

**TRANSPORT SURVEY METHODS:  
KEEPING UP WITH A CHANGING WORLD**

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# TRANSPORT SURVEY METHODS: KEEPING UP WITH A CHANGING WORLD

EDITED BY

**PATRICK BONNEL**

*ENTPE-LET, Lyon, France*

**MARTIN LEE-GOSSELIN**

*Université Laval, Québec, Canada*

**JOHANNA ZMUD**

*NuStats, USA*

**JEAN-LOUP MADRE**

*INRETS, Paris, France*



United Kingdom • North America • Japan  
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INVESTOR IN PEOPLE

# List of Contributors

<i>Elizabeth S. Ampt</i>	Sinclair Knight Merz, Adelaide, Australia
<i>Carlos H. Arce</i>	Mygistics-NuStats, Austin, TX, USA
<i>Jimmy Armoogum</i>	French National Institute of Research on Transport and Safety (INRETS-DEST), Noisy, France
<i>Kay W. Axhausen</i>	Swiss Federal Institute of Technology Zurich — Institut for Transport Planning and Systems (ETHZ-IVT), Zurich, Switzerland
<i>Earl J. Baker</i>	Florida State University, Tallahassee, FL, USA
<i>Caroline Bayart</i>	LET-ENTPE-CNRS-Université Lyon 2, Lyon, France
<i>Roger Behrens</i>	University of Cape Town, Cape Town, South Africa
<i>Patrick Bonnel</i>	LET-ENTPE-CNRS-Université Lyon 2, Lyon, France
<i>Peter Bonsall</i>	Institute for Transport Studies, University of Leeds, Leeds, UK
<i>Mark Bradley</i>	Bradley Research and Consulting, Santa Barbara, CA, USA
<i>Stacey Bricka</i>	NuStats, Austin, TX, USA
<i>Werner Brög</i>	Socialdata, Munich, Germany
<i>Michael Browne</i>	University of Westminster, London, UK
<i>Linda Cherrington</i>	Texas Transportation Institute, The Texas A&M University System, Houston, TX, USA
<i>Kelly J. Clifton</i>	University of Maryland, College Park, MD, USA
<i>Heather Contrino</i>	Federal Highway Administration, USA
<i>Eric Cornelis</i>	FUNDP, University of Namur, Belgium
<i>Matthieu de Lapparant</i>	INRETS, Noisy-le-Grand Cedex, Paris, France

*x* List of Contributors

<i>Sean T. Doherty</i>	Department of Geography & Environmental Studies, Wilfrid Laurier University, Waterloo, Ontario, Canada
<i>Mark Freedman</i>	Westat, Rockville, MD, USA
<i>Regine Gerike</i>	University of Technology, Munich, Germany
<i>Jane Gould</i>	University of California, Los Angeles, CA, USA
<i>E. Hato</i>	Behavior in Networks Studies Unit, University of Tokyo, Tokyo, Japan
<i>Peter Jones</i>	University College London, London, UK
<i>Dominika Kalinowska</i>	German Institute for Economic Research, DIW Berlin, Germany
<i>Ian Ker</i>	CATALYST, WA, Australia
<i>Kara Kockelman</i>	University of Texas at Austin, TX, USA
<i>Stephan Krygsman</i>	University of Stellenbosch, South Africa
<i>Catherine T. Lawson</i>	University at Albany, State University of New York, Albany, NY, USA
<i>Martin Lee-Gosselin</i>	Université Laval, ESAD-CRAD, Québec, Canada
<i>Jacques Leonardi</i>	University of Westminster, London, UK
<i>Bob Leore</i>	Department of Transport, Ottawa, Canada
<i>Jean-Loup Madre</i>	INRETS, Paris, France
<i>Michael Manore</i>	Vispective Management Consulting, USA
<i>Nancy McGuckin</i>	Travel Behavior Associates, South Pasadena, CA, USA
<i>Alan McKinnon</i>	Heriot-Watt University, Edinburgh, UK
<i>Arnim Meyburg</i>	Cornell University, Ithaca, NY, USA
<i>Catherine Morency</i>	Ecole Polytechnique de Montréal, MADITUC-CIRRELT, Canada
<i>Elaine Murakami</i>	Federal Highway Administration, Seattle, WA, USA
<i>Sharon O'Connor</i>	Resource Systems Group, White River Junction, VT, USA
<i>Juan de Dios Ortúzar</i>	Department of Transport Engineering and Logistics, Pontificia Universidad Católica de Chile, Santiago, Chile

