Technical Soaring, the International Journal of OSTIV
(International Scientific and Technical Organization for Soaring)

Prof. Emeritus Dr. Edward (Ward) Hindman, Editor
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Presented at the Soaring Society of America Conference, 27-29 January 2011, Philadelphia PA USA
Technical Soaring

- Background and principles
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TS Background

Dr. Bernard Paiewonsky, Editor

Published Quarterly by the Soaring Society of America, Inc.
“The goal of the journal is to advance the science and technology of soaring flight through the publication of original papers, review articles and tutorial papers. *Technical Soaring* publishes qualified papers on sailplane design and analyses, materials and structures, aerodynamics, instrumentation, flight testing, performance, stability and control, meteorology, communications, production and fabrication techniques, human factors, flight safety, and other subjects of scientific and engineering interest to soaring.”
TS Background

How did OSTIV get involved with TS?

www.ostiv.fai.org

The mission of the OSTIV is to encourage and coordinate internationally the science and technology of soaring and the development and use of the sailplane in pure and applied research. This mission is accomplished through congresses convened at the bi-annual world gliding championships, through panels of experts and through publications.

So, the mission of TS and the mission of OSTIV are in concert.
TS Background

OSTIV Publications 1 to 18
(1950-1985)

*Technical Soaring*, Vol. 10
(1986)

*Technical Soaring*, Vol. 1 to 9
(1971-1985)

*Technical Soaring*, Vol. 35(2)
(April-June 2011)
**TS Principles**

*TS* records and disseminates **qualified** new knowledge.

Qualification occurs through the **peer-review** process.

The peer-review process is a **sacred**, professionally duty.

Comments on papers permit **debate** and/or **clarification**

To be a forum to all reasonable new ideas, the journal accepts **non-peer reviewed** papers
TS Principles

To increase the value of TS, the journal needs to achieve ‘learned-journal’ status.

How well does TS match the ‘learned journal’ criteria?

Due to the efforts of Prof. Dr. Miroslaw Rodzewicz, TS is a ‘learned journal’ in Poland.

OSTIV members in other countries may perform similar work to have TS achieve ‘learned journal’ status.
Regardless of whether TS achieves ‘learned-journal’ status, the journal has been an import chronicler of studies that have benefited soaring.
ALPThERM – A PC-BASED MODEL FOR ATMOSPHERIC CONVECTION OVER COMPLEX TOPOGRAPHY

by O. Liechti, Analysen & Konzepte, Switzerland and B. Neininger, MetAir AG, Switzerland

Presented at the XXIII OSITIV Congress, Borlänge, Sweden (1993)
A NEW APPROACH TO THE CLIMATOLOGY OF CONVETIVE ACTIVITY

by Olivier Liechti and Erland Lorenzen

Presented at the XXV OSTIV Congress, St. Auban, France (1997)

A summer day over the Sahara analysed by ALPTHERM.

ALPTHERM 10.06.1996 (Temp Tamanrasset, Nummill)

PFD = 918 km
HANDICAPS AND POLARS

By Olivier Liechti

Presented to the XXVII OSTIV Congress in Mafikeng, South Africa (2001)

ABSTRACT

Methods to obtain glider polars from handicap figures were developed. Common optimization calculations like cross-country speed versus lift rate can thus be obtained with just the handicap figure of the glider known. Application to all gliders, hang gliders, paragliders, and soaring birds is possible and contributes to the assessment of their specific potential flight distance.
REGTHERM 2001
Convection Model with Local Winds

By Olivier Liechti

Presented at the XXVII OSTIV congress in Mafikeng, South Africa (2001)
TopTask
Meteorological Flight Planning for Soaring

Olivier Liechti
Analysen & Konzepte, Switzerland
Erland Lorenzen
Deutscher Wetterdienst, Germany

XXVII OSTIV Congress, Leszno, Poland, 2003

Counter-clockwise flight around Mont Blanc, predicted to be unsuccessful
Clockwise flight around Mont Blanc, predicted to be successful
Verification of Thermal Forecasts with Glider Flight Data

Olivier Liechti
*Analysen and Konzepte, Winterthur CH 8404*
OlivierLiechtiAuK@compuserve.com
and co-authors

