

the Danube basin at the Rišďovce and at the transition of the Komjatice and •eliezovce depression.

In the •eliezovce and Komjatice depressions depositional environment passes from the brakish to the lacustrine and swamp during Midlde and Upper Miocene, in the Rišďovce depression sedimentation was fresh water, deltaic. Pliocene cycle is characterized by lacustrine, deltaic and fluvial depositional environment.

In the Komjatice and•eliezovce depression sedimentological study of Sarmatian sea-shore deposits were done on the outcrops and brought a possibility to reconstruct the relative sea-level changes, strongly influenced by volcanic supply from the Štiavnica stratovolcano.

During Sarmatian the tectonic impulse caused the mobilization of coarse sandy gravity flows in the frontal part of the shoreface in the •eliezovce depression. The mass flows eroded the silty-clayey basinal sediments and forming then mud-clasts rich sandy breccias, finger like reaching into the marly-sandy laminated basinal facies. Some soft sediment deformations, found in the gravity flow related bodies originated due to frictional freezing of mass flow. The relief instability is reflected in slump folds.

The NE part of the Komjatice depression is characterized by very dynamic sedimentation of sandy and gravelly fan-deltaic system. Sandy deposits of the Pliocene in the Rišďovce depression probably represent sandy deposits of rivers entering the fresh-water lake. Palaeoflow direction, detected from vector measurements of cross lamination, is from NW to SE. Heavy mineral analysis suggests two possible source areas. Crystalline source area, which is according to the palaeoflow direction (from NW to SE) located in the Pova'ský Inovec Mts. The occurrence of b quartz suggests source area with volcanic material which might have been delivered by tributaries from the volcanic deposits found in the northern part of Rišďovce depression.

### A reflection about sedimentology and paleontology - Argentine example

TORRA, R.

Güemes 749, 3500, Resistencia, Chaco, Argentina,  
roberto\_torra@arnet.com.ar

It is very common to look a lot of eager follower paleontologists looking for fossil remains at the sedimentary rocks or unconsolidated sediments. In general, it is assumed that these fossil remains may be very useful in order to defining environments in which such rocks were deposited large time ago. This is absolutely true in almost geological cases.

Also, it is very frequent (at least in the last two decades in Argentine) to look, on the other hand, many sedimentologists looking for internal structures both at ancient and recent sediments. They think that these arrange of structures may give outstanding information or evidence about of the depositional environment of such sediments.

This idea looks like very simple.

In most Argentinian cases, the fossil records are fragmentary, non-existence, non-characteristics, its spatial position may be obscured or masked, non-singenetics with sediments and the like.

Diagnostics internal sedimentary structures, if present, are not definitively accepted as an indicative evidence of environment deposition by many paleontologists at Argentine. In the conflictive situation between these two ways (fossils or internal structures), the problem led to dramatic controversial situations. 'Nobody like to turn off the leg'.

Based on the studies of outstanding bibliography elsewhere, should be not great discussion in accept the assumption of that herringbone cross beddings associated altogether with tidal bundles and lenticular tidal rhythmic beddings present into sorted, white, very

fine grains, very well rounded, plagued of reactivation surfaces sandy lithofacies (TORRA 1999, 2000a, b). This is an association a little bit more significant that some non-characteristic fluvial (lagoon?) mollusks of extended biochron from Lower Tertiary to Late Holocene. This is the case of the conflictive Ituzaingó Formation located at the northeastern region of the Argentina for which a 'platte braided fluvial model' was proposed by paleontologist (HERBST 1971, HERBST & SANTA CRUZ 1985, JALFIN 1988).

I concluded that the way of the science is always the same. In order to produce improvements and to prove the essence of the investigations, it is necessary a severe ethic performance. The pride may be forgot for a little time (when working at the field and laboratory), so the geological sciences will go ahead very quickly.

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### Geochemical characterization of the heterolithic succession of the Ituzaingó Formation (Middle Miocene), Northeastern Argentina

TORRA, R.

Güemes 749, 3500, Resistencia, Chaco, Argentina,  
roberto\_torra@arnet.com.ar

The Ituzaingó Formation constitutes a typical succession of interstratified sandy-muddy beds. They outcrop in natural slopes, many ravines and gullies at the left margin of the Paraná and Paraguay rivers (Argentine and Paraguay Republic).

TORRA (1998, 1999, 2000) interpreted this sequence as a heterolithic succession deposited under a tide-dominated peritidal environment during the intracratonic Paranense shallow marine onlap of Middle Miocene age, all synchronous with the extensive so called 'Paranense transgression'.