<i>Peter Ottmann</i>	Institute for Transport Studies, Karlsruhe, Germany
<i>Danièle Patier</i>	LET, Université de Lyon, France
<i>Alan Pisarski</i>	Consultant, Falls Church, VA, USA
<i>John W. Polak</i>	Centre for Transport Studies, Imperial College London, UK
<i>Martine Quaglia</i>	INED-SFS, Paris, France
<i>Tim Raimond</i>	Transport Data Centre, NSW Transport and Infrastructure, Australia
<i>Benoît Riandey</i>	INED-SFS, Paris, France
<i>Anthony J. Richardson</i>	The Urban Transport Institute (TUTI), Victoria, Australia
<i>Matthew Roorda</i>	University of Toronto, Toronto, Canada
<i>Jean-Louis Routhier</i>	LET, Université de Lyon, France
<i>Gerd Sammer</i>	Institute for Transport Studies, University of Natural Resources and Applied Life Sciences, Vienna, Austria
<i>Giorgia Servente</i>	DITIC, Politecnico di Torino, Torino, Italy
<i>Peter R. Stopher</i>	The Institute of Transport and Logistics Studies, The University of Sydney, Australia
<i>Orlando Strambi</i>	Escola Politécnica da Universidade de São Paulo, Brazil
<i>Christophe Terrier</i>	INSEE, France
<i>H. J. P. Timmermans</i>	Urban Planning Group, Eindhoven University of Technology, The Netherlands
<i>Martin Trépanier</i>	Ecole Polytechnique, University of Montreal, Canada
<i>Klaas van Zyl</i>	SSI Engineers and Environmental Consultants, South Africa
<i>Chester Wilmot</i>	Louisiana State University, Baton Rouge, LA, USA
<i>Jean Wolf</i>	GeoStats, Atlanta, GA, USA
<i>Johanna Zmud</i>	NuStats, USA
<i>Dirk Zunkeller</i>	Institute for Transport Studies, Karlsruhe, Germany

# Preface

About every three years the international transport survey community gets together to discuss innovation and quality in transport survey methods and document those discussions in a publication. As this has been happening since 1979, one has to ask: Do we really need another book on survey methods in transport? The answer is “Yes, If...” with the “If” involving whether there have been recent changes that make the capture of transportation data through surveys materially different than they were years ago when other books on the topic were published. One obvious example of a recent change is the need for new data, models, and other analytical tools to support greenhouse gas (GHG) reduction and energy efficiency policies in nations around the globe. Another example is the proliferation of new and affordable information technologies that survey designers can employ to collect and process data, helping them confront increasing barriers to participation in surveys, barriers that in some cases arise from the same technologies, such as developments in telephony. This book focuses on such changes, and on the opportunities and challenges they represent, both for improved survey methods and for the comparability of the data that they provide to different agencies and countries.

As statistical surveys attempt to address GHG issues, and other important transportation policy and planning challenges, they exhibit evidence of success, yet at the same time they frequently come under threat. The evidence of success is that surveys are ubiquitous in the transport world. Almost all countries in the world use them to measure passenger travel, freight movements, or public transit ridership. Leaders in government use survey results to guide policy, and the call from their advisors for more data to address greater challenges is increasing. However, funding for data collection is too often an easy target in difficult economic times, such as the present, and surveys must be credible, transparent, and of assured quality. The papers in this book are thus relevant to government, transport industry practitioners, academic scientists, and commercial researchers.

The book provides a review of the current state of transport survey methods for capturing data in several key areas: freight, personal travel, tourism, evacuations and related travel, and the environmental footprint of transport, among others. It captures the essence of discussions at the 8th International Conference on Survey Methods in Transport that took place in Annecy, France, in 2008. Conference participants from over 25 countries included leading survey researchers and transport

professionals representing industry and government policy makers, as well as academic scholars and researchers.

The Annecy Conference succeeded in its main objectives: sharing up-to-date information and experiences on transport survey methods; fostering discussion of mutual problems and issues that affect survey design, data processing, and reporting; proposing and suggesting new initiatives and future approaches for the measurement of critical transportation system indicators; and feeding the results of these discussions into a permanent record in the form of this peer-reviewed book. The book is not a proceedings volume, but a peer-reviewed selection of about one-third of the papers that were presented, as well as a synthesis of 16 workshops.

An editorial committee guided the work that led to this book. It consisted of the four co-editors: Patrick Bonnel, Martin Lee-Gosselin, Jean-Loup Madre, and Johanna Zmud, who also served as co-chairs of the Conference. These four, together with the help of Jimmy Armoogum, divided up the editorial oversight. They built on the considerable efforts of the many people and organizations, recognized in the Acknowledgements that follow. We are indebted to all those who donated their time and energy to review, critique, and add to our body of knowledge about transport survey methods, in order to continuously improve the quality of transport surveys and enhance the value and utility of the data that such surveys provide for transport policy and decision-making.

