

Austrian Contributions to
Veterinary Epidemiology

Volume 5

**Proceedings of the
Joint ICTP-IAEA Conference on
Predicting Disease Patterns
According to Climate Change**

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The general objective is to promote and extend the use of statistical and mathematical methods in veterinary epidemiology. Special emphasis is given on methods and results. Monographs, paper collections or conference proceedings will be published in German as well as in English in the Austrian Contributions to Veterinary Epidemiology if judged consistently with these general aims. All contributions will be refereed.

IMPRINT

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Preface

This special edition of the *Austrian Contributions to Epidemiology* was produced from presentations given at the Joint ICTP-IAEA Conference on Predicting Disease Patterns According to Climatic Changes in May 2008 in Miramare, Italy.

The aim of this meeting was to try to establish scientific and technological base lines to support the modelling of emerging infectious diseases of veterinary and medical importance under the influence of weather conditions and climatic aspects.

The vision of *one health*, a holistic approach to diagnosing and preventing zoonotic diseases in humans and animals, demands fundamental epidemiological information to help identify key factors causing outbreaks and spread. For the majority of emerging infectious diseases such baseline data is lacking and consequently, scientific progress supporting control or early warning programmes is slow.

Vector borne diseases are specifically affected by weather and long term climatic factors strongly influencing the incidence of outbreaks. Alterations in their distribution and survival (e.g. over wintering) is related to weather and, in particular, long term global climatic changes. Epidemiologists creating statistical models for these diseases face major problems in that they need input from many sources such as global meteorological data, insect population dynamics and prevalence including the influence that weather conditions have on them, and disease occurrence in known, as well as un-recognized host species. Such areas require additional research such as gathering population field and experimental data.

This congress brought together specialists from different scientific fields involved in climatic pattern, disease modelling and the veterinary sphere in an effort to map out research and cooperation needs. The discussion at the meeting stimulated new networks that will increase the interaction of the different disciplines to further enhance the development of disease models and prediction algorithms and their application that might lead to the prevention and control of emerging infectious diseases.

Q. Liang, Director of Joint FAO/IAEA Division



The Abdus Salam
International Centre for Theoretical Physics

printed on: 19th Jun 2008



Joint ICTP-IAEA Conference on Predicting Disease Patterns According to Climatic Changes

Organizer(s): Director: H. Unger. Local Organizer: M. Marsili
Trieste - Italy, 12 - 14 May 2008

Final programme

REGISTRATION

12 May 2008

08:30 - 09:45 --- Registration and administrative formalities at Adriatico Guest House, Giambiagi Lecture Hall Area (Lower level 1) ---

SESSION 1 (Room: Adriatico Guest House Giambiagi Lecture Hall)

12 May 2008

10:00 - 10:10 **M. Marsili / ICTP, Trieste**
Welcome address to participants

10:10 - 10:20 **H. Unger / IAEA, Vienna**
Introduction

10:20 - 11:00 **D. Pfeiffer / Royal Veterinary College, UK**
Modelling for informing policy development: Constraints and challenges

11:00 - 11:30 **K. Brugger / University of Veterinary Medicine Vienna, Austria**
Predicting the dynamics of Usutu virus according to climate change

11:30 - 11:50 **J. Pal / Loyola Marymount University, USA**
Modeling the impacts of climate change on water resources, agriculture, and extreme events

11:50 - 12:20 **S. Selmane** / *Univ. H. Boumedienne, Algeria*
 Contributed talk:
The influence of the fraction of vaccinated individuals on the incidence of tuberculosis

12:20 - 14:00 --- Lunch break ---

SESSION 2 (Room:Adriatico Guest House Giambiagi Lecture Hall)

12 May 2008

14:00 - 14:30 **L. Tomassini** / *Max Planck Institute for Meteorology, Germany*
Climate modelling - global and regional scenarios

14:30 - 15:00 **T. Selhorst** / *Federal Research Centre for Virus Diseases of Animals, Germany*
Modeling the effect of weather conditions on insect population dynamics

15:00 - 15:20 **A.A.L.N. Sarma** / *Andhra University*
 Contributed talk:
Studies on thermal health effects of climate change - India

15:20 - 15:40 **D.D.M.L. Dassanayake** / *Teaching Hospital Anuradhapura, Sri Lanka*
 Contributed talk:
Climato - health for urgent intervention

15:40 - 16:10 --- Coffee break ---

SESSION 3 (Room:Adriatico Guest House Giambiagi Lecture Hall)

12 May 2008

16:10 - 16:40 **S. Pal** / *Ramakrishna Mission Vivekananda Centenary College, India*
 Contributed talk:
Role of infection in an eco-epidemiological system - a mathematical study

16:40 - 17:00 **B. Gupta** / *State Animal Disease Investigation Laboratory*
 Contributed talk:
Epidemiology and diagnosis of rabies in Indian perspective

17:00 - 17:20 **G.U. Ebu** / *Nnamdi Azikiwe University*
 Contributed talk:
Exploratory statistical modelling of cancer diseases