Presented at the XXVIII OSTIV Congress, Eskilstuna, Sweden, 8-15 June 2006
The Best-speed Diagram for Soaring in Isolated and Aligned Lift

Olivier Liechti

*Analysen & Konzepte*
*CH-8404 Winterthur*
Olivier.Liechti@AutK.com

Presented at the XXIX OSTIV Congress, Lüsse, Germany, 6 - 13 August 2008
Regionalized Predictions of Aligned Updrafts and their Tuning for Planning Soaring Flights

Olivier Liechti
Analyse und Konzepte
CH-8404 Winterthur
Olivier.Liechti@auK.com

Presented at the XXIX OSTIV Congress, Lüsse, Germany, 6-13 August 2008

\[ y = 0.9575x \quad R^2 = 0.6981 \]

\[ y = 0.7993x \quad R^2 = 0.6722 \]
An On-line Glider pilot Self-briefing System
Edward (Ward) Hindman
The City College of New York, New York NY USA

Presented at the Soaring Society of America Convention, January 2010, Little Rock AR USA,
Submitted to ‘Soaring’, February 2010, online at www.sci.ccny.cuny.edu in ‘Soaring meteorology’

Forecast for 13 October 2009 for isolated convective lift in Colorado and for aligned convective and ridge lift over the East Coast. PFD values are illustrated.
TS Sample Content
Vol. 10 (3), 1986

Ascending Mt. Everest Through Soaring Flight

by Ed"Ward" Hindman, Ph.D.
Certified Consulting Meteorologist


Figure 8: Flight track of the HP-14T sailplane in the airflow depicted in Figure 7. The numbers are minutes into the flight. The dashed line is the minimum safe altitude to penetrate back to the airstrip at 55 knots IAS.
Air Motions in the Vicinity of Mt. Everest as Deduced from Pilatus Porter Flights

by Edward E. Hindman, The City College, New York, USA and Capt. Emil J. Wick (Ret.), Royal Nepalese Airlines, Cointrin, Switzerland

Presented at the XXI OSTIV Congress, Wiesen-Staatsfeld, Austria (1989)
TS Sample Content
Vol. 18 (1), 1994

SOARING BIRDS OF MT. EVEREST
by Edward E. Hindman, New York City, USA
Presented at the XXII OSTIV Congress, Uvalde, Texas, USA (1991) and revised 1992.
AIR MOTIONS IN THE KHUMBU HIMAL AND POSSIBLE SOARING FLIGHTS

Edward E. Hindman, The City College, New York, New York, USA
and Michael A. Engber, The City College, New York, New York, USA

Presented at the XXIII COSIV Congress, Borlänge, Sweden (1993)
SOARING WEATHER AT THE TOP OF THE WORLD

By Edward Hindman

Presented at XXV OSTIV Congress, St. Auban, France (697)

Figure 7. Possible flight track (plan-view) from Old Tingri to Mt. Everest. All elevations are in meters MSL.

Figure 8. Possible flight track (cross-section view) from Old Tingri to Mt. Everest.
SOAR MT. EVEREST!

Edward Hindman (Ward)¹, Olivier Liechti², Peter Lert³

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² Analysen und Konzepte, Lindbergstrasse 8 D, CH-8404 Winterthur, Switzerland
³ Airline captain, P. O. Box 2245, USA 81435, Telluride, CO

Presented to XXVII OSTIV Seminar, Mafikeng, South Africa (December 2001)

![Graph](image-url)
OSTIV Mountain Wave Project visit to Tibet, October 2010
(www.mountain-wave-project.com/index-2.html)
TS Online Archive

John Leibacher

soaringweb.org

Liechti, Oliver
REGTHERM 2001 Convection Model with Local Winds, volume 26, number 1, 2002, page 2

Liechti, Oliver; with Edward E. Hindman (a.k.a. Edward Hindman, E.E. Hindman, E. Hindman) and Peter Lert
Soar Mt. Everest [SiteseMt. Everest], volume 26, number 4, 2002, page 114

