

Book reviews

I have been searching for a quality book that discusses the science results from the Galileo mission to Jupiter. So far I haven't found the right one, but the following three are a start.

Jupiter Odyssey : The Story of NASA's Galileo Mission

by David M. Harland, Praxis Publishing Ltd (2000), pp 447 (incl. 12 pages of notes & references, 3 pages of further reading & websites, and 19 pages of index), ISBN 1852333014

This book is a very thorough account of the spacecraft's voyage to Jupiter and subsequent orbital tour of the Jovian system. It has a focus on the mechanics of how JPL overcame the constraints imposed by the failed high-gain antenna (HGA), sticking tape recorder and cumulative degradation from exposure to the prevailing intense radiation. This can become somewhat tedious, however the book does present discussions of the major science targets and results from each passage through the system.

The book is organised into 15 chapters with the first 8 taking the story as far as the atmosphere probe's results and the capture orbit. The next 6 chapters look at the observations of the Galilean satellites (with the most space being devoted to Io) and Jupiter itself. The final chapter has a curiously detailed discussion of the Cassini mission plus some musing on the future for exploration of the solar system. The book is well illustrated throughout with black & white images, but some colour plates would have been appreciated as well. Taken as a whole it is an able account of the mission and a good starting point on a Jupiter reading list.

The Worlds of Galileo : The Inside Story of NASA's Mission to Jupiter

by Michael Hanlon, Constable Publishers (2001), pp. 228 (incl. 3 pages of bibliography and 6 pages of index), ISBN 184119283X

Hanlon is a science writer for the *Daily Mail* and a sense of his tabloid writing style pervades the book, although not to the extent that it distracts from the story. The book is organised into 12 chapters. The first presents some history of the observation of Jupiter and its satellites (from Galileo in the 1600s to the present day). The second looks at the design of the spacecraft and the problems with finding a suitable launch vehicle. The story then moves on to the cruise phase and gravity assist manoeuvres, along with the obligatory discussion of the HGA problem. It is not until p85 that we reach Jupiter. There is a fair discussion of the descent of the atmosphere probe, but a conspicuous absence of actual data. There then follows some well-illustrated chapters on the Galilean satellites. The book ends with some speculation on the future.

Hanlon's book is presented with higher print quality than Harland's, and is well illustrated with plenty of colour plates. However, it suffers from a lack of in-depth discussion of the science performed by the mission and I was left feeling that it was too superficial.

Satellites of the Outer Planets : Worlds in their own right

by David A. Rothery, Oxford University Press (1999), pp. 242 (incl. 6 pages of bibliography and 11 pages on index), ISBN 019512555X

Rothery's book is not restricted to the Jupiter system, it takes a unique perspective on the satellites of the *outer* planets only. This is the second edition of the book and includes revisions arising from the Galileo mission. He begins by presenting the story of the composition and evolution of planetary satellites, as well as a brief introduction to the Voyagers and Galileo spacecraft. He then takes a geologist's approach to the subject and organises the satellites into discussions of *Dead Worlds*, *Recently Active Worlds* and *Active Worlds*. From our perspective there is a reasonable discussion of the Galilean satellites. The book is well illustrated with black & white images and includes 8 colour plates.

Summary.

For different reasons I would recommend these three books to any reader interested in Jupiter. They each tell a part of the story but we are probably still waiting for the definitive popular account of what has been discovered. Of the three I felt that Hanlon's contained the least information, but made up for that with its excellent illustrations. Harland's book could have been the definitive work but lacks a depth of discussion of the science. I felt I learnt the most about Jupiter's satellites from Rothery's book; which is curious since it is not explicitly focussed on them.

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