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## **PS Structure of the Alpine Foreland\***

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### **Abstract**

The foreland province of the Bavarian Alps was once, prior to the discovery of the Gronigen gas fields in northern Germany, Germany's main oil and gas producing area. It has produced over 71 million barrels of oil (MMBO) and 718 billion cubic feet (BCF) of gas (Bachmann and Müller, 1991). The allocthonous and nonproductive Bavarian salient of the Alps is somewhat anomalous in that virtually all other thrust belt/foreland basin systems around the world have production from the thrust belt allocthon if the foreland is productive.

Recent reprocessing of seismic reflection profiles (including the TRANSALP profile) along the frontal zone of the Bavarian Alpine salient has led to a revised understanding of the basic structure of what has been referred to as the folded molasse zone and how the structure of that zone changes along strike. The folded molasse zone, as well as the north dipping foreland panel of the foreland molasse, is interpreted here to be deformed para-autochthonous rocks that form the roof elements of a triangle zone; a transitional structural zone between the European and Adriatic plates. This zone has now been well-imaged on numerous two-dimensional profiles allowing us to confidently map its extent from near Zurich east to Munich, a distance of about 250 km. It extends farther into Austria where it is productive. Previous and classical Alpine geology fails to recognize the true complexity and potential of this province.

These concepts have been tested by the Austrian company, OMV, who shot a 3D survey and drilled a discovery well near Kempten, Germany. The well drilled a deformed molasses section and came out in autochthonous subthrust rocks confirming our structural model. The well is a gas discovery, the first in the area in over 40 years and brings much-needed gas resources to the area.

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### **Reference**

Bachmann, G.H. and M. Muller, 1991, The Molasse Basin, Germany; evolution of a classic petroliferous foreland basin.: Special Publication of the European Association of Petroleum Geoscientists, v. 1, p. 263-276.