Finally we, the co-chairs of the ISCTSC, thank all the Annecy authors for their diligence and hard work. We are confident that their continued diligence will lead to new insights for, and new approaches in, transport survey methods.

Martin Lee-Gosselin  
Johanna Zmud  
*ISCTSC Co-Chairs*

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## International Steering Committee for Travel Survey Conferences (ISCTSC)

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Tom Adler	Resource Systems Group, Inc.	U.S.A.
Carlos Arce	NuStats, Inc.	U.S.A.
Chandra Bhat <sup>2</sup>	University of Texas	U.S.A.
Werner Brög	Socialdata, GmbH	Germany
Patrick Bonnel	ENTPE	France
Kelly Clifton <sup>2</sup>	University of Maryland	U.S.A.
Peter Jones	University College, London	United Kingdom
Ryuichi Kitamura <sup>1</sup>	Kyoto University	Japan
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Elaine Murakami <sup>1</sup>	FHWA	U.S.A.
Juan de Dios Ortuzar	Pontificia Universidad Católica	Chile
Alan Pisarski	Consultant	U.S.A.
Tony Richardson	The Urban Transport Institute	Australia
Gerd Sammer	Universität für Bodenkultur	Austria
Cheryl Stecher <sup>1</sup>	IBM	U.S.A.
Orlando Strambi	Universidade de São Paulo	Brazil
Peter Stopher	University of Sydney	Australia
Harry Timmermans	Technical University of Eindhoven	Netherlands
Klaas van Zyl <sup>1</sup>	Stewart Scott, Inc.	South Africa
Chester Wilmot	Louisiana State University	U.S.A.
Johanna Zmud (Co-Chair)	NuStats, Inc.	U.S.A.
Dirk Zumkeller	Universität Karlsruhe	Germany

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<sup>1</sup>Member until October 2008.

<sup>2</sup>Member from October 2008.

*It was with great sadness that we learnt, in February 2009, of the death of Ryuichi Kitamura. Ryuichi was a source of endless energy and inspiration among the international community of those concerned with data on travel, communication and activities. He saw well beyond transport networks, caring deeply about the data needed to help communities become more responsive to human values. He was one of a kind and we miss him very much.*

The success of the Annecy Conference was owed to nearly two years of painstaking preparations by the Local Organising Committee (LOC) in France, co-chaired by Patrick Bonnel and Jean-Loup Madre, both of whom have also been longstanding members of the International Steering Committee (ISCTSC), and who took a very active role in the scientific programme as well. The LOC comprised:

Patrick Bonnel, Laboratoire d'Economie des Transports (LET-ENTPE) (Co-Chair)

Jean-Loup Madre, Institut National de la Recherche sur les Transports et leur Sécurité (INRETS) (Co-Chair)

Jimmy Armoogum, Institut National de la Recherche sur les Transports et leur Sécurité (INRETS)

Gerard Brun, Ministère français de l'Ecologie, de l'Energie du développement durable et de la Mer, direction de la recherche et de l'animation scientifique et technique (DRAST)

Marc Christine, Institut National de la Statistique et des Etudes Economiques (INSEE)

Mary Crass, International Transport Forum (ECMT/OECD)

Marie-Odile Gascon, Centre d'Etudes sur les Réseaux, les Transports, l'Urbanisme et les constructions (CERTU)

Emmanuel Raoul, Ministère français de l'Ecologie, de l'Energie du développement durable et de la Mer

In addition, our sincere thanks to Christophe Rizet of INRETS for all the arrangements needed to make possible holding the final meeting of COST Programme 355 in collaboration with the ISCTSC meeting.

A meeting of the size of the Annecy Conference also depended on the support of many staff. We are particularly indebted to Florence Toilier of ENTPE for her patient resolution of many logistical questions and the production of the conference CDROM, Peter Endemann of Planungsverband Ballungsraum Frankfurt/Rhein-Main and the ETC for so effectively running the Conference secretariat at Annecy (in five languages), to Pierre-Olivier Flavigny and Philippe Marchal of INRETS for organising the most hospitable Internet facilities that any of us have seen heretofore at a conference, and to the staff of Les Balcons du Lac d'Annecy.

