



**ICRAT
'16**
International Conference
on Research
in Air Transportation

7th International Conference on Research in Air Transportation
June 20-24, 2016 - Drexel University, Philadelphia, PA

Call for Papers: ICRAT 2016

Following the success of its six previous editions, the Federal Aviation Administration and EUROCONTROL are jointly organizing the 7th edition of the International Conference on Research in Air Transportation (ICRAT), which is to be held the week of June 20, 2016 at Drexel University in Philadelphia, Pennsylvania, USA.



ICRAT has now been established as a path-finding event in Air Transportation Research, alternating with the USA/Europe Air Traffic Management (ATM) Research and Development (R&D) Seminar. ICRAT is a forum particularly encouraging young researchers (and their mentors) within air transportation to share their work, expand their professional network, gain new knowledge and inspiration, and discover the new challenges confronting society and the market to improve mobility for citizens and goods.

Submissions by researchers are solicited on a wide range of topics describing theoretical results and innovative applications in air transportation including but not limited to the following conference topics:

- Advanced modeling and design methodologies, including network, human-machine interaction, and trajectory operations models
- Airline operations and quality of service
- Airport design, management and operations
- Air transportation governance, economics and policy
- Air transportation system performance measurement and management
- Automation strategies and application of successful automation techniques from other domains to air transportation
- Decision support systems, automation and human machine collaboration
- Environment and energy efficiency, climate change and impact
- Information management, enhanced communication, surveillance and navigation
- Integration of commercial space activities into air traffic management
- Network management, and traffic flow optimization, system resilience and crisis management
- New air vehicle integration
- Safety, security and human performance
- Socio-technical complexity and applications of data science in aviation
- Trajectory optimization and trajectory and separation management

Papers should clearly state the objectives, approach, methodology and results of the research, and should draw conclusions that demonstrate the interest of the work.

Technical Paper Submission Instructions

Authors are invited to submit (online) their full papers (maximum 8 pages), written in English and using the technical paper template, presenting the results of research, or of innovative, practical applications relevant to the conference topics. **Papers must be submitted by Friday February 19, 2016.** Authors must register and log in to the conference paper submission page at <https://easychair.org/conferences/?conf=icrat2016> in order to submit their paper.



All papers will be reviewed by the conference program committee for their originality, relevance and clarity. Accepted papers will be published in the conference proceedings and referenced in international libraries.

Doctoral Symposium for Early Stage Research

In addition, ICRAT 2016 will conduct a Doctoral Symposium for students in early stages of their research, providing a supportive yet questioning setting in which graduate students can present their work. It is an opportunity for students preparing a Master thesis or a Ph.D. thesis in topics of relevance to ICRAT 2016 to receive constructive feedback from experienced members of the research community.

Doctoral Symposium Submission Instructions

Ph.D. students interested in the ICRAT 2016 Doctoral Symposium are invited to submit (online) their doctoral papers (up to 4 pages) written in English and using the Doctoral Symposium Template, presenting the research, approach and early results. **Papers must be submitted by Friday February 19, 2016.** Authors must register and log in to the conference paper submission page at <https://easychair.org/conferences/?conf=icrat2016> in order to submit their paper.



Financial Support

Financial support for participating in this conference may be available to a limited number of selected students.

Conference Website

The Conference website, <http://www.icrat.org/>, contains information about past ICRAT conferences and will be updated with information regarding ICRAT 2016, including final submission instructions, important dates, and instructions for financial support applications.



