

## CONTENTS

The global distribution of air traffic at high altitudes, related fuel consumption and trends. By H.-G. Nüßer and A. Schmitt . . . . .	1
Fuel consumption and emissions of air traffic. By Hans-Peter Reichow . . . . .	12
Hydrogen technologies for future aircraft. By Carl-Jochen Winter . . . . .	23
Pollutant emissions of existing and future engines for commercial aircrafts. By H. Grieb and B. Simon . . . . .	43
Constituents and transport properties of the atmosphere above and below the tropopause. By Peter Fabian . . . . .	84
The atmospheric chemical effects of aircraft operations. By Paul J. Crutzen and Christoph Brühl . . . . .	96
Sensitivity of stratospheric ozone to present and possible future aircraft emissions. By Donald J. Wuebbles and Douglas E. Kinnison . . . . .	107
Possible climatic effects of contrails and additional water vapour. By H. Grassl . . . . .	124
Determination of contrails from satellite data and observational results. By U. Schumann and P. Wendling . . . . .	138
An investigation of the climatic effect of contrail cirrus. By K. N. Liou, S. C. Ou and G. Koenig . . . . .	154
Index of Contributors . . . . .	170