

Style and Usage For the IEEE Journal of Oceanic Engineering (10 May 2013)

FIGURE SIZES & FORMATS

The Journal is printed in a two-column format, therefore figures must be sized to fit inside one column with a maximum width of 21 picas (88.9 mm or 3.5"), or across two columns with a maximum width of 43 picas (179.4 mm or 7 1/16"), and with a maximum height of 54 picas (228.6 mm or 9") in either case. The rectangle outlined by these dimensions must contain all the elements of the figure, including the surrounding axes, labels and legends.

Any character or symbol in or around the figure must have a point size no smaller than 8 once fitted in the one- or two-column format, and the font style must be consistent across all figures. In addition, all axes must have SI units that are consistent with units described in the text. If units do not appear on the axes labels, they must be stated in the figure caption. Likewise, callouts and mathematical symbols appearing in figures must be consistent with those appearing in the figure captions and in the main body of the text.

Figures published in the Journal are formatted as described in Table 1. Figures submitted in other formats are converted by IEEE Publication Services but lossless conversion cannot be guaranteed, therefore submission of figures formatted as described in Table 1 is strongly recommended.

Table 1. Minimum dots per inch (DPI) density required for black & white (B&W), grey-scale, and color figures.

	Format	DPI at final printed size
B&W line art, graphs, charts, tables	TIFF	600 (1 bit/sample)
Grey-scale images and graphics	TIFF	300 (8 bits/sample)
Color images and graphics for online publication	RGB TIFF	400
Color images and graphics for printed publication (1)	RGB EPS	400

(1) **Mandatory Color Printing Charges** apply and are computed as follows:

- minimum setup charge US\$1,045.00 (one sheet of glossy paper yielding four contiguous pages in the Journal, e.g. p. 251-254),
- cost per individual color figure US\$62.50.

If the manuscript contains one color figure, the mandatory color printing charges are \$1045 + \$62.50 = \$1107.50. For eight color figures that fit on the four contiguous pages of glossy paper the charges are \$1045 + 8×\$62.50 = \$1545. If additional sheets of glossy paper are required, the set-up charges are incremented accordingly: \$2090 for 4-8 pages, \$3135 for 9 to 12 pages, etc.

The Journal offers the option to publish figures in color online and in grey-tone in print, at no charge to the authors. Authors who chose this option must provide an original grey-tone version of each color figure.

GEOGRAPHICAL COORDINATES (Lat, Lon)

When referring to geographic coordinates in text, figures or captions, always specify the hemispheres (N or S) and (E or W). There is one space between the degree, minute, or second symbols and the hemisphere designation (e.g. 34° N, not 34°N).

whole degrees 34° N, 63° S, 120° E, 75° W

decimal degrees 60.4225° E

degrees decimal minutes 60° 25.35' E

degrees minutes seconds 60° 25' 21" E

Radians are not used for latitudes and longitudes.

Maps published in the Journal must have graduations labeled in degrees and minutes with the hemispheric identifier N or S for latitudes (e.g. 40° 05' N), and E or W for longitudes (e.g. 120° 55' W). The identifier should appear at least once on each axis. The graduation increments must be in whole minutes or whole degrees (e.g. 50° 15' E, not 50.25° E) - this helps when estimating distance on maps because a minute of latitude is roughly equal to one nautical mile. Maps published in the Journal are usually resized versions of a larger original map. To preserve the information content, such resizing operations must be done while maintaining constant the aspect ratio of the original map. In addition, unlike scale bars, scale ratios (e.g. 1:25 000) lose their meaning in resized map and cannot be used.

DATES & TIMES

All formats listed below are acceptable, note placement of commas in dates.

day month year 12 February 2011

month day, year February 12, 2011, or Sunday, February 12, 2011

February 12-24, 2011

February to June 2011

universal time (hh:mm:ss) 06:24:55 Z

18:24:55 Z

local time (24h) (hh:mm:ss) 02:05:06 L

14:05:06 L

local time (12h) (hh:mm:ss) 05:12:04 A.M. (small caps A.M.)

05:12:04 P.M. (small caps P.M.)

MATHEMATICAL SYMBOLS

Multiplication, Conjugation, Convolution, Correlation

(LateX commands in italics)

multiplication of scalars:

- use a space between the variables or terms ($A B$ or $(A-B)(C+D)$)
- if a space is ambiguous, use the in-line multiply symbol ($A \times B$)
(not the letter x or the centered dot symbol).

multiplication of vectors or tensors:

- dot product of two vectors yielding a scalar:
use the in-line centered dot symbol (`\cdot`) ($A \cdot B$) (not the period character .)
- cross product of two vectors yielding a vector:
use the in-line multiply symbol ($A \times B$) (not the letter x)

conjugation: use the superscript asterisk (A^*)

convolution: use the in-line centered asterisk (`\ast` or `\convolution`) ($A \ast B$)

correlation: use the in-line centered star (`\star`) ($A \star B$)

In all cases, authors must define the intended meaning of a particular mathematical symbol in the text preceding its first appearance in an equation.