Paper Title (use style: *paper title*)

Subtitle as needed (*paper subtitle*)

Authors Name/s per 1st Affiliation (*Author*)

line 1 (of *Affiliation*): dept. name of organization
line 2: name of organization, acronyms acceptable
line 3: City, Country
line 4: e-mail address if desired

Authors Name/s per 2nd Affiliation (*Author*)

line 1 (of *Affiliation*): dept. name of organization
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Abstract—This electronic document is a “live” template. The various components of your paper [title, text, heads, etc.] are already defined on the style sheet, as illustrated by the portions given in this document. (*Abstract*)

Keywords-component; formatting; style; styling; insert (key words)

I. INTRODUCTION (*HEADING 1*)

This MS Word (PC) template provides authors with most of the formatting specifications needed for preparing electronic versions of their papers. All standard paper components have been specified for three reasons: (1) ease of use when formatting individual papers, (2) automatic compliance to electronic requirements that facilitate the concurrent or later production of electronic products, and (3) conformity of style throughout the conference proceedings. Margins, column widths, line spacing, and type styles are built-in; examples of the type styles are provided throughout this document and are identified in italic type, within parentheses, following the example. Some components, such as multi-leveled equations, graphics, and tables are not prescribed, although the various table text styles are provided. The formatter will need to create these components, incorporating the applicable criteria that follow.

II. EASE OF USE

A. *Selecting a Template (Heading 2)*

First, confirm that you have the correct template. This template is for regular paper submissions – there is a different template for the Doctoral Symposium papers. This template has been tailored for output on US letter-sized paper (8.5” x 11”). This is the size that the proceedings will be published in.

B. *Maintaining the Integrity of the Specifications*

The template is used to format your paper and style the text. All margins, column widths, line spaces, and text fonts are prescribed; please do not alter them. You may note peculiarities. For example, the head margin in this template

measures proportionately more than is customary. This measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations.

III. PREPARE YOUR PAPER BEFORE STYLING

Before you begin to format your paper, first write and save the content as a separate text file. Keep your text and graphic files separate until after the text has been formatted and styled. Do not use hard tabs, and limit use of hard returns to only one return at the end of a paragraph. Do not add any kind of pagination anywhere in the paper. Do not number text heads—the template will do that for you.

Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar:

A. *Abbreviations and Acronyms*

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. In general, it is best to avoid acronyms in the abstract unless they are critical. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

B. *Abstract*

The abstract should be understandable as a stand-alone synopsis of the paper. It should not include any citations or references to anything else in the body of the paper.

C. *Units*

- Use either SI (MKS) or CGS as primary units. (SI units are encouraged.) English units may be used as secondary units (in parentheses). An exception would be the use of English units as identifiers in trade, such as “3.5-inch disk drive”.

- Avoid combining SI and CGS units, such as distance in meters and speed in miles per hour. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.
- Do not mix complete spellings and abbreviations of units: “Wb/m²” or “webers per square meter”, not “webers/m²”. Spell out units when they appear in text: “. . . a few kilometers”, not “. . . a few km”.
- Use a zero before decimal points: “0.25”, not “.25”. Use “cm³”, not “cc”. Use the decimal point “.”; not the decimal comma “,”. (*bullet list*)

D. Equations

Equations are an exception to the prescribed specifications of this template. You will need to determine whether or not your equation should be typed using either the Times New Roman or the Symbol font (please no other font). To create multileveled equations, it may be necessary to treat the equation as a graphic and insert it into the text after your paper is styled.

Number equations consecutively. Equation numbers, within parentheses, are to be positioned flush right, as in (1), using a right tab stop. To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence, as in

$$\alpha + \beta = \chi. \quad (1)$$

Note that the equation is centered using a center tab stop. Be sure that the symbols in your equation have been defined before or immediately following the equation. Use “(1)”, not “Eq. (1)” or “equation (1)”, except at the beginning of a sentence: “Equation (1) is . . .”

E. Some Common Mistakes

- The word “data” is plural, not singular.
- The subscript for the permeability of vacuum μ_0 , and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o”.
- In American English, commas, semi-colons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A

parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)

- A graph within a graph is an “inset”, not an “insert”. The word *alternately* is preferred to the word “alternately” (unless you really mean something that alternates).
- Do not use the word “essentially” to mean “approximately” or “effectively”.
- In your paper title, if the words “that uses” can accurately replace the word “using”, capitalize the “u”; if not, keep using lower case.
- Be aware of the different meanings of the homophones “affect” and “effect”, “complement” and “compliment”, “discreet” and “discrete”, “principal” and “principle”.
- Do not confuse “imply” and “infer”.
- The prefix “non” is not a word; it should be joined to the word it modifies, usually without a hyphen.
- There is no period after the “et” in the Latin abbreviation “et al.”.
- The abbreviation “i.e.” means “that is”, and the abbreviation “e.g.” means “for example”.

