

Editorial

Publishing in “Aircraft Design” with a Continuous Open Access Special Issue

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Received: 29 December 2019; Accepted: 31 December 2019; Published: 14 January 2020



Abstract: The article looks at publishing options in the field of aircraft design to find that no dedicated journal on aircraft design exists. For this reason, a Continuous Special Issue Aircraft Design of the well established journal “Aerospace” at the Open Access publisher MDPI is started. Often special issues of a journal are introduced for “hot topics”. Here, the subset “special issue” is used for a scientific domain—in this case “aircraft design”. Recurring single special issues are numbered in sequence and are identified by the year of the deadline for manuscript submissions. This allows for the delivery of several single special issues over time in a row without the need to define a publishing schedule up front. Together these single issues form the Continuous Special Issue Aircraft Design and offer a new publishing home for the aircraft design community.

Keywords: aerospace; aviation; aeronautics; airplanes; aircraft; design; publishing; open access; special issue; MDPI; permalink; archive

1. Introduction

Aerospace consists of *aeronautics* (atmospheric flight) and *astronautics* (space flight) [1]. The scientific foundation of aeronautics is called *aeronautical science*, which includes *aeronautical engineering*. One of the many disciplines in aeronautical engineering is *aircraft design*. Aircraft design is the very first step in aeronautical engineering, where requirements are converted into a geometrical description of the aircraft.

A list of **scientific journals in the area of “aerospace”** is available from Google Scholar [2], CWTS Journal Indicators [3], and the University of Illinois [4]. A ranking of the top 40 aerospace journals was done by the German Society for Aeronautics and Astronautics (DGLR) in 2015 [5]. Among all of these listed journals, only two carry “aircraft” in their name. These two are the *Journal of Aircraft* by AIAA (ISSN 0021-8669) and *Aircraft Engineering and Aerospace Technology* by Emerald (ISSN 1748-8842). None of them specifically deals with aircraft design.

In 1998 the situation was much the same as today. For this reason, Prof. Egbert Torenbeek [6] started the **journal “Aircraft Design”** (ISSN 1369-8869) together with Prof. Dr. Jan Roskam [7] at Elsevier [8]. Both of them served as Editor. Torenbeek took care of authors in Europe and Roskam likewise took care of authors in the USA [9]. The journal started successfully and published 58 articles in the four years until 2001 [10]. The subscription-based publishing model, however, proved inadequate to serve the rather small aircraft design community. As a consequence, Elsevier’s title had to be discontinued in 2002, when it was decided that the number of subscriptions was too low.

Today, this pitfall can be avoided with the **Open Access** (OA) publishing model [11,12] because the papers finance themselves with article processing charges (APC), which is referred to as “gold OA”. In turn, the papers can be read free of charge on the Internet (“gratis OA”) and are in addition free of most copyright and licensing restrictions (“libre OA”). Often, the Creative Commons Attribution

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Furthermore, the motivation back in 1998 for establishing a journal was much the same as today. The European Workshop on Aircraft Design Education (EWADE) had been started in 1994 and was held every two years [13]. No workshop passed without expressing regret about the absence of a dedicated aircraft design journal [13–15]. In the same way as in the past, today people working in the domain of aircraft design also see each other as a close-knit and affectionate **community**. The European Workshop on Aircraft Design Education (EWADE) [16] was continued along with the Symposium on Collaboration in Aircraft Design (SCAD) [17], both became independent activities under the CEAS Technical Committee Aircraft Design (TCAD) [18]. CEAS is the Council of European Aerospace Societies [19]. Presently, CEAS has twelve European national aerospace societies as members. In eastern or central Europe engineers come together in a workshop called Research and Education in Aircraft Design (READ) [20]. Similarly, in the USA the AIAA Aircraft Design Technical Committee is very active [21]. AIAA is the American Institute of Aeronautics and Astronautics. For these and other aircraft design related communities a Special Issue Aircraft Design can serve as a publishing home in the absence of a dedicated journal for the discipline.