Exponentials, Powers of 10

- use $A \exp(-B)$ or $A e^{-B}$ for separated equations with exponentials,
- use only $A \exp(-B)$ for in-line equations with exponentials,
- use the form $A \times 10^{-B}$ for powers of 10
- although the form $A e^{-B}$ is used in some programming languages to mean $A \times 10^{-B}$, it is not valid in technical writing

Compound Units

product of two or more units:

- use the in-line centered dot symbol (\cdot)
 $N \cdot m$ (not $N m$ or Nm or $N \times m$)

ratio of units:

- use a single solidus (/) to separate the numerator from the denominator,
- or use a product with the exponent (-1) for terms in the denominator
 m/s or $m \cdot s^{-1}$ (not ms^{-1} which means $1/ms$)
 $dB/(m \cdot kHz)$ or $dB \cdot m^{-1} \cdot kHz^{-1}$ (not $dB/m/kHz$ which is ambiguous)

When setting equations, please refer to the section on editing mathematics in the IEEE Editorial Style Manual.

ENGLISH USAGE

During the fourth quarter of 2006, IEEE Publication Services have enlisted the professional copyediting services of SPi (<http://www.prof-editing.com/ieee/>) to assist authors with English grammar, syntax and composition at any stage in the preparation of their manuscript. Other providers of online professional proofreading and editing services include Online English (<http://www.oleng.com.au>). These services are all fee-based at the authors' expense, and quotes can be obtained directly online by following the instructions provided on the websites.

Authors who use these professional proofreading services should keep in mind that although readability is a prerequisite when submitting a manuscript for publication, the Journal's Editorial Board makes publication decisions strictly on technical and scientific merit.

Spelling Of Frequently Occuring Compound Words

SIGNAL PROCESSING

USE	INSTEAD OF
bandpass	band-pass
bandwidth	band width, band-width
baseband	base band, base-band
beamformer	beam former, beam-former
beamforming	beam forming
beamwidth	beam width, beam-width
broadband	broad band, broad-band
highpass	high-pass
lowpass	low-pass
midfrequency	mid-frequency (<i>single word construction with mid or multi,</i>
multibeam	multi-beam <i>except when the resulting word is</i>
multiuser	multi-user <i>difficult to read , Chicago Manual of Style)</i>
narrowband	narrow-band
passband	pass band, pass-band
stopband	stop band, stop-band
sideband	side band, side-band
wideband	wide-band

UNDERWATER ACOUSTICS

USE	INSTEAD OF
acoustical (adj.)	acoustic
<i>(follow Henk Medwin's sounding rule: use the adjective form "acoustical" whenever a substitution with "optical" sounds right!)</i>	
backscatter	back-scatter
cross section	cross-section
group speed	group velocity (<i>when referring to propagation speed</i>
isospeed layer	isovelocity layer <i>of sound waves)</i>
normal mode	normal-mode

seabed	sea bed
sea bottom	seabottom
seafloor	sea floor
seawater	sea water
sound speed	sound velocity (<i>velocity implies a vector, speed is a scalar</i>)
sound-speed profile	sound-velocity profile
waveform	wave form, wave-form
wavefront	wave front, wave-front
waveguide	wave guide, wave-guide
waveheight	wave height
wavelength	wave length, wave-length
wave number	wavenumber, wave-number

GENERAL

USE

INSTEAD OF

cannot	can't (<i>no contractions in technical writing</i>)
database	data base
data set	dataset
do not	don't
website	web site or web-site

EXPRESSIONS TO AVOID

USE

INSTEAD OF

after	at the conclusion of
a variety of	a variety of different
about, near	in the vicinity of, in the neighborhood of
because	due to the fact that, the reason why
before	prior to
during	in the course of, during the course of
if	in the event that
innovative	new and innovative
instant	instant of time
join	join together
now	at this point in time
offshore	offshore of
to	in order to
today	in this day and age, at the present time
whether	whether or not
while	during the time that

Grammar and Usage in IEEE Transactions

1) Apostrophes:

- Form the possessive singular of nouns by adding 's (Avogadro's theorem), unless the final consonant is s (Burns' theorem).
- Possessive pronouns (hers, its, yours, theirs, ours) have no apostrophe.
- Indefinite pronouns use the apostrophe to show possession (someone's rule).
- No apostrophes in plural form of acronyms and numbers, i.e., FETs, 1980s.