17:20 - 17:40 **R. Bejaran** / *Univ. Buenos Aires, Argentina*
 Contributed talk:
Aedes Aegypti and Dengue in Argentina

SESSION 4 (Room:Adriatico Guest House Giambiagi Lecture Hall)

13 May 2008

09:00 - 09:40 **H. Unger** / *IAEA, Austria*
Emerging diseases; early detection and rapid response

- 09:40 - 10:20** **W. Wagner** / *Vienna University of Technology, Austria*
Remote sensing for epidemiological studies
- 10:20 - 10:40** **K. Shadananan Nair** / *Centre for Earth Research and Environment Management, India*
 Contributed talk:
An assessment of the impact of climate change on food production, water availability and health condition in India
- 10:40 - 11:00** --- Coffee break ---

SESSION 5 (Room:Adriatico Guest House Giambiagi Lecture Hall)

13 May 2008

- 11:00 - 11:30** **G. De Leo** / *Univ. Parma, Italy*
Seasonality, climate change and infectious diseases
- 11:30 - 11:50** **K. Mintiens** / *Veterinary and Agrochemical Research Centre, Belgium*
 Contributed talk:
Epidemiology of bluetongue in Northern Europe
- 11:50 - 12:10** **A. Lindberg** / *National Veterinary Institute, Sweden*
 Contributed talk:
Identification and prioritization of risks from vector borne diseases and climate change in Europe ? output of EPIZONE, an EU network of excellence
- 12:10 - 14:00** --- Lunch break ---

SESSION 6 (Room:Adriatico Guest House Giambiagi Lecture Hall)

13 May 2008

- 14:00 - 14:30** **D. Pfeiffer** / *Royal Veterinary College, UK*
Approaches to modelling infectious livestock disease occurrence
- 14:30 - 14:50** **S.K. Kamau** / *Department of Veterinary Services, Kenya*
 Contributed talk:
Use of livestock to control vectors of Rift Valley fever
- 14:50 - 15:10** **M.G. Doherr** / *University of Bern, Switzerland*
 Contributed talk:
Compartment models for Bluetongue (BTV 8) ? mission impossible?
- 15:10 - 15:30** **N. Iqbal** / *Institute Pasteur, France*
 Contributed talk:
Correlation between plasmid pSFn1 and virulence of vibrio nigrripulchritudo
- 15:30 - 15:50** **L. Haimberger** / *Vienna University, Austria*
Prediction of floods and other weather events causing diseases
- 15:50 - 16:20** --- Coffee break ---

SESSION 7 (Room:Adriatico Guest House Giambiagi Lecture Hall)

13 May 2008

- 16:20 - 16:50** **J. Slingenbergh** / *FAO, Italy*
Contributed talk:
A framework to depict climate change induced-emergence of novel disease agent
- 16:50 - 17:20** **U. Sperling** / *SAFOSO, Switzerland*
Contributed talk:
The working group 'Zoonotic Diseases' at the Swiss Agency for Development and Cooperation
- 17:20 - 17:40** **A.E.A. Abdou** / *Egyptian Meteorological Authority, Egypt*
Contributed talk:
Integration of disease parameters in regional climatic models

RECEPTION

13 May 2008

- 18:45 - 20:45** --- Small reception at Adriatico Guest House Cafeteria for all participants in the Conference ---

SESSION 8 (Room:Adriatico Guest House Giambiagi Lecture Hall)

14 May 2008

- 09:00 - 09:30** **F. Rubel** / *University of Veterinary Medicine Vienna, Austria*
Airborne spread of foot-and-mouth disease virus
- 09:30 - 10:00** **N. Solymosi** / *Szent Istvan University, Hungary*
Contributed talk:
GIS based model for FMD
- 10:00 - 10:30** **Q.M. Khan** / *National Institute for Biotechnology and Genetic Engineering, Pakistan*
Contributed talk:
Molecular epidemiology & diagnosis of FMDV and PPRV in field samples collected from Punjab, Pakistan
- 10:30 - 11:00** --- Coffee break ---

SESSION 9 (Room:Adriatico Guest House Giambiagi Lecture Hall)

14 May 2008

- 11:00 - 11:20** **L. De Simone** / *FAO, Italy*
Contributed talk:
Spatial analysis of H5N1
- 11:20 - 11:40** **W. Abeyewickreme** / *University of Kelaniya, Sri Lanka*
Contributed talk:
Outbreak investigation on emerging and re-emerging infectious diseases in Sri Lanka
- 11:40 - 12:00** **T.S. Desta** / *National Animal Health Research Center, Ethiopia*
Contributed talk:
Bird mortality in Ethiopia: Causes and threats

12:00 - 12:20 **L. Kazembe** / *University of Malawi*
Contributed talk:
Joint spatial analysis of common morbidities of childhood diarrhoea and fever

12:20 - 14:00 --- Lunch break ---

SESSION 10

14 May 2008

14:00 - 16:00 **H. Unger** / *IAEA, Austria*
Conference summary and discussion