Liechti, Oliver; with Reto Sparr and Bruno Bruderer
Forecasting Flight Altitudes and Soaring Performance of Migrating Raptors by the Altitudinal Profile of Atmospheric Conditions, volume 24, number 2, 2000, page 49

Liechti, Oliver (a.k.a. O. Liechti); with B. Neininger
Handicaps and Polars [Competition], volume 25, number 4, 2001, page 216
The Best-Speed Diagram for Soaring in Isolated and Aligned Lift, volume 34, number 2, 2010, page 40
Regionalized Predictions of Aligned Updrafts and their Tuning for Planning Soaring Flights, volume 34, number 4, 2010, page 75

Liechti, Oliver (a.k.a. O. Liechti); with B. Neininger
ALPTHERM - A PC Based Model for Atmospheric Convection over Complex Topography [Meteorology/Convection], volume 18, number 3, 1994, page 73

Liechti, Oliver (a.k.a. O. Liechti); with Bruno Neininger
ALPTHERM-A PC-based Model for Atmospheric Convection Over Complex Topography, volume 29, number 2, 2005, page 55

Liechti, Oliver (a.k.a. O. Liechti); with Edward E. Hindman (a.k.a. Edward Hindman, E.E. Hindman, E. Hindman), Stephen Saleseby and William Cotton
A Meteorological System for Planning and Analyzing Soaring Flights in Colorado USA, volume 31, number 3, 2007, page 68

Liechti, Oliver (a.k.a. O. Liechti); with Erlrand Lorenzen
A New Approach to the Climatology of Convective Activity [Meteorology/Convection], volume 22, number 2, 1998, page 36
Top Task Meteorological Flight Planning for Soaring, volume 28, number 4, 2004, page 1
A New Approach to the Climatology of Convective Activity, volume 30, number 1/2, 2008, page 48

Liechti, Oliver (a.k.a. O. Liechti); with Erlrand Lorenzen, Ralf Thehos, Bernt Olofsson and Esbjorn Olsson
 Verification of Thermal Forecasts with Glider Flight Data, volume 31, number 2, 2007, page 42
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or, in the USA, by e-mail from bernald@juggernaut.com.
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Technical Soaring

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Health History and Performance Testing of Sailplane Pilots

Raphael Warshaw

Abstract

A study of the health status and performance capability of pilots attending the 2005 Soaring Society of America (SSA) Conference was undertaken as part of an effort to develop a means of individual self-assessment of the effects of aging and to determine whether those who self-certify their medical fitness to fly sailplanes (permitted in the USA) are less fit than those who are required to undergo medical certification. One-hundred and eighty-three out of two thousand and seven conference attendees volunteered to complete a questionnaire on flight hours, ratings and health history and status and undergo simple (SRT) and two-choice visual reaction-time (CRT) testing. Pilots had a lower prevalence of hypertension, heart disease, and diabetes than the comparison population. SRT was statistically significantly better than predicted (239.6 ms vs. 276 ms) as was CRT (466.7 ms vs. 510.5 ms). When compared by possession of a medical certificate there were no significant differences for age, SRT, CRT, hypertension, heart disease or diabetes. Further studies are needed to determine whether CRT and other age-sensitive tests could be adapted to permit sailplane pilots to self-certify their fitness to fly.
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Additional back issues will be archived as possible. What’s involved?

Initially, this archiving campaign will be straightforward back through Vol. 30 (2006) because the issues are in digital form. Then, the campaign becomes more demanding. Earlier issues are only in hard-copy and the individual papers will have to be scanned into .pdf files and uploaded. Additionally, the titles, authors and abstracts will have to be scanned into text files using Optical Character Recognition techniques and uploaded. I invite two OSTIV members to work with me on the scanning and uploading. If you are interested, please contact me.
TS Subscriptions

Either see Bernald Smith at this Conference (bernal@juggernaut.com) or visit the OSTIV website (www.ostiv.fai.org)
In this presentation, I have described the background and philosophy of TS, illustrated sample content, demonstrated the online archive and provided subscription information.

I invite presenters at this Conference to submit their manuscripts to TS.

This talk is online at www.sci.ccny.cuny.edu/~hindman (Soaring meteorology).

Thank you!