The Spacelab Scientific Missions: A Comprehensive Bibliography of Scientific Publications

Compiled by
Dr. Marsha Torr
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FOREWORD

November 1993 represented the 10-year anniversary of the flight of the Spacelab 1 mission, with the first precursor mission (OSTA-1) being launched 2 years earlier. Since that time, a total of 27 Shuttle missions has been flown, using the Spacelab system as a facility for conducting scientific research in space. The 27 missions flown to date have allowed a total of approximately 500 Principal Investigator class investigations to be conducted in orbit. These investigations have constituted major scientific efforts in astronomy/astrophysics, atmospheric science, Earth observations, life sciences, microgravity science (biotechnology, materials science, combustion science, and fluid dynamics), and space plasma physics.

The Spacelab program represents one of the longest in duration, the most multi-disciplinary, and the most international of the space science programs conducted to date. Furthermore, eight more missions will be flown over the next few years. We have conducted an initial survey of the scientific products of the Spacelab missions already flown. In that survey, information was gathered from Principal Investigators on the scientific highlights of their investigations and on statistical measures of the overall success—such as papers published, students obtaining graduate degrees, technology spin-offs, etc.

This document is a compilation of the papers that have been published to date in refereed literature. As of November 1994, the number of papers by broad scientific discipline is as follows:

<table>
<thead>
<tr>
<th>Scientific Discipline</th>
<th>Number of Papers</th>
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<tr>
<td>Astronomy/Astrophysics</td>
<td>145</td>
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<tr>
<td>Atmospheric Science</td>
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<td>Earth Observations</td>
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<td>Life Sciences</td>
<td>521</td>
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<tr>
<td>Microgravity Science</td>
<td>227</td>
</tr>
<tr>
<td>Space Plasma Physics</td>
<td>117</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1196</strong></td>
</tr>
</tbody>
</table>

We expect these numbers to grow significantly as several major missions have flown recently, and the scientists have not yet had time to analyze and publish their results. This document will be updated as appropriate to incorporate additional publications.

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Organizational Note

The bibliographic entries in this publication are first sorted according to date of publication, then alphabetically by first author's last name and title of work. The entry template order is as follows: author name(s), title of work, journal source, date of publication, and associated mission(s).
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APPENDIX A:
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| Alumni Leuven | Astrophysical J. | Corriere della Scienze |
APPENDIX B: MISSION INFORMATION
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<th>Acronym</th>
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<td>Office of Space &amp; Terrestrial Applications-1</td>
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The Spacelab Scientific Missions: A Comprehensive Bibliography of Scientific Publications

compiled by Dr. Marsha Torr

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November 1993 represented the 10-year anniversary of the flight of Spacelab 1 mission, with the first precursor mission (OSTA-1) being launched 2 years earlier. Since that time, a total of 27 Shuttle missions has been flown, using the Spacelab system as a facility for conducting scientific research in space. The missions flown to date have allowed a total of approximately 500 Principle Investigator class investigations to be conducted in orbit. These investigations have constituted major scientific efforts in astronomy/astrophysics, atmospheric science, Earth observation, life sciences, microgravity science, and space plasma physics.

An initial survey of the scientific products gleaned from Spacelab missions already flown was sent to the Principle Investigators. In that survey, information was gathered from the investigators on the scientific highlights of their investigations and statistical measurements of overall success—such as papers published. This document is a compilation of the papers that have been published to date in refereed literature.