Astronomical & Astrophysical Transactions
The Journal of the Eurasian Astronomical Society

Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713453505

Asteroids III: A review
V. V. Busarev

a Sternberg Astronomical Institute, Lomonosov Moscow State University, Moscow, Russia

Online Publication Date: 01 June 2005
To cite this Article: Busarev, V. V. (2005) 'Asteroids III: A review', Astronomical & Astrophysical Transactions, 24:3, 259 - 260

To link to this article: DOI: 10.1080/10556790500465565
URL: http://dx.doi.org/10.1080/10556790500465565

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.informaworld.com/terms-and-conditions-of-access.pdf
This article maybe used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.
Asteroids III: A review

V. V. BUSAREV*

Sternberg Astronomical Institute, Lomonosov Moscow State University, Universitetskij prospect 13, 119992 Moscow, Russia

(Received 10 October 2005; accepted 15 October 2005)

The University of Arizona Press, in collaboration with the Lunar and Planetary Institute (USA), has published Asteroids III (edited by W. F. Bottke Jr. et al.), the most recent book in the popular series initiated by Tom Gehrels.

This third book has fewer pages but is nearly twice as large in size as Asteroids II. The chapters in Asteroids III have similar titles to those of previous editions. Some chapters are more detailed (for example, ‘Evolutionary processes’, ‘History and interrelations with other solar system bodies’), but all are packed with new and valuable content. Unfortunately, compared with previous issues, Asteroids III does not contain the useful section, ‘Tabulation’, which has probably been excluded for the purpose of space-saving. The availability of tables was particularly handy for the reader in considering celestial bodies.

Without going into detail of specific papers, it should be noted that some results are especially new and challenging. These include chapters written by A. Milani et al. (Asteroid close approaches), R. Jedike et al. (Observational selection effects in asteroid surveys), B. A. Ivanov et al. (The comparison of size-frequency distributions of impact craters and asteroids), J. L. Hilton (Asteroid masses and densities), S. J. Ostro et al. (Asteroid radar astronomy), S. J. Bus et al. (Visible-wavelength spectroscopy of asteroids), M. J. Gaffey et al. (Mineralogy of asteroids), A. W. Harris and J. S. V. Laggeros (Asteroids in the thermal infrared), E. Dotto et al. (Observations from orbiting platforms), A. S. Rivkin et al. (Hydrated minerals on asteroids), R. P. Binzel et al. (Physical properties of near-Earth objects), M. A. Barucci et al. (Physical properties of Trojan and Centaur asteroids), W. J. Merline et al. (Asteroids do have satellites), R. J. Sullivan et al. (Asteroid geology from Galileo and NEAR data), A. F. Cheng (NEAR: mission summary), D. Nesvorny et al. (Regular and chaotic dynamics of the asteroid belt), W. F. Bottke Jr. et al. (The effect of Yarkovsky on the dynamical evolution of asteroids), A. Morbidelli et al. (Origin and evolution of near-Earth objects), K. Holsapple et al. (Asteroid impacts: laboratory experiments and scaling laws), E. Asphaug et al. (Asteroid interiors), D. T. Britt et al. (Asteroid density, porosity and structure), D. C. Richardson et al. (Gravitational aggregates), P. Paolicchi et al. (Side effects of collisions), D. J. Scheeres et al. (The fate of

*Email: busarev@sai.msu.ru
asteroid ejecta), H. Y. McSween Jr. et al. (Thermal evolution models of asteroids), K. Keil (Geological history of asteroid 4 Vesta), B. E. Clark et al. (Asteroid space weathering and regolith evolution), V. Zappala et al. (Physical and dynamical properties of asteroid families), A. Cellino et al. (Spectroscopic properties of asteroid families), T. H. Burbine et al. (Meteoritic parent bodies), P. R. Weissman et al. (Evolution of comets into asteroids), A. Shukolyukov and G. W. Laugmair (Chronology of asteroid accretion and differentiation), J.-M. Petit et al. (Primordial excitation and depletion of the main asteroid belt), F. Marzari et al. (Trojan asteroids).

The chapters concerning the inter-relationships between different classes of bodies, e.g. Asteroids and comets (P. R. Weissman et al.), Asteroids of the main belt and near-Earth objects (A. Morbidelli et al.), Trojan and Centaur asteroids (M. A. Barucci et al. and F. Marzari et al.) and Linking meteorites and near-Earth objects to their parent bodies (T. H. Burbine et al.), seem to be the most promising in terms of a better understanding of the history and evolution of asteroids and the solar system. Many key problems may be solved through in situ asteroid investigations, such as those discussed by Sullivan et al. and Cheng, among others.

In the chapter by D. Morrison et al., the important issue of asteroid–comet impact hazard is discussed for the first time. They highlight the current probability estimate of a global ecological catastrophe due to impact at approximately twice per one million years. Owing to the efforts of scientists over the last decade, public and, indeed, governments’ understanding of the threat to life on Earth from the sky is growing. However, it is still unclear how a potential threat could be resolved practically on a global scale. Morrison et al. conclude that probably the best way to deal with it is through international cooperation.

The main value of Asteroids III, as well as the previous books in the series, is that it focuses on the most significant results and issues concerning investigations of asteroids and other solid bodies of the solar system over the last decade.