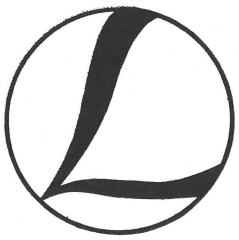

# Dutch Contributions to the International Lithosphere Program

*International Lithosphere Program Publication No. 140*

## Preface

The Dutch National Committee for the Inter-Union Commission on the Lithosphere and the Geophysical Circle of the Royal Geological and Mining Society of the Netherlands (KNGMG) organized a meeting on November 14, 1986 to commemorate the 50th anniversary of the Circle. The meeting, held at the headquarters of the Royal Netherlands Academy of Sciences in Amsterdam, provided a platform for the presentation of Dutch contributions within the framework of the International Lithosphere Program.

Ten papers were presented, more or less evenly split between geological/geochemical and geophysical subjects. In addition 13 posters were displayed. As an introduction, Professor Karl Fuchs from Karlsruhe, West Germany, president of the Inter-Union Commission on the Lithosphere, addressed the meeting and delivered a paper on the lower crust of the Rhine Graben region. The articles published in this issue of Geologie en Mijnbouw form part of the presentations.

In the first paper N.J. Vlaar addresses the fundamental problem of the validity of the style of present-day plate tectonics in the context of different thermal regimes. In particular he considers the effect of higher mantle temperatures on the global style during the Archaean.

Passive and active continental margins are dealt with in the following four papers. S. Cloetingh discusses recent results regarding the effect of stress in the lithosphere on the vertical motion of basin edges and the associated sedimentary expressions. M.J.R. Wortel analyses the dynamics of the subduction process and the role of convergent plate boundaries in determining the regional stress field in the lithosphere. J. van den Beukel & Wortel investigate the temperature distribution in roughly the upper 100 kilometres of a subduction zone. W. Spakman presents results from his seismic tomography analysis of the upper mantle beneath the Mediterranean and adjacent areas. The velocity distribution indicates the presence of subducted lithosphere in the mantle, which is only partly delineated by seismic activity.

G. Nolet, B. Drost and H. Paulssen present preliminary seismological results of the NARS project concerning the upper mantle under Europe. Using higher mode surface wave data they focus on the difference between the upper mantle structures under the Scandinavian Shield and the West European Platform.

The remaining two papers report on geological studies. C.W. Passchier discusses shear zones in the (lower) continental crust and the role of mylonites in crustal deformation. In addition he addresses the possibility that mylonites are strong seismic reflectors. Finally, J.H.P. de Bresser, F.J.M. Majoor & M. Ploegsma report on their investigations of the structural and metamorphic history of the western Lys-Caillauas massif in the Central Pyrenees, where four major deformation phases can be distinguished in the Cambro-Ordovician sedimentary rocks.

The convenors,
H.J. ZWART
*President*
*Dutch National committee for the*
*Inter-Union Commission on the Lithosphere*
M.J.R. WORTEL
*President*
*The Geophysical Circle,*
*Royal Geological and Mining Society*
*of the Netherlands*