

# Operations Research in Space and Air

# Applied Optimization

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Volume 79

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# Operations Research in Space and Air

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**This book is dedicated  
to the memory of  
Mario Lucertini, who  
gave the OR studies its  
climbing impetus.**

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# Preface

*Operations Research in Space and Air* is a selection of papers reflecting the experience and expertise of international OR consulting companies and academic groups. The global market and competition play a crucial part in the decision making processes within the Space and Air industries and this book gives practical examples of how advanced applications can be used by Space and Air industry management. The material within the book provides both the basic background for the novice modeler and a useful reference for experienced modelers. Students, researchers and OR practitioners will appreciate the details of the modeling techniques, the processes that have been implemented and the computational results that demonstrate the benefits in applying OR in the Space and Airline industries. Advances in PC and Workstations technology, in optimization engines and in modeling techniques now enable solving problems, never before attained by Operations Research. In recent years the Italian OR Society (*AIRO*, [www.airo.org](http://www.airo.org)) has organized annual forums for researchers and practitioners to meet together to present and discuss the various scientific and technical OR achievements. The *OR in Space & Air* session of *AIRO2001* and *AIRO2002* Conferences, together with optimization tools' applications, presented recent results achieved by *Alenia Spazio S.p.A. (Turin)*, *Alitalia*, *Milan Polytechnic* and *Turin Polytechnic*. With additional contributions from academia and industry they have enabled us to capture, in print, today's 'state-of-the-art' optimization and data mining solutions. Each paper mainly addresses the synergistic effect of OR tools interaction, describes the mathematical models formulated, introduces the algorithms used and reports the benefits of their implementation. Nowadays the global market and competition have a crucial impact on the Space and Air industry sectors. This book shows how these industries can get substantial advantage from the use of OR methodologies such as data handling, modeling and optimization algorithms.

TAC, GF, SG & RT



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We hope that his merits have not been nullified by our faults.