

**Zeitschrift:** Bulletin für angewandte Geologie  
**Herausgeber:** Schweizerische Vereinigung der Petroleum-Geologen und –Ingenieure;  
Schweizerische Fachgruppe für Ingenieur-Geologie  
**Band:** 4 (1999)  
**Heft:** [1]: Geological results of a hydrocarbon exploration campaign in the  
southern Upper Rhine Graben  
  
**Artikel:** Geological results of a hydrocarbon exploration campaign in the  
southern Upper Rhine Graben (Alsace Centrale, France)  
**Autor:** [s.n.]  
**Kapitel:** Abstract  
**DOI:** <https://doi.org/10.5169/seals-221515>

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

### **Conditions d'utilisation**

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

### **Terms of use**

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

**Download PDF:** 08.08.2025

**ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>**

# Geological results of a hydrocarbon exploration campaign in the southern Upper Rhine Graben (Alsace Centrale, France)<sup>1</sup>

by

MANFRED LUTZ<sup>2,4</sup> & MAX CLEINTUAR<sup>3,4</sup>

## *Abstract*

Between 1970 and 1990 an association of Shell Française S.A. and SNEA(P)\* carried out exploration for a Mesozoic play in the French part of the Upper Rhine Graben, between Strasbourg and Mulhouse. Originally, the prime exploration objectives were Triassic sandstone and carbonate reservoirs in fault- and dip-bound traps; in the late phase of the venture, the exploration efforts were mainly directed towards reservoirs of the Grand Oolithe.

Between 1970 and 1990 the Association acquired some 1700 km of seismic lines, and drilled 7 wells to the Mesozoic, two of which reached the Basement.

Geological results, comprise information on the stratigraphic and lithologic development of the Triassic, Jurassic and Paleogene in the central part of the Alsace, and on the structure of the Graben fill down to the top of the Basement. They are illustrated by a series of interpreted seismic cross sections, summary logs of the wells drilled and log correlations of the Mesozoic strata encountered.

The structural development is characterised by subsidence and block faulting during the Paleogene and Early Neogene: Faulting started during the deposition of the Saliferous formations (M. Eocene to Early Rupelian („Latdorfian“)) and after a period of quiescence in the middle Oligocene (Gray Series), it reached its highest intensity in latest Chattian to Aquitanian time; this triggered movements of the Paleogene salt as from the latest Chattian, which culminated in the extrusion of diapirs in the Mulhouse Salt Basin. The faulting was followed in the latest Aquitanian and Burdigalian by uplift of the southern

<sup>1</sup> Extended and revised version of a paper presented at the annual convention of the Swiss Association of Petroleum Geologists and Engineers, held at Freiburg im Breisgau on June 12, 1993.

<sup>2</sup> Manfred Lutz, Geologisches Institut der Universität, Albertstr. 23B, D-79 104 Freiburg im Breisgau; formerly with Shell Internationale Petroleum Mij., The Hague, The Netherlands

<sup>3</sup> Max Cleintuar, Loolaan 106, NL-2271 TP Voorburg; formerly with Shell Française, Exploration Dpt., Paris

<sup>4</sup> Both authors were involved in Shell's exploration campaign in the Alsace, especially during the first, most active decade, M.C. as the geologist responsible for the venture with S.F. in Paris, M.L. in Shell's head offices in The Hague more in the role of a critical spectator. M.C. has done most of the original geological studies and interpretations; M.L. re-interpreted many of the data and compiled the present paper.

\* Société Nationale Elf Aquitaine (Production)

part of the graben and the adjacent highs, which caused erosion of up to 1 - 1.5 km of Early Neogene and older strata in the Graben. As from the Late Burdigalian, the uplifted southern part of the Graben was overlapped from north and south by younger Neogene strata, ranging in age from Late Burdigalian in the Swiss to Alsatian Jura and the Badish Kaiserstuhl Mountains, to Late Miocene („Pontian“) in the Sundgau and the northern Alsace, and Late Pliocene in the larger part of the area discussed. Quaternary subsidence amounted to 100-300 m only.

The wells drilled encountered hydrocarbon shows only. It is concluded that the reasons for the absence of hydrocarbons in economically producible quantities are:

- the difficulty in charging the Lower Triassic (M. Buntsandstein) reservoirs (originally the prime target) from the Lower Jurassic (Toarcian) source rock, and the absence of deeper (Late Paleozoic) source rocks,
- the large distance - c. 100 m - between the top of these reservoirs and the first reliable seal;
- the variability of the reservoir quality of the Grande Oolithe (the secondary objective) changing from moderate to none within the area, and, above all,
- the unfavourable temporal relation between the main phase of hydrocarbon generation during maximum burial in the Aquitanian, and the final structural development completed only after the Burdigalian uplift.

## Contents

ABSTRACT .....	4
CONTENTS.....	4
LIST OF FIGURES.....	5
ABBREVIATIONS .....	6
1. INTRODUCTION .....	7
1.1 Regional setting .....	7
1.2 Hydrocarbons and hydrocarbon exploration in central and southern Alsace before 1970 ....	8
1.3 Mesozoic plays in central and southern Alsace .....	12
2. SUMMARY AND RESULTS OF SHELL-SNEA(P)'s exploration activities 1970-1990.....	13
3. INTERPRETATION OF SEISMIC AND WELL DATA (by area) .....	15
3.1 Strasbourg - Séléstat area .....	15
3.1.1 Operational aspects .....	15
3.1.2 Structural interpretation.....	17
3.1.3 Drilling results .....	19
3.2 Séléstat-Colmar area.....	24
3.2.1 Operational aspects .....	24
3.2.2 Structural interpretation.....	25
3.2.3 Drilling results .....	32
3.3 COLMAR-MULHOUSE AREA.....	36
3.3.1 Operational aspects .....	36
3.3.2 Seismic interpretation .....	39
3.3.3 Drilling results .....	51
4. DISCUSSION OF RESULTS.....	54
4.1 Scientific results .....	54
4.1.1 Stratigraphy .....	54
4.1.2 Structure .....	63
4.2 Petroleum-geological Aspects.....	70
ACKNOWLEDGEMENTS .....	74
REFERENCES QUOTED .....	75