Stones* (Vol. 04.08): *Geotextiles*: Philadelphia (Am. Soc. Testing and Mater.).

ASTM International, 1989. Standard test method for laboratory miniature vane shear test for saturated fine-grained clayey soil (Standard D4648–87). *In* *Annual Book of ASTM Standards for Soil and Rock* (Vol. 04.08): Philadelphia (Am. Soc. Testing and Mater.), 868–873.

Book

Blow, W.H., 1979. *The Cainozoic Globigerinida*: Leiden (E.J. Brill).

Chapter in a book with multiple editors

Otofuji, Y., Hayashida, A., and Torii, M., 1985. When was the Japan Sea opened? Paleomagnetic evidence from southwest Japan. *In* Nasu, N., Kobayashi, K., Uyeda, S., Kushiro, I., and Kagami, H. (Eds.), *Formation of Active Ocean Margins*: Tokyo (Terra Publ.), 551–556.

Perch-Nielsen, K., 1985. Cenozoic calcareous nannofossils. *In* Bolli, H.M., Saunders, J.B., and Perch-Nielsen, K. (Eds.), *Plankton Stratigraphy*: Cambridge (Cambridge Univ. Press), 427–554.

Chapter in a book with no identified editor(s)

Adams, J.A.S., and Gaspirini, P., 1970. Gamma ray spectrometry of rocks. *In* *Methods of Geochemistry and Geophysics 10*: Amsterdam (Elsevier).

Chapter in a book, second edition

Jenkyns, H.C., 1986. Pelagic environments. *In* Reading, H.G. (Ed.), *Sedimentary Environments and Facies* (2nd ed.): Oxford (Blackwell Sci.), 343–397.

Chapter in a book published by a society

Ingle, J.C., Jr., 1981. Origin of Neogene diatomites around the north Pacific rim. *In* Garrison, R.E., Douglas, R., Pisciotto, K., Isaacs, C., and Ingle, J.C. (Eds.), *The Monterey Formation and Related Siliceous Rocks of California*. Spec. Publ.—Soc. Econ. Paleontol. Mineral., 15:159–179.

[Note that there is a period between the book title and the publisher rather than a colon.]

Chapter in a multi-part publication

Mitchum, R.M., Jr., Vail, P.R., and Sangree, J.B., 1977. Seismic stratigraphy and global changes of sea level, Part 6. Stratigraphic interpretation of seismic reflection patterns in depositional sequences. *In* Payton, C.E. (Ed.), *Seismic Stratigraphy: Applications to Hydrocarbon Exploration*. AAPG Mem., 26:117–133.

Posamentier, H.W., Jervey, M.T., and Vail, P.R., 1988. Eustatic controls on clastic deposition, I. Conceptual framework. *In* Wilgus, C.K., Hastings, B.S., Kendall, C.G.St.C., Posamentier, H.W., Ross, C.A., and Van Wagoner, J. (Eds.), *Sea-Level Changes: An Integrated Approach*. Spec. Publ.—Soc. Econ. Paleontol. Mineral., 42:109–124.

[Note: Use a period instead of a colon after the part number and capitalize first word after part number.]

Dissertation/Thesis

- Allen, C.P., 1989. History of ice-rafting at ODP Leg 114 sites, subantarctic/South Atlantic [M.S. thesis]. Calif. State Univ., Hayward.
- Andreieff, P., Bouysse, P., and Westercamp, D., 1987. Géologie de l'arc insulaire des Petites Antilles et évolution géodynamique de l'Est-Caraïbe [Thèse Doctorat d'Etat]. Univ. Bordeaux I.
- Van Cappellen, P., 1991. The formation of marine apatite, a kinetic study [Ph.D. dissert.]. Yale Univ., New Haven, CT.

