

Problems and Prospects in  
**Long and  
Medium Range  
Weather  
Forecasting**

Edited by

D. M. Burridge and E. Källén



Springer-Verlag Berlin Heidelberg New York Tokyo

# Problems and Prospects in Long and Medium Range Weather Forecasting

Edited by  
D. M. Burridge and E. Källén

With 74 Figures

333/4070 INSTITUT  
FÜR METEOROLOGIE U. KLIMATOLOGIE  
UNIVERSITÄT HANNOVER  
HERRENHAUSER STR. 2 - 30419 HANNOVER

Springer-Verlag  
Berlin Heidelberg New York Tokyo 1984

# Contents

List of Authors .....	IX
List of Participants .....	XI
Some Aspects of Atmospheric Predictability	
E. LORENZ .....	1
Medium Range Forecasting at ECMWF; A Review and Comments on Recent Progress	
L. BENGTSSON .....	21
Current Problems in Medium Range Forecasting at ECMWF; Model Aspects	
A. SIMMONS .....	43
Current Problems in Medium Range Forecasting at ECMWF; Data Assimilation Scheme	
G.J. CATS .....	69
Predictability of Time Averages:	
Part I: Dynamical Predictability of Monthly Means .....	109
Part II: The Influence of the Boundary Forcings	
J. SHUKLA .....	155
Statistical Methods for the Verification of Long and Short Range Forecasts	
C. LEITH .....	207
Bifurcation Mechanisms and Atmospheric Blocking	
E. KÄLLÉN .....	229
Dynamically Stable Nonlinear Structures	
C. LEITH .....	265