

A NEW CASE HISTORY  
OF GEOTHERMAL EXPLORATION  
IN VOLCANIC AREAS : THE LATERA FIELD  
(NORTHERN LATIUM, ITALY)

by

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ABSTRACT

A new geothermal field, of the water-dominated type, has recently been discovered near the western border of the Monti Volsini volcanic region, in correspondence to a young caldera (0.2 m.y.). This caldera is marked by a subcircular gravimetric minimum which interrupts a N-S elongated positive anomaly characterizing a horst-like block of the sedimentary substratum.

This substratum underlies a more or less thin blanket of volcanics and is made up (from the top down) of : i) allochthonous flysch-facies units ; ii) a mainly carbonate complex locally referred to as the « Tuscan nappe » ; and iii) a schistose-quartzitic basement.

A magmatic body of syenitic composition intruded the lower part of the sedimentary substratum during the middle Pleistocene and a series of sills, originating from the main body, emplaced within the carbonate complex. The intrusion of the main body was probably controlled by the structural situation of the horst-like block, whereas the emplacement of the sills was apparently favoured by intersections of NS- and NE- trending fractures.

Some of these fractures were later sealed locally as a result of the skarn-like mineralization (epidote, almandine, K-feldspar, etc.) induced by the intrusive body and the associated sills.

The recent magmatic activity in the Latera area accounts for the high thermal anomaly (gradient values of up to 2.5 °C/10 m and heat flow values of up to 7-8  $\mu\text{cal}/\text{cm}^2$  sec determined by geothermal prospecting), whereas the flysch-facies units and the underlying carbonate complex act as the impermeable cover and reservoir of the geothermal field, respectively.

This paper makes a further contribution to the study of geothermal «case histories»; after illustrating the methodology adopted to discover this field, it presents and briefly discusses the results of the two wells drilled so far in the Latera area.

The first well ( $> 340^\circ\text{C}$  at 2,900 m) is unproductive: the second well is, on the contrary, very productive, despite its lower temperature ( $\sim 210^\circ\text{C}$  at 1,400 m).

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