2. Set Up of the Special Issue “Aircraft Design”

MDPI (Multidisciplinary Digital Publishing Institute) uses the Open Access publishing model for all of its journals including its special issues. “Aerospace” (ISSN 2226-4310) is one such journal at MDPI, which was started in 2014, and its aims include the “design . . . of aircraft” [22]. The first **Special Issue Aircraft Design** (SI-1/2017) [23] at “Aerospace” was managed by Guest Editor Dr. Mohammad Sadraey and includes five papers. The second Special Issue Aircraft Design (SI-2/2020) [24] is managed by Prof. Dr. Dieter Scholz, MSME [25] as Guest Editor. In addition, Prof. em. Egbert Torenbeek contributes with his experience as Honorary Guest Editor.

As can be seen above, the special issues are consecutively **numbered**. The year given after the issue number is the year in which the Special Issue closed or is scheduled to close. This allows for the delivery of a continuous sequence of special issues over time without the need to define a certain publishing sequence from the start. It enables the *Continuous Special Issue Aircraft Design*, which stands for the sum of all individual Special Issues Aircraft Design and the mechanism to make this an ongoing activity.

Each special issue has its own **home page** at MDPI. These separate home pages allow for changes to be expressed in the aims and scope or among the Guest Editors. In addition, the special issue home page can be seen as the front matter of a particular special issue. The banner of the special issue (Figures 1 and 2) can be shown on the home page as the graphical abstract of an Editorial located at the start of the list of papers.

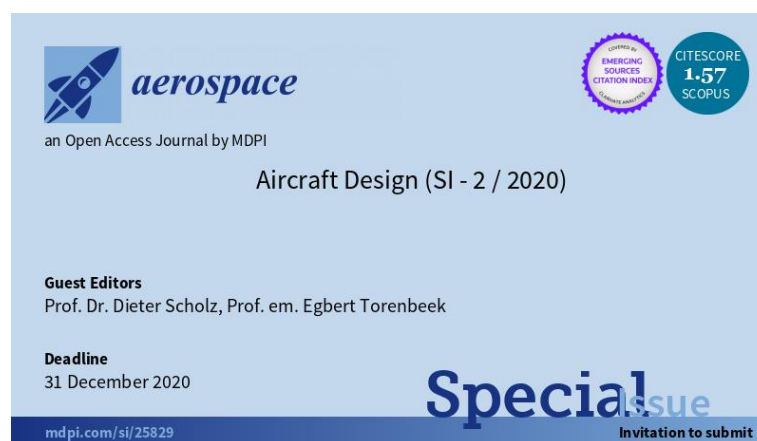


Figure 1. Banner of the Special Issue Aircraft Design (SI-2/2020).



Figure 2. Banner of the Special Issue Aircraft Design (SI–1/2017).

The URL of the currently open Special Issue Aircraft Design is always: https://www.mdpi.com/journal/aerospace/special_issues/aircraft_design. Linking to this URL also means linking to the central anchor point of the Continuous Special Issue Aircraft Design as a whole now and in the future. This page shows links to direct readers to all past special issues. Linking directly to a single past issue is also possible: a long user-friendly URL is available as well as a short URL based on MDPI’s internal number of that special issue. Table 1 shows the systematic of these URLs.

Table 1. Systematic of URLs of the Continuous Special Issues Aircraft Design.

Closed SIs:		Special Issue Aircraft Design (SI-1/2017)	
long URL		https://www.mdpi.com/journal/aerospace/special_issues/aircraft_design_1_2017	
short URL		https://www.mdpi.com/si/6497 ²	
Open SI:		Special Issue Aircraft Design (SI-2/2020)	
long URL		https://www.mdpi.com/journal/aerospace/special_issues/aircraft_design ¹	
short URL		https://www.mdpi.com/si/25829 ²	

¹ The currently open Special Issue Aircraft Design has always this URL. ² The internal special issue number can be obtained from the editorial office.