Maps

- Bornhold, B.D., Currie, R.G., and Sawyer, B., 1989. Patton-Murray Seamount Group: 3 maps: bathymetry, magnetic anomaly, sediment thickness, 1:250,000. *Geol. Surv. Can. Open File*, 2075.
- Ludwig, W.J., and Houtz, R.E., 1979. Isopach Map of Sediments in the Pacific Ocean Basin and Marginal Sea Basins. *AAPG Map Ser.*, 647.
- Udintsev, G. (Coord.), 1980. Pacific Ocean, 1:10,000,000 Mercator. In *General Bathymetric Chart of the Oceans (GEBCO) 5-02* (5th ed.): Ottawa (Can. Hydrogr. Surv.).

References with DOIs

- Ando, M., 1975. Source mechanisms and tectonic significance of historical earthquakes along the Nankai Trough, Japan. *Tectonophysics*, 27(2):119–140. **doi:10.1016/0040-1951(75)90102-X**
- Browne, G.H., and Naish, T.R., 2003. Facies development and sequence architecture of a late Quaternary fluvial-marine transition, Canterbury Plains and shelf, New Zealand: implications for forced regressive deposits. *Sediment. Geol.*, 158(1–2):57–86. **doi:10.1016/S0037-0738(02)00258-0**
- Byrne, D.E., Davis, D.M., and Sykes, L.R., 1988. Loci and maximum size of thrust earthquakes and the mechanics of the shallow region of subduction zones. *Tectonics*, 7(4):833–857. **doi:10.1029/TC007i004p00833**

References with URLs

- Newton, G.B., 2005. The Science Ice Exercise Program: history, achievements and the future of SCICEX. *Hydro Int.*, 9(1):2–7. **http://www.hydro-international.com/issues/articles/id419-The_Science_Ice_Exercise_Program.html**

[Note: This style is only used if the reference is available online but there is no DOI. References with URLs no longer require the inclusion of the “date cited” in brackets after the reference.]

Unpublished documents

Courses/Classes

Williams, G.L., Boessenkool, K.P., Brinkhuis, H., Pearce, M.A., Fensome, R.A., and Weegink, J.W., 2001. Upper Cretaceous–Neogene dinoflagellate cyst course: morphology, stratigraphy and (paleo)ecology [Urbino, Italy, 4–8 June, 2001].

Meeting proceedings

Urquhart, E., and Wilkinson, I.P., 1997. Lower Cretaceous radiolaria from southern England [InterRad VIII 1997, 8th Meeting of the International Association of Radiolarian Paleontologists, Paris/Bierville, 8–13 September, 1997]. (Abstract)

[Note capped Meeting—it's part of a formal meeting title.]

Paper (or poster) presentation

Ingle, J.C., Jr., 1990. Paleooceanography of the Japan Sea—a synthesis of Legs 127/128 results [paper presented at ODP Japan Sea Symposium, Tokyo, October 1990].

Workshop presentations

MacLeod, K.G., and Huber, B.T., 2002. Warming in the subtropical Western Atlantic during Maastrichtian cooling: hot tropics and latitudinal temperature gradients. [JOI/USSP and NSF workshop, Cretaceous Climate-Ocean Dynamics: Future Directions for IODP, Florissant, CO, July 2002](Abstract)<http://cis.who.edu/science/GG/ccod/viewAbstracts.cfm?RefNumber=19725628>