An excellent style manual for science writers is [7].

IV. USING THE TEMPLATE

After the text edit has been completed, the paper is ready for the template. Duplicate the template file by using the Save As command, and use the naming convention prescribed by your conference for the name of your paper. In this newly created file, highlight all of the contents and import your prepared text file. You are now ready to style your paper; use the scroll down window in the formatting toolbar.

A. Authors and Affiliations

The template is designed so that author affiliations are not repeated each time for multiple authors of the same affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate among departments of the same organization). This template was designed for two affiliations.

1) *For author/s of only one affiliation (Heading 3):* To change the default, adjust the template as follows.

a) *Selection (Heading 4):* Highlight all author and affiliation lines.

b) *Change number of columns:* Select the Columns icon from the Page Layout toolbar and then select “One” from the selection palette.

c) *Deletion*: Delete the author and affiliation lines for the second affiliation.

2) *For author/s of more than two affiliations: To change the default, adjust the template as follows.*

a) *Selection*: Highlight all author and affiliation lines.

b) *Change number of columns*: Select the “Columns” icon from the Page Layout toolbar and then select “One” from the selection palette.

c) *Highlight author and affiliation lines of affiliation 1 and copy this selection.*

d) *Formatting*: Insert one hard return immediately after the last character of the last affiliation line. Then paste down the copy of affiliation 1. Repeat as necessary for each additional affiliation.

e) *Reassign number of columns*: Place your cursor to the right of the last character of the last affiliation line of an even numbered affiliation (e.g., if there are five affiliations, place your cursor at end of fourth affiliation). Drag the cursor up to highlight all of the above author and affiliation lines. Go to Column icon and select “Two”. If you have an odd number of affiliations, the final affiliation will be centered on the page; all previous affiliations will be in two columns.

B. Identify the Headings

Headings, or heads, are organizational devices that guide the reader through your paper. There are two types: component heads and text heads.

Component heads identify the different components of your paper and are not topically subordinate to each other. Examples include ACKNOWLEDGMENTS and REFERENCES and, for these, the correct style to use is “Heading 5”. Use “figure caption” for your Figure captions, and “table head” for your table title. Run-in heads, such as “Abstract”, will require you to apply a style (in this case, italic) in addition to the style provided by the drop down menu to differentiate the head from the text.

Text heads organize the topics on a relational, hierarchical basis. For example, the paper title is the primary text head because all subsequent material relates and elaborates on this one topic. If there are two or more sub-topics, the next level head (uppercase Roman numerals) should be used and, conversely, if there are not at least two sub-topics, then no subheads should be introduced. Styles named “Heading 1”, “Heading 2”, “Heading 3”, and “Heading 4” are prescribed.

C. Figures and Tables

1) *Positioning Figures and Tables*: Place figures and tables at the top and bottom of columns. Avoid placing them in the middle of columns. Large figures and tables may span across both columns. Figure captions should be below the figures; table heads should appear above the tables. Insert

figures and tables after they are cited in the text. Use the abbreviation “Fig. 1”, even at the beginning of a sentence.

TABLE I. TABLE TYPE STYLES

Table Head	Table Column Head		
	Table column subhead	Subhead	Subhead
copy	More table copy ^a		

a. Sample of a Table footnote. (Table footnote)

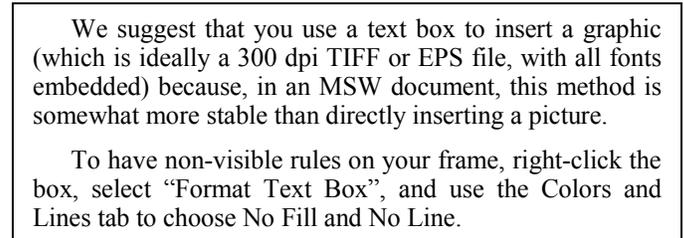


Figure 1. Example of a figure caption. (figure caption)