Presently, the special issue is also advertised on a **CEAS web page**. The URL of the page is particularly easy to remember: <http://journal.AircraftDesign.org>. The page provides further details about the Continuous Special Issues Aircraft Design, e.g., related to possible reductions of the standard article processing charges (APC) [26] and links to all relevant web pages.

The **Digital Object Identifier (DOI)** is always used when linking to an individual paper. The DOI for a recent “Aerospace” paper at MDPI is structured as follows: <https://doi.org/10.3390/aerospaceVMMxxxx>. Here, 10.3390 stands for MDPI, V is the Volume (related to the year, starting with 1 in 2014), MM is the month, and xxxx is the number of the paper. Allocation starts with 0001 in the beginning of each year, counting up. The setup is shown in Figure 3.

When writing for the Special Issue Aircraft Design, authors should make sure to use **persistent links to archived resources**. Often we refer to journal articles that are usually long term archived by the publisher and have a persistent identifier (a DOI) to connect to the online resource. But in all other cases, it is the author’s responsibility to archive the web pages, PDFs, or other data files. Please refer to Appendix A to see how references can be archived with available tools on the Internet.

A Continuous Special Issue as described above is not much different from what is otherwise known at MDPI as a “**Topical Collection**”. A topical collection is a variant of a special issue. Topical collections run continuously (without any numbering) under the same home page. Topical Collections are just another form to structure journal content.

Aerospace

(ISSN 2226-4310)

<https://www.mdpi.com/journal/aerospace>

DOI structure:

<https://doi.org/10.3390/aerospaceVMMxxxx>

Continuous Special Issue Aircraft Design

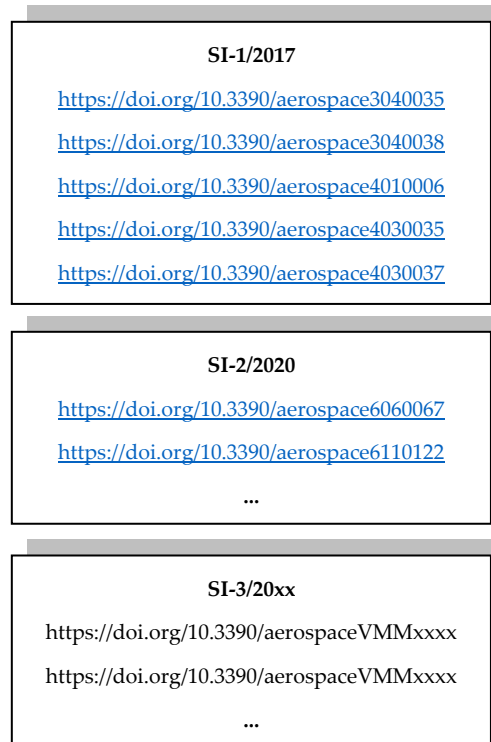


Figure 3. Identification of articles in the Continuous Special Issue Aircraft Design of the journal Aerospace by means of their DOI.

3. Aims and Scope

The Special Issue “Aircraft Design” is open to the full range of **article types**. In addition to original **research** articles, review papers, letters or communications, technical reports, and the extended version of conference papers are also accepted. Furthermore, an interest exists in aircraft design **education**. Certainly, the special issue is also the place to discuss topics like zero-emission airplanes, electric flight, urban air mobility—you name what is currently debated. Nevertheless, the **classic topics** in aircraft design remain:

- Innovative aircraft concepts (Figure 4);
- Methodologies and tools for aircraft design and optimization;
- Reference aircraft designs and case studies with datasets; and
- Aircraft design education.



Figure 4. Examples of innovative aircraft concepts [27].

