

# Contents

## **XIX. OSTIV-Congress 1985 at Rieti, Italy**

### **Introduction**

#### **Welcome**

by the President of OSTIV

#### **Addresses**

by the President of the Province Administration of Rieti, Prof. Mario Marchionni

by the Director of the World Gliding Championship Rieti 1985, Prof. Dr. Piero Morelli

by the OSTIV-Representative of Italy, Col. Plinio Rovesti

#### **Awards presented at the XIX. OSTIV-Congress**

OSTIV-Plaque 1985 with Klemperer Award to Dr. Werner Pfenninger, USA

OSTIV-Prize 1985 to Heiko Friess, Klaus Holighaus, Wolf Lemke and Gerhard Waibel

OSTIV-Diplomas for Technical and Scientific Papers 1985 to Dipl.-Ing. Ernst Schoeberl and Dr. Dieter Heimann

#### **Keynote Address**

**Opening of the Congress by the President**

**Dipl.Ing. Hans Zacher - New Honorary Member of OSTIV**

# Papers

## Technics

### *Design and Development*

Delphin, the development of a variable-geometric glider

P. von Burg

Page

13

Glider/tow-plane upsets

F. Irving

15

Glider tow-planes

P. Morelli

19

Aeroelastic problems of a swept-back tailless

H.-J. Berns

26

Development of airfoil sections for the swept-back tailless sailplane SB 13

C. Schürmeyer &

31

K.-H. Horstmann

Effect of the wing section drag polar shape on the desirable wing area and attainable average cross country speed of standard class gliders

P. Koivisto & E. Lehtonen

37

Pattern of glider operation

W. Stafiej

44

Semi-dynamic thermalling

B. Stojkovic

47

The climb rate of a glider when circling within an isolated thermal vortex ring

W. Gorisch

52

Self-trimming trailing-edge flaps for gliders (flapomatic)

J. Ehrhardt & W. Fischer

55

### *Loads and Structures*

Fatigue of composite materials in sailplanes and rotor blades

Ch. Kensche

57

Safety factors for full-scale fatigue tests

J. Gedeon

63

The effect of aeroelasticity upon energy retrieval of a sailplane penetrating a gust

U. Mai

68

Flutter analysis of gliders

W. Chajec & W. Potkanski

79

### *Ultra Light Airplane*

Design and tests of a flexible sailing airfoil for lightweight aircraft

L.M.M. Boermans &

84

P.C.M. van den Borne

Stability and control of ultraflexible aircraft

Schönherr

90

Musculair I

E. Schöberl

96

The light glider

A. Welch

101

### *Flight measurement and instrumentation*

The influence of acceleration on the sink rate of a sailplane and on the indication of the variometer

R. Brözel

105

Flinders university's research aircraft

J.M. Hacker

112

## Meteorology

### *Boundary Layer and Convection*

A simple numerical model of thermals and cumulus convection

D. Heimann

117

The vertical structure of the convective boundary layer from motorglider measurements

M. Jochum

122

Structure and horizontal distribution of thermal updraughts in a cloudless boundary layer in south-bavaria

Th.A. Hafner

126

Thermals at Central Anatolia

S. Oney

131

Glider measurements and modelling of thermals

Z. Aslan

134

Local thunderclouds - kinematics, precipitation, preferred occurrence

J. Reuss

137

### *Waves and Wave Clouds*

Wave soaring over flat terrain - investigations about the structure and origin of thermal waves

J. Kuettnner

140

**The queen of the comechingones**

P. Rovesti

145

**Mountain Meteorology****Ascending Mt. Everest through soaring flight**

E. Hindman

149

**First results of airborne measurements of the mountain valley circulation in the Kali Gandaki Valley, Nepal, by motorglider**

M.F.Reinhardt, B. Neininger

158

J.-P. Kuettnner and

A.J.de Orleans-Bourbon

S. P. Adhikary

P. S. Lert

A.J.de Orleans Borbon

164

**Omega navigational aid in a motorglider for meteorological research flights****Climatology****Soaring climatology of thermal convection**

C. Lindemann

**Miscellaneous****The swedish coaching system**

R. Danewid

169

**Decision making in gliding**

M.A. Bouet &amp; A. Pansal

172