2) That (defining) vs. Which (non-defining):

- A non-defining clause gives extra information and is not essential to the sentence. It always starts with "which" and is surrounded by commas.
- A defining clause is essential to the meaning of the sentence. It can start with "that" or "which"; "that" is preferred.

3) Punctuation:

- In a series of three or more terms, use a comma after each term except the last (time, temperature, altitude).
- Enclose parenthetical expressions between commas
Improvement, as shown in Fig. 1, is attained by adding the cogeneration.
The address i , which is the starting address of the message, is then transferred
- Brief phrases or single words, such as however, may or may not be parenthetical (such connectives at the head of a sentence are more commonly left unpunctuated).
- The commas may be omitted if the interruption to the flow of the sentence is slight.
However the sum may change later, it is calculated now.
The sum is calculated now, however it may change later.
The sum, however it may change later, is calculated now.

In all three examples the meaning remains constant; the single commas of the first and second sentences have the same parenthetical function as the paired commas of the third.

- No commas between adjectives (a planar equiangular spiral antenna).
- The abbreviations etc., i.e., and e.g., are parenthetical and use the comma as follows:
cables, transformers, etc., are needed.
- Abbreviations for academic degrees, titles following a name, and certain restrictive terms of identification should be punctuated as follows:
Robert D. Lorenz, Ph.D.
Ian T. Wallace, Member, requests that ...
E. A. Brockmann, Jr., states that ...
- Use the semicolon to separate two complete sentences forming a compound sentence.
- Use a colon after an independent clause to introduce a list.
- Punctuation always goes inside quotation marks, except for the colon and semicolon.

4) Quotation marks:

- Use single quotation marks around quotes within quotes.
- Quotes may be used around a new or special usage of a term the first time only, but use of quotes in this manner should be kept to a minimum.

5) Parentheses and brackets:

- Use double parentheses in math only.
- Use brackets for text, as in [see (10)].

6) Compound nouns:

- Compound nouns made from a one-syllable verb and a short adverb are one word when found that way in the dictionary (setup, takeoff, breakup, readout).
- Compound nouns are likely to be two words, without a hyphen, or one word (bandwidth, bypass, flowchart, phase shift, sideband, standing wave).
- Compound nouns of more than two words can be hyphenated.

7) Hyphens:

- No hyphen in adjectives following a verb (predicative adjectives):
(the theorem is well known)
but this is a well-known theorem (see 3rd rule below)
- No hyphen in a pair of words, modifying a third word separately:
(a tall water tower, a hot metal cylinder, normal mode propagation)
- If the first word modifies the second, and the resulting pair modifies the third, there is a hyphen in the pair (a high-frequency signal, a second-order equation).

Exceptions:

- adverbs ending in "ly," (a highly stressed beam).
- comparatives or superlatives (a higher order equation, a worst case value, the nearest neighbor method).
- No hyphen in chemical compounds (sodium chloride crystals).
Alloys and mixtures take the en dash (Ni–Co, He–Ne laser).
- Compound verbs and their participles are generally hyphenated (to arc-weld, freeze-dried).
- No hyphen in verbs formed with up, out, down, off, on, etc., (to set up, to break down)

WORDS OFTEN CONFUSED

Affect: to change or modify (verb).

Effect: result (noun); cause (verb).

Alternate: to continuously switch between two states (verb); a substitute (noun).
alternately (adv.) one after the other in turns.

Alternative: a matter of choice between two things.

Among: involves more than two things.

Between: involves more than two things, but considers each individually.

Compare to: point out resemblances between different objects.

Compare with: point out differences between same objects.

Complement: complete (verb); adjunct part to complete a whole (noun).

Compliment: praise

Compose: a set composed of members.

Comprise: a set comprising members; members comprising a set.

Assure: provide a guarantee, make safe

Ensure: make sure something happens.

Insure: underwrite an insurance policy.

Farther: distance.

Further: quantity.

Fewer: modifies plural nouns specifying countable units, e.g., fewer tubes.

Less: modifies singular mass nouns and singular abstract nouns, e.g., less air.

Imply: something suggested though not expressed.

Infer: something deduced from evidence.

Number: a large number of people.

Amount: a large amount of water.

Principal: chief, main, most important (adjective).

Principle: a rule (noun).

Precede: come before.

Proceed: continue, advance.

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