The ISCTSC would also like to recognise that the Annecy Conference would not have been possible without the generosity of our sponsors, who provided financial, material and/or staff support. In addition, the sponsors made it possible to continue ISCTSC's commitment to invest in our future by providing scholarships to

participants from lower-income countries and some support to new researchers and students. They were:

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- Laboratoire d'Economie des Transports (LET), France
- NuStats, United States
- PTV AG, Germany
- Service de l'Observation et des Statistiques (SOeS), Ministère français de l'Ecologie, de l'Energie du développement durable et de la Mer
- The Urban Transport Institute (TUTI), Australia

In addition to these sponsors, we are most grateful for the many individuals in the world community of transport survey researchers and practitioners who donated their time and expertise as authors, reviewers, chairs, discussants and rapporteurs. More than 100 extended abstracts and papers were reviewed, and in the case of papers selected for this book, by three reviewers.

The preparation of the book was greatly aided by the counsels of Zoe Sanders and Claire Ferres of Emerald Group Publishing Limited, and the work of ISCTSC's copy-editor Christopher Parker. We thank them for their attention to detail.

# **PART I**

## **INTRODUCTION**

## Chapter 1

# Keeping Up with a Changing World: Challenges in the Design of Transport Survey Methods

*Patrick Bonnel, Martin Lee-Gosselin, Jean-Loup Madre and Johanna Zmud*

### Abstract

At the 2008 International Conference on Transport Survey Methods in Annecy, France, transport survey methodologists and practitioners shared their experience with keeping abreast of the data needs of a rapidly changing world. Over the past decade, this has translated into the need for: an expanded travel survey toolkit; methodological innovation for surveys of freight and public transport operations; a growing use of data collection and processing technologies; a need to align surveys with other data streams; and an increased interest in the comparability of international datasets on personal travel and commodity movements in an era of globalisation. We discuss how these guided the choice and scope of the five themes around which both the Annecy Conference and this book were organised.

The International Steering Committee for Travel Survey Conferences (ISCTSC) organises periodic international conferences on the survey methods that support planning, policy development, modelling and evaluation through the observation of person, vehicle and commodity movements at the urban, rural, regional, intercity and international scales. The evolution of the underlying issues, and the methodological response, can be seen in the series of publications that drew on previous conferences, most recently the 1997 Grainau Conference (Stopher & Jones, 2000),

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the 2001 Kruger Conference (Stopher & Jones, 2003) and the 2004 Costa Rica Conference (Stopher & Stecher, 2006). That evolution includes:

- a gradual expansion of the travel survey toolkit beyond the needs of ‘core business’ urban area household travel surveys and national travel surveys;
- a growing recognition of the need for new approaches to collecting data on freight movements and public transport operations;
- an increasing expectation that data from transport user surveys should be aligned with other data streams from administrative and commercial sources;
- a growing application of digital technologies to aid data collection and processing;
- an increased attention to international (and within nation) comparisons of data on personal travel and commodity movements, and to international flows in the context of a progressive globalisation of national economies.

With this in mind, the Transport Survey Methods Conference held in Annecy, France, in May 2008 was designed to continue the emphasis of previous meetings on transport survey quality and on the standards for assessing and maintaining quality (e.g. Stopher, Wilmot, Stecher, & Alsnih 2006), and also to look ahead to transport survey data harmonisation and comparability within and across countries. It was a concerted response to the evolving need to track and compare key policy measures and statistics, and their implications for sustaining mobility, in today’s global, interconnected world. For example, how can we track and compare long distance mobility in Belgium versus the United States when the two nations employ different definitions of a long distance trip? (Bonnel, Madre, & Armoogum, 2005) What does it mean that the mobility rate is around three trips per day in a Netherlands metropolitan area and around four trips per day in the Grenoble metropolitan area? Can we attribute this difference to policy measures in respective areas, true travel behaviour differences, different survey methodologies or different spatial boundary definitions? (Bonnel, 2003).

As a community, transport survey researchers, practitioners and planners need advance knowledge of the components of survey and data collection design that are upstream from reliable and accurate intra-national and international comparisons. The topics of the Annecy Conference were intended to facilitate such discussions, and in a few cases to initiate them. It was also hoped that progress would be made towards the development of a framework for harmonising passenger transport survey data and statistics along the lines of what has been done for road freight data at European level (Pasi, 2008). At the same time, it was recognised that some classes of transport surveys are not yet ready for such a framework, and may require some fairly fundamental methodological research in the shorter term. Other classes — for example those that explore hypothetical travel behaviour under a range of possible future environmental pressures — are not intended to generate national statistics, but merit our attention for other sound reasons.

The Annecy Conference thus sought a balance between the themes of data harmonisation and the data quality. With its workshop format, the conference continued the ISCTSC tradition to create an opportunity for networking, collaboration