Figure Labels: Use 8 point Times New Roman for Figure labels. Use words rather than symbols or abbreviations when writing Figure axis labels to avoid confusing the reader. As an example, write the quantity “Magnetization”, or “Magnetization, M”, not just “M”. If including units in the label, present them within parentheses. Do not label axes only with units. In the example, write “Magnetization (A/m)” or “Magnetization {A[m(1)]}”, not just “A/m”. Do not label axes with a ratio of quantities and units. For example, write “Temperature (K)”, not “Temperature/K”.

ACKNOWLEDGMENT (HEADING 5)

The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g”. Avoid the stilted expression, “One of us (R. B. G.) thanks . . .” Instead, try “R. B. G. thanks”. Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

The template will number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence: “Reference [3] was the first . . .”

Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it was cited. Do not put footnotes in the reference list. Use letters for table footnotes.

Unless there are six authors or more give all authors' names; do not use “et al.”. Papers that have not been published, even if they have been submitted for publication, should be cited as “unpublished” [4]. Papers that have been accepted for

publication should be cited as “in press” [5]. Capitalize only the first word in a paper title, except for proper nouns and element symbols.

For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [6].

- [1] G. Eason, B. Noble, and I. N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” *Phil. Trans. Roy. Soc. London*, vol. A247, pp. 529–551, April 1955. (*references*)
- [2] J. Clerk Maxwell, *A Treatise on Electricity and Magnetism*, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.
- [3] I. S. Jacobs and C. P. Bean, “Fine particles, thin films and exchange anisotropy,” in *Magnetism*, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271–350.
- [4] K. Elissa, “Title of paper if known,” unpublished.
- [5] R. Nicole, “Title of paper with only first word capitalized,” *J. Name Stand. Abbrev.*, in press.
- [6] Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Electron spectroscopy studies on magneto-optical media and plastic substrate interface,” *IEEE Transl. J. Magn. Japan*, vol. 2, pp. 740–741, August 1987 [Digests 9th Annual Conf. Magnetism Japan, p. 301, 1982].
- [7] M. Young, *The Technical Writer's Handbook*. Mill Valley, CA: University Science, 1989.

Prospectus Title (use style: *paper title*)

Subtitle as needed (*paper subtitle*)

Student Name

line 1 (of *Affiliation*): dept. name of organization
 line 2: name of organization, acronyms acceptable
 line 3: City, Country
 line 4: e-mail address if desired

Thesis Advisor Name

line 1 (of *Affiliation*): dept. name of organization
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$$\alpha + \beta = \chi. \tag{1}$$

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TABLE I. TABLE TYPE STYLES

Table Head	Table Column Head		
	Table column subhead	Subhead	Subhead
copy	More table copy ^a		

a. Sample of a Table footnote. (Table footnote)

We suggest that you use a text box to insert a graphic (which is ideally a 300 dpi TIFF or EPS file, with all fonts embedded) because, in an MSW document, this method is somewhat more stable than directly inserting a picture.

To have non-visible rules on your frame, right-click the box, select “Format Text Box”, and use the Colors and Lines tab to choose No Fill and No Line.

Figure 1. Example of a figure caption. (*figure caption*)

Figure Labels: Use 8 point Times New Roman for Figure labels. Use words rather than symbols or abbreviations when writing Figure axis labels to avoid confusing the reader. As an example, write the quantity “Magnetization”, or “Magnetization, M”, not just “M”. If including units in the label, present them within parentheses. Do not label axes only with units. In the example, write “Magnetization (A/m)” or “Magnetization {A[m(1)]}”, not just “A/m”. Do not label axes with a ratio of quantities and units. For example, write “Temperature (K)”, not “Temperature/K”.

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- [4] K. Elissa, “Title of paper if known,” unpublished.
- [5] R. Nicole, “Title of paper with only first word capitalized,” *J. Name Stand. Abbrev.*, in press.
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