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## 'Atmospheric Physics' – an exceptional book about atmospheric research

10 January 2013

### Commemorating the 50th anniversary of the DLR Institute of Atmospheric Physics

The Institute of Atmospheric Physics (Institut für Physik der Atmosphäre; IPA) at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) celebrated its 50th anniversary in 2012. To celebrate this milestone, a book titled 'Atmospheric Physics: Background – Methods – Trends' has been published. "We want to use the book to bring a better understanding of the diverse subject areas and capabilities within our Institute to a wide readership," says editor Ulrich Schumann, who retired as Director of the Institute in 2012 after almost 30 years. "Our goal is to reach the many people who come into contact with atmospheric physics in their work, be this in science, education, a wide range of institutions or the numerous partners collaborating with the Institute of Atmospheric Physics." The book has now received its first award – on 9 January 2013, at the conference of the American Meteorological Society, Atmospheric Science Librarians International announced that the book had received an honourable mention in the Science category 'Best Books of the Year' for its outstanding topical contributions.

The subhead 'Background – Methods – Trends' reveals the three-tiered structure of the book, which benefits greatly from a clear arrangement in a total of 51 chapters and 877 pages. In the first section, the authors knowledgeably set out the status of research in atmospheric physics and chemistry. The composition of the atmosphere is described in one chapter, as are the scattering of light by air molecules, the greenhouse effect and the complex processes that occur in thunderstorms. Results obtained and discoveries made at the Institute are frequently referred to in the individual subject areas.

The second part of the book gives a multifaceted insight into the various measurement and simulation methods used at the Institute to gain a deeper understanding of the atmosphere and its processes. Here, the reader learns about exciting techniques such as taking lightning measurements during storms or detecting ice particles in clouds from space. The Institute's broad competence in simulating atmospheric processes up to the scale of the Earth system is explained as well.

Also included in this comprehensive work are the DLR Falcon and High Altitude and Long Range (HALO) research aircraft and there is a chapter on the events surrounding the eruption of the Eyjafjallajökull volcano in spring 2010. These two subject areas open the third section of the book, which is about the scientific 'trends' in atmospheric research. The authors manage to describe the measurement of the ash cloud over Europe and the effects of shutting down almost the entire European air space in 2010 in a knowledgeable, gripping and generally understandable way. The interesting insights given will be accessible to lay readers as well. Other current hot topics affecting society are discussed as well. The impact of aviation and surface transport on global climate is covered, as is the future development of the ozone layer.

Overall, 'Atmospheric Physics' gives a good overview of the many themes of atmospheric research. The authors manage to discuss their subjects in an easily understandable way, making the book useful to a broad readership interested in weather and climate research. Furthermore, the clear structure and carefully laid out directory of abbreviations make the book an excellent reference work.

'Atmospheric Physics' is published by Springer as part of DLR's series of books entitled 'Research Topics in Aerospace'. Leading scientists in aerospace research from DLR have

participated in this series. They bring together both the fundamentals and the expertise derived from their research and thus document the knowledge on aeronautics and space acquired at DLR. The aim of this series of DLR books is for researchers and developers all over the world to be able to benefit from the German Aerospace Center's many years of discoveries and be motivated to enter into cooperative ventures. The first book in this series, entitled 'Adaptive, Tolerant and Efficient Composite Structures' was published in June 2012. It was edited by Martin Wiedemann, Director of the DLR Institute of Composite Structures and Adaptive Systems, and Michael Sinapius, Head of the Institute of Adaptive System and Function Integration at the Technical University of Braunschweig and an advisory member of the directorate at the DLR Institute of Composite Structures and Adaptive Systems.

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## Contacts

*Falk Dambowsky*  
*German Aerospace Centre (DLR)*  
*Media Relations, Aeronautics*  
*Tel.: +49 2203 601-3959*  
*falk.dambowsky@dlr.de*

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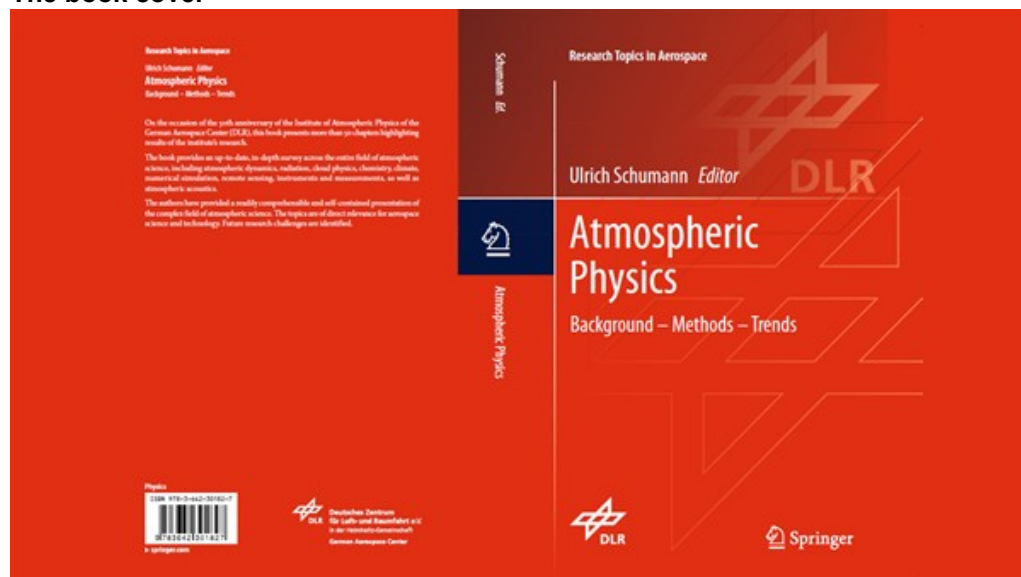
## Thunderstorm formation



In the book 'Atmospheric Physics', the authors knowledgeably explain the current state of research in atmospheric physics and chemistry.

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## The book cover



'Atmospheric Physics' is published by Springer as part of DLR's series of books entitled 'Research Topics in Aerospace'.

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