Appendix G: Caption examples

Plate caption

Plate P1. Helicosphaeraceae, Pontosphaeraceae, Noelaerhabdaceae, *Reticulofenestra*. Taxonomic organization and concepts are generally comparable to those of Young and Bown (1997) and Young (1998). Images with black background are cross-polarized light images; those with light backgrounds are phase-contrast images. **1.** *Helicosphaera carteri* (Sample 198-1208A-8H-CC). **2.** *Helicosphaera granulata* (Section 198-1208A-34X-5). **3, 4.** *Helicosphaera inversa* (Sample 198-1208A-3H-CC). **5, 6.** *Helicosphaera sellii* (Section 198-1208A-13H-5). **7, 8.** *Pontosphaera discopora*; (7) Sample 198-1208A-9H-CC, (8) Section 198-1208A-2H-5. **9.** *Pontosphaera multipora* (Sample 198-1208A-18H-CC). **10.** *Syracosphaera pulchra* (Sample 198-1208A-8H-CC). **11.** *Rhabdosphaera clavigera* (Section 198-1208A-1H-4). **12.** *Calciosolenia brasiliensis* (Section 198-1208A-1H-4). **13.** *Cyclicargolithus ?abisectus* (11.4 μm) (Sample 198-1208A-32X-CC). **14–17.** *Cyclicargolithus floridanus*; (14) 10.1 μm (Sample 198-1208A-27X-CC), (15) 9.3 μm (Sample 198-1208A-32X-CC), (16) 7.5 μm (Sample 198-1208A-32X-CC), (17) Sample 198-1208A-35X-CC. **18.** *Reticulofenestra bisecta* (10.6 μm) (Sample 198-1208A-35X-CC). **19.** Small reticulofenestrids (~ 1.7 μm) (Sample 198-1208A-18H-CC). **20.** *Reticulofenestra minuta* (2.8 μm) (Sample 198-1208A-5H-CC). **21–25.** *Reticulofenestra haqii*; (21) 3.1 μm (Sample 198-1208A-18H-CC), (22) 4 μm (Sample 198-1208A-27X-CC), (23) 4.3 μm (Sample 198-1208A-16H-CC), (24) 4.1 μm (Sample 198-1208A-14H-CC), (25) 4.7 μm (Sample 198-1208A-9H-CC). **26, 27.** *Reticulofenestra haqii-asanoi*; (26) 5.4 μm (Core 198-1208A-7H), (27) 6.3 μm (Sample 198-1208A-6H). **28, 29.** *Reticulofenestra asanoi*; (28) 6.6 μm (Sample 198-1208A-6H-CC), (29) 6.8 μm (Section 198-1208A-6H-5). **30.** *Reticulofenestra rotaria* (Section 198-1208A-25X-4). **31–37.** *Reticulofenestra pseudoumbilicus*; (31) 5.0 μm (Sample 198-1208A-27X-CC), (32) 6.1 μm (Sample 198-1208A-26X-CC), (33) 6.9 μm (Sample 198-1208A-26X-CC), (34) 7.8 μm (Sample 198-1208A-19H-CC), (36) 11.5 μm (Sample 198-1208A-28X-CC), (37) 9.2 μm with grill (Sample 198-1208A-18H-CC). **38, 39.** *Pseudoemiliana lacunosa*; (38) Sample 198-1208A-16H-CC, (39) Sample 198-1208A-4H-CC. **40.** *Pseudoemiliana ovata* (Sample 198-1208A-9H-CC). **41, 42.** *Emiliana huxleyi* (Section 198-1208A-1H-4).

Photomicrograph captions

Figure F24. Photomicrographs of mineralized volcanic breccia (Unit 1256D-42a) and volcanic breccia interbedded with sheet flow (Unit 1256D-42b). Breccia consists of angular fragments of glassy to cryptocrystalline basalt embedded in altered glass, sulfides, and late carbonate. Pieces indicated by arrows in Unit 1256D-42b are brecciated. **A.** Interval 309-1256D-122R-1 (Piece 12, 50–66 cm). **B.** Interval 309-1256D-122R-1 (Piece 13, 67–80 cm). **C.** Interval 309-1256D-123R-1 (Piece 4, 15–20 cm). **D.** Interval 309-1256D-122R-2 (Pieces 2 and 3, 15–30 cm).

Figure F49. Photomicrographs of cataclastic zone at contact with clast of chilled basalt (cataclastic massive unit) (Thin Section 67; Sample **309-1256D-117R-01 [Piece 12, 122–125 cm]**). **A.** Core piece and thin section. **B.** Detail of thin section. Inset shows the crosscutting relationships between different events of veining (1 is the oldest); protocataclasite (protoc) and cataclasite are cut by ultracataclasite (ultracat) and gouge veins (plane-polarized light, blue filter; field of view = 10 mm).