

Contents

Preface / ix

Program Committee / x

Supporting Organizations / x

Safety

Can We Save Money with Safety? A Novel Approach for Assessing Benefits of Safety in the Aviation Industry / 3
Alfred L. C. Roelen and Mauro Pedrali

The Flight Operations Monitoring System: A Bundled Approach for Synergistic Safety Management / 9
Jean-Jacques Speyer

Examining Assumptions about Pilot Behavior in Paired Approaches / 16
Steven J. Landry and Amy R. Pritchett

Training

Combining Two Technologies to Improve Aviation Training Design / 24
Marilyn Hughes Blackmon and Peter G. Polson

Articulation of Operational and Training Materials / 30
Yvonne Barnard, Guy Boy, Michel Tremaud, Francis Payeur, and Xavier Fauré

The Development of a Numerical Simulation for Aviation Maintenance Technician Training Course Design / 36
P. Carlo Cacciabue, Douglas Owen, and Carlo Mauri

Air Traffic Control

Users Bandwidth in Air Traffic Management: An Analysis from the HMI Point of View / 44
Christophe Mertz and Railane Benhacène

VertiDigi — A New Working Environment for E-TMA / 50
Railane Benhacène

ATC Complexity and Controller Workload: Trying to Bridge the Gap / 56
Sylvie Athènes, Philippe Averty, Stephane Puechmorel, Daniel Delahaye and Christian Collet

Procedures and Documentation

Task Structure Methodology for Electronic Operational Documentation / 62
Jean-Philippe Ramu

Human Factors Evaluation of Electronic Flight Bags / 69
Divya C. Chandra

Emergency Descent Plans, Procedures, and Context / 74
Amy Pritchett and Jennifer Ockerman

Evolution of Human-Device Interface in the Field of Technical Documentation / 80
Julian Barrera Esquinas and Markus Durstewitz

Organization and Coordination

A KSNNet-Approach to Knowledge Logistics in Distributed Environment / 88
Alexander Smirnov, Michael Pashkin, Nikolai Chilov, Tatiana Levashova, and Fred Haritatos

Work Domain Analysis for Distributed Information Spaces / 94
Gavan Lintern

Problem Solving in a Distributed Collaborative Environment:
The Necessity of Shared Knowledge within the Air Traffic Management System / 100
Jodi Heinz Obradovich and Philip J. Smith

Support of Traffic Management Coordinators in an Airport Air Traffic Control Tower
Using the Surface Management System / 105
Amy Spencer, Philip J. Smith, Charles Billings, Chris Brinton, and Stephen Atkins

Formal Methods Applied to the Human Interface

Reconciling Safety and Usability Concerns through Formal Specification-based Development Process / 112
David Navarre, Philippe Palanque, and Rémi Bastide

Constructing Human-Automation Interfaces: A Formal Approach / 119
Michael Heymann and Asaf Degani

Using Existing HEI Techniques to Predict Pilot Error: A Comparison of SHERPA, HAZOP, and HEIST / 126
*Paul Salmon, Neville A. Stanton, Mark S. Young, Don Harris, Jason Demagalski,
Andrew Marshall, Thomas Waldon and Sidney Dekker*

Situation Awareness

Interaction of Automation and Time Pressure in a Route Replanning Task / 132
Kip Johnson, Liling Ren, James Kuchar, and Charles Oman

A Pilot-Centered Evaluation of Geospatial Data for Proposed Navy Helicopter Moving-Map Displays / 138
Maura C. Lohrenz, Michael E. Trenchard, Stephanie E. Edwards and Chris Collins

Situational Awareness of UAV Operators Onboard Moving Platforms / 144
Sjoerd C. de Vries and Chris Jansen

Testing Facilities

Exploring the Many Perspectives of Distributed Air Traffic Management:
The Multi Aircraft Control System MACS / 149
Thomas Prevot

Human-in-the-Loop Simulation for Airway Facilities Operations / 155
Todd R. Truitt

Contextual Approaches

Contextual Inquiry in HCI: Lessons from Aeronautics / 161
Sidney W. A. Dekker and James M. Nyce

Conceptual Blending and Airplane Navigation / 167
Barbara Holder and Seana Coulson

Design Induced Errors on the Modern Flight Deck During Approach and Landing / 173
*Jason Demagalski, Don Harris, Paul Salmon, Neville A. Stanton, Andrew Marshall, Thomas Waldon,
and Sidney Dekker*

Flight Deck

When Does the MCDU Interface Work Well? Lessons Learned for the Design of New Flightdeck User-Interfaces /
180
Lance Sherry, Peter Polson, Michael Feary, and Everett Palmer

Pilot Assistance Systems: Enhanced and Synthetic Vision for Automatic Situation Assessment. / 186
Bern Korn and Peter Hecker

Panels

One World or Two? Can the Research Community and the Manufacturers Work More Efficiently Together? / 193
Organizer and Moderator: Denis Javaux
Panelists: Terry Allard, Asaf Degani, Barbara Holder, Brian Kelly, Florence Reuzeau, and Lance Sherry

Evolving Flight Operations Data Standards: Is There a Need of Early Identification of Specifications? / 195
Organizer and Moderator: Rick Travers
Panelists : Richard Blomberg, Asaf Degani, Barbara Kanki, Jean-Philippe Ramu, Jean-Jacques Speyer

Cultural and Organizational Factors in System Safety: Good People in Bad Systems / 198
Organizer and Moderator: Frank Ruggiero
Authors: Nick McDonald, Siobhan Corrigan, Marie Ward
Panelists: Roger Beaty, Jack Kies, Nick McDonald, Vimla Patel

Posters

Evaluation of a Radically Revised ATC Interface / 203

Hugh David and J.-M. C. Bastien

Using Portal Technology for Managing Information in an Aerospace Manufacturing Environment / 205

Mary Deraitus

Effects of Standardization on Team Coordination: Cockpit Versus Emergency Room / 207

Gudela Grote and Enikö Zala-Mezö

Reverse-Engineering Autopilot Behavior on the A340-200/300. The Anatomy of a Modern Autopilot / 210

Denis Javaux

Multitagent Flight Control and Virtual Navigation / 212

Cyrus F. Nourani

Information Integration in the Glass Cockpit / 215

Iya Solodilova and Anne Bruseberg

Demonstration

Creating a Multi-Media Living Legacy: The T-NASA Design Technology Transfer Tool / 218

Anthony D. Andre, David C. Foyle, and Becky L. Hooey

Index / 220