

# AerospaceEurope Conference2020

**CEAS**  
Council of European  
Aerospace Societies

HOSTED BY :

**3AF**  
Association Aéronautique  
et Astronautique de France

**Greener Aerospace Innovative Technologies and  
Operations for a human friendly environment**

FEATURING

**CEAS AIR & SPACE**  
7th Edition

**3AF GREENER AVIATION**  
3rd Edition

**AIAA/3AF ANERS**  
8th Edition

**BORDEAUX, FRANCE | 25-28 FEBRUARY 2020**

CO-ORGANISED BY :



WITH THE SUPPORT OF :



[www.aerospace-europe2020.eu](http://www.aerospace-europe2020.eu)





# Engineering

Books and Journals from  
Cambridge University Press

Cambridge publishes a range of high-quality books and journals on the theory and practice of engineering, in communications, information theory, signal processing, networks, RF and microwave, circuits and devices, materials science and polymer research, applied photonics, thermal-fluids, mechanics, aerospace, and chemical engineering.

For further details visit:  
[cambridge.org/core-engineering](https://www.cambridge.org/core-engineering)

Cambridge  
Core

 **CAMBRIDGE**  
UNIVERSITY PRESS

# Cambridge Core

Access  
leading  
journals in  
your subject

Explore today at [cambridge.org/core](https://www.cambridge.org/core)

Cambridge **Core**



## Submission of Manuscripts

All manuscripts should be submitted online at: <http://www.edmgr.com/aeroj>  
Any enquiries should be directed to Wayne J Davis at [aerjournal@aerosociety.com](mailto:aerjournal@aerosociety.com).  
The current set of instructions for authors are available at: <http://journals.cambridge.org/AER>

## Subscriptions

*The Aeronautical Journal* (ISSN 0001-9240) is published monthly in 12 issues each year.

### Non-Members

The subscription price (excluding VAT) to *The Aeronautical Journal* for volume 123 (2019), which includes print and electronic access, is £608 (USA, Canada and Mexico US\$912) and includes delivery by air; single parts are available at £58 (USA, Canada and Mexico US\$87) plus postage. The electronic-only price available to institutional subscribers is £533 (USA, Canada and Mexico US\$800). EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Orders, which must be accompanied by payment, may be sent to any bookseller or subscription agent or direct to the publishers: Cambridge University Press, UPH, Shaftesbury Road, Cambridge CB2 8BS, or in the USA, Canada, and Mexico to Cambridge University Press, Journals Fulfillment Department, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA. Japanese Prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo, Japan.

### RAeS Members

The subscription price for RAeS members is £98.70 for hardcopy and online access and £75.60 for online access only. Individual copies are £8.60. Orders are available from: Membership Department, Royal Aeronautical Society, No.4 Hamilton Place, London, W1J 7BQ, UK. Tel: +44 (0)20 7670 4304 or email: [subscriptions@aerosociety.com](mailto:subscriptions@aerosociety.com)

### RAeS Conference Proceedings

Details, prices and availability of Royal Aeronautical Society Conference Proceedings can be obtained from: RAeS Conference and Events Department, No.4 Hamilton Place, London, W1J 7BQ, UK. Tel: +44 (0)20 7670 4345, email: [conference@aerosociety.com](mailto:conference@aerosociety.com) or via [www.aerosociety.com/events/catch-up-on-events/conference-proceedings](http://www.aerosociety.com/events/catch-up-on-events/conference-proceedings)

### Advertising

All advertising enquiries should be sent to Bharat Davé,  
[bharat.dave@aerosociety.com](mailto:bharat.dave@aerosociety.com)

### Internet Access

*The Aeronautical Journal* is included in the Cambridge Journals Online service and can be found at:  
<http://journals.cambridge.org/AER>.

*The Aeronautical Journal* now supports open access publications across its hardcopy and online platforms, and accepts papers to consider for publication under both the 'green' and 'gold' open access options.

Information contained within *The Aeronautical Journal* has been published in good faith and the opinions expressed do not represent those of the Royal Aeronautical Society.

The Royal Aeronautical Society is a registered charity: No 313708

© 2019 Royal Aeronautical Society

All rights reserved. No part of this publication may be reproduced in any form or by any means, electronic, photocopying or otherwise, without permission in writing from Cambridge University Press. Permission to copy (for users in the USA) is available from the Copyright Clearance Center, <http://www.copyright.com>.

This journal issue has been printed on FSC™-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see [www.fsc.org](http://www.fsc.org) for information.

Printed in the UK by Bell & Bain Limited, Glasgow.



# CONTENTS

Volume 123 Number 1267

September 2019

<b>The VTOL dream – Will it always remain out of reach?</b> P Curtis	1339
<b>BFA fuzzy logic based control allocation for fault-tolerant control of multirotor UAVs</b> M. Saied, M. Knaiber, H. Mazeh, H. Shraim and C. Francis	1356
<b>Wind turbine wake vortex influence on safety of small rotorcraft</b> Berend G. van der Wall	1374
<b>Rapid multi-layer method on solving optimal endo-atmospheric trajectory of launch vehicles</b> C. Wei, Y. Han, J. Pu, Y. Li and P. Huang	1396
<b>Analysis of flight delays in aviation system using different classification algorithms and feature selection methods</b> A. B. A. Anderson, A. J. Sanjeev Kumar and A. B. Arockia Christopher	1415
<b>Adaptive integrated guidance and control for impact angle constrained interception with actuator saturation</b> X. L. Ai, Y. C. Shen and L. L. Wang	1437
<b>Rapid multi-layer method on solving optimal endo-atmospheric trajectory of launch vehicles - CORRIGENDUM</b> C. Wei, Y. Han, J. Pu, Y. Li and P. Huang	1454

*Front Cover:* The hybrid-electric XTI TriFan 600.  
(XTI Aircraft)

Cambridge Core

For further information about this journal please go  
to the journal website at:

[cambridge.org/aer](https://doi.org/10.1017/aer.2019.119)

<https://doi.org/10.1017/aer.2019.119> Published online by Cambridge University Press



MIX  
Paper from  
responsible sources  
FSC® C007785

CAMBRIDGE  
UNIVERSITY PRESS