The **keywords** are: aircraft, design, overall aircraft design (OAD), configuration, requirements, payload, range, certification, safety, constraints, objectives, synthesis, optimization, aerodynamics, drag, high-lift, structure, mass, performance, stability, control, aeroelasticity, engine, systems, operating costs, direct operating costs (DOC), passenger, cabin, ticket, price, environment, profit, asset, wing, fuselage, tail, undercarriage, landing gear, engine, systems.

Authors from all **economic sectors** (private, public, civic, and general public) can submit to this Special Issue. Education and training in aircraft design is considered as important as research in the field.

4. The Journal “Aerospace” at MDPI

“Aerospace” (ISSN 2226-4310) is a **well reputed journal** as can be seen from the authors publishing with “Aerospace”. Its latest journal metrics CiteScore (CS), SRJ and SNIP (from Scopus, Elsevier) is given on the journal’s home page. Articles have a high visibility; papers are visible Open Access at the journal “Aerospace” and also alongside the Special Issue Aircraft Design as soon as they are ready. The journal “Aerospace” is covered by many databases [28] including Web of Science (Clarivate Analytics) and Scopus (Elsevier). Papers from “Aerospace” are archived for centuries to come at CLOCKSS and in the Swiss National Library Digital Archive [28]. “Aerospace” adheres to best practice in Open Access publishing (accessibility, openness, discoverability, reuse author rights, and many other criteria). This is expressed at the Directory of Open Access Journals (DOAJ) with the “DOAJ Seal” given to “Aerospace” [29,30]. MDPI is a member of many relevant publishing organizations (OASPA, COPE, STM, . . .) [31]. Membership to most organizations is only granted after a thorough check of the publisher and its journals.

The journal “Aerospace” is known for **rapid publication** [32]. Manuscripts are peer-reviewed and a first decision is provided to authors approximately three weeks after submission; the length of the peer review itself can vary considerably, but reviewers are reminded by the editorial office to make the review a priority; acceptance to publication is undertaken in one week. Once accepted, the manuscripts undergo professional copy-editing, proofreading by the authors, final corrections, and publication on the journal website. This means that papers will be visible alongside with the “Special Issue Aircraft Design” and the journal “Aerospace” as soon as they are ready.

5. Aircraft Design

Aircraft design is the **first fascinating step** in the life of an aircraft, where visions are converted into reality.

In a **practical sense**, aircraft design supplies the geometrical description of the aircraft. Traditionally, the output is a three-view drawing and a list of aircraft parameters. Today, the output may also be an electronic 3D model. In the case of civil aircraft, a fuselage cross-section and a cabin layout are provided in addition.

In an **abstract sense**, aircraft design determines the design parameters to ensure that the requirements and constraints are met and design objectives are optimized. The fundamental requirements for civil aviation are payload and range. Many constraints come from certification rules demanding safety. The objectives are often of a financial nature, like the lowest operating costs. Aircraft design always strives for the best compromise among conflicting issues.

The **design synthesis** of an aircraft goes from conceptual design to detailed design. Frequently, expert knowledge is needed more than computing power. Typical work involves statistics, the application of inverse methods, and use of optimization algorithms. Proposed designs are analyzed with respect to aerodynamics (drag), structure (mass), performance, stability and control, and aeroelasticity, to name just a few. A modern aircraft is a complex, computer-controlled combination of its structure, engines, and systems. Passengers demand high comfort at low fares, society demands environmentally friendly aircraft, and investors demand a profitable asset.

Overall aircraft design (OAD) comprises all aircraft types in civil and military use, considers all major aircraft components (wing, fuselage, tail, undercarriage) as well as the integration of engines and systems. The aircraft is seen as part of the air transport system and beyond contributing to multimodal transport. Aircraft design applies the different aerospace sciences and considers the aircraft during its whole life cycle [33].

