O4-7	THE SEISMIC VELOCITY SURVEY ON PERIADRIATIC DEPRESSION (ALBANIA)

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The investigated region includes the Western Lowland of Albania, called Periadriatic Depression by geologists.The Periadriatic basin, formed since Serravalian, subsequently to the main folding and thrusting of Ionian zone, is filled by Miocene and Pliocene molasses (Alliaj, 1994).The geological structure of the Periadriatic Depression is built by some linear relatively narrow anticlines and wide synclines with north-northwestern extension. The Mio-Pliocene anticlines are superimposed over thrust or backthrust faults, that usually are not observable on the earth surface, but they are detected by seismic explorations.The folded structures of the Periadriatic Depression is due to two compressional phases: the one, weakest, at Miocene-Pliocene boundary and the other, the strongest one, in Early Pleistocene. The compressional deformations are following up to the present-days. The folding and thrusting of Periadriatic Depression is finally due to the Early Pleistocene compressional phase. As the result of the last tectonic phase, the Quaternary deposits are horizontaly overlying with unconformatiy on the folded Mio-Pliocene structures of the Periadriatic Depression (Skrami & Aliaj, 1995).

The Miocene molasse transgressively and with strong angulary unconformatiy overly the Ionian and Kruja structures, mainly along the eastern and southern margins of Periadriatic Depression.

The seismic methods considerably help in the evidence of Mio-Pliocene folds and thrust and backthrust complicated them. The buried anticlines are also well investigated by seismic exprolations. The angular unconformities are well determined too (Skrami, Nishani, Hyseni, 1994).

For a good and accurate interpretation of the seismic data, the seismic velocity determination has played an important role.

In 140 wells, drilled for oil and gas explorations on Periadriatic Depression, the velocity measurements have been carried out.

Based on these data, the variation law of the velocity with the depth is found. For the Periadriatic Depression, this variation law is:$V(z) = Vo\ (1+\beta\ z)$ where β=0.57. This is illustrated with a number of t(h) typical velocity logs.

For the western and southern part of the Periadriatic Depression, the map of the bedrock velocity (Vo) is given and the horizontal gradient of velocity is determined. Its values vary from 50-160 m/sec. along the W-E direction to 20-50 m/sec. along the N-S direction.

The Quaternary deposits, based on velocity data, are divided into two main layers: the first layer with velocity Vp=300-600 m/sec and the second layer velocity Vp=1200-1600 m/sec. The boundary between two layers, usually, corresponds with the surface of the underground waters. Thus, the map of a seismic refraction boundary, which represents the underground water level seasonal changes on western part of the Periadriatic Depression is given too.

The Adriatic coastal onshore, from Durresi to Vlora, is very favorable for development of tourism and infrastuctures. So, the engineering-geological and seismological studies are very important to be carried out in this area.

In the framework of a National Project "*The study of Quaternary loose deposits on the Durres-Vlora coastal zone for the general projectidea of urban, tourism and infrastructures development, in*

scale 1:25000", the velocity measurements on the surface and boreholes have been carried out by the authers of this paper.

For the determination of the geodynamical model and especially of soil dynamic parameters, the using of this engineering seismic methods is very important (Skrami & Duni, 1995).

The aim of this Project was to carry out some engineering-geological and seismological investigations that are necessary for important engineering constructions, such as highways and railways, basement of airports and the seaports as well as urban planning etc. (Skrami & Guri, 1999).A

After this Project, in Albanian coastal, from Durresi to Semani Channel (Fieri), are realized about 220 point for measurements of the velocity of shear compressional waves, in surface. Some maps of the shear-wave velocities, (Vs), for different depth-levels are given too.

In some seperate parts of this region, velocity measurements of seismic waves in the depth, in the boreholes, for the evolution of "velocity inversion" are carried out by using the "down-hole" seismic method (Duni, 1984). From these data a number of the t(h)'s graphics are obtained.

References

Duni LI., (1984)-The use of the seismic "down-hole" method in the Vlora zone. (ýn Albanian) Archive of Seismological Institute, Tirana, 1984.

Skrami J., Nishani P., Hyseni A. (1994) -Some structural features of the Periadriatic Depression in Albanian -Bulletin of the Geological Society of Greece Vol. XXX, No. 5, 39-43.

Skrami J., Duni LI., Bare V. (1995) -The use of seismic methods solve some engineering problems. -Absracts, First National Conference of Geology, Enviroment and Civil Society, Tirana 21-22 November 1995.

Skrami J., Aliaj Sh. (1995) -Faults and structural unconformities revealed by exploratory seismic on Periadriatic Depression. -Symposium "Alpetrol 95" , 23-26 November, 1995, Fieri.

Skrami J., Guri S. (1999) -Some trends of the study of Quaternary loose deposits on the Durres-Vlora coastal zone.-Proceedinds, Geohazards and the Enviroment. Second National Conference, organized by the Albanian Group of IAEG, 17-18 November, 1997, Tirana, publicate of Universita degli Studi di Bari (Italy), Germino, 1999.