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## Environmental Tracking for Public Health Surveillance

Editors: Stanley A. Morain & Amelia M. Budge

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### VOLUME 11

## Environmental Tracking for Public Health Surveillance

Edited by Stanley A. Morain and Amelia Budge, University of New Mexico,

Albuquerque, USA

Satellite imagery and data are widely used in public health surveillance to provide early warning of disease outbreaks and for averting pandemics. Convergence of these technologies began in the 1970s and has gained wide acceptance in the 21st Century.

**Environmental Tracking for Public Health Surveillance** focuses on the expanding use of satellite sensor imagery and long-term spectral measurements for assessing and modelling Earth's environments in context of public health surveillance. It addresses vector-borne, air-borne, water-borne, and zoonotic diseases, and explores analytical methods for forecasting environmental conditions and their potential for consequent disease outbreaks. Infectious and contagious diseases are of particular interest in this volume because once parasite-vector-human host pathways are triggered by favourable biological circumstances, pandemic diseases can spread to global scale in a matter of hours. The chapters advance readers through three sets of material. Part I reviews the 1970-2012 history of satellite Earth-science surveillance technology that led to linking natural environments to human diseases, and more generally to public health applications. Part II describes specific infectious and contagious diseases and the threat of emerging and re-emerging diseases. Part III explores the kinds of satellite data, modelling, and electronic information systems being developed to expedite health intercessions and responses at local to regional and global scales of reference. Equally important are the extensive reference sections for chapters in Parts II and III. For readers interested in tracking the development of Earth-science technology, these constitute a thorough entrée to both the health and environmental literature.

### Environmental Tracking for Public Health Surveillance

Edited by Stanley A. Morain and Amelia Budge

September 2012: 246 x 174 mm: 482 pp

Hardback: ISBN 978-0-415-58471-5: £89.00 / \$139.00

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The chapters are written jointly by experts in both the health and Earth-science technologies. Each chapter is accompanied by an extensive list of citations to provide background and validation of the current state-of-the-art for a variety of high-interest human

diseases and associated health and well-being issues. The importance of day-to-day weather patterns, the impacts of severe weather events and longer-term climate cycles form the basis for developing information systems that meet goals and expectations of national and international health monitoring bodies.

**Environmental Tracking for Public Health Surveillance** provides a state-of-the-art overview on how environmental tracking data from satellite, airborne, and ground-based sensors are being integrated into appropriate geophysical and spatial information system models to enhance public health surveillance and decision-making from local to global levels, and is intended primarily for a cross-disciplinary professional audience consisting of public health decision-makers, spatial data analysts, modelers, Earth observation specialists, and medical researchers.

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