6. Summary

A journal titled “Aircraft Design” was published successfully from 1998 to 2001 by Elsevier, but had to be discontinued due to the low number of subscriptions. The demise was caused by a publishing model not adequate for the small aircraft design community. No other attempt to start an Aircraft Design journal has been made since then. The Open Access publishing model is a viable and better alternative for small communities. In a new endeavor toward creating something like an Aircraft Design journal, the subset of an Open Access journal within the wider topic “Aerospace” was used. The form of a Continuous Special Issue was chosen as the journal subset. The established journal “Aerospace” helps to overcome the problem of achieving “critical mass” for the new venture. Furthermore, MDPI provides a proven publishing infrastructure and support.

Funding: This article received no external funding.

Conflicts of Interest: The author declares no conflicts of interest.

Abbreviations

AIAA	American Institute of Aeronautics and Astronautics (www.aiaa.org)
CC	Creative Commons (www.creativecommons.org)
CEAS	Council of European Aerospace Societies (www.ceas.org)
CLOCKSS	Controlled LOCKSS (www.clockss.org)
COPE	Committee on Publication Ethics (www.publicationethics.org)
CS	CiteScore [34]
CWTS	Centre for Science and Technology Studies (www.cwts.nl)
DGLR	Deutsche Gesellschaft für Luft- und Raumfahrt Lilienthal-Oberth e.V. (www.dglr.de)
DOC	Direct Operating Costs
DOI	Digital Object Identifier (www.doi.org)
EWADE	European Workshop on Aircraft Design Education (www.ewade.aircraftdesign.org)
ISSN	International Standard Serial Number (www.issn.org)
LOCKSS	Lots of Copies Keep Stuff Safe (www.lockss.org)
MDPI	Multidisciplinary Digital Publishing Institute (www.mdpi.com)
OAD	Overall Aircraft Design
OASPA	Open Access Scholarly Publishers Association (www.oaspa.org)
READ	Research and Education in Aircraft Design (www.read.aircraftdesign.org)

SCAD	Symposium on Collaboration in Aircraft Design (www.scad.aircraftdesign.org)
SI	Special Issue
SNIP	Source Normalized Impact per Paper [34]
SRJ	SCImago Journal Rank [34]
STM	Here: The worldwide association of STM publishers (www.stm-assoc.org);
STM	Science, Technology and Medicine
TCAD	CEAS Technical Committee Aircraft Design (www.aircraftdesign.org)
URL	Uniform Resource Locator

Appendix A

The Appendix explains the use of **persistent links to archived resources** as applied in this Editorial. Authors writing for the Special Issue Aircraft Design are encouraged to follow this practice!

Journal articles (like those from MDPI) are usually archived and have a persistent identifier in the form of a DOI to connect to the online resource. But often, we make use of web pages, PDFs, or other data files taken from places on the Internet, where the resource is not archived and provided with a persistent identifier. We know from experience, “websites change, go away, and get taken down. When linked citations lead to broken, blank, altered, or even malicious pages, that’s called link rot.” [35]. Today, with tools at hand, **it is the author’s responsibility to create a permanent, reliable, unbreakable link to an unalterable, archived record of the web page or the web resource** cited in the work if this is otherwise not available. A comfortable way to do this is with Perma.cc (www.perma.cc). Perma.cc requires an account, which can be obtained free of charge e.g., from a participating university library. Alternatively, the Internet Archive with its Wayback Machine (www.web.archive.org) and the function “Save Page Now” can capture a web page or another online resource as it appears now for use as a trusted citation in the future. Links to the Internet Archive tend to be very long and would need to be shortened. This can be done e.g., with Bitly (www.bit.ly). The resulting short links fit well into the List of References.

Following best practice, the List of References should have two links for each entry to a self-archived web resource; the original link and the link to its archived version. **At MDPI typesetting rules only allow specifying one link.** It is helpful that Perma.cc as well as the Internet Archive show also the link to the original resource in their archived documents. Therefore, specifying only the permanent link is not the best solution, but sufficient. If required, the reader would need to go via the archived version to find the original link. Please consult the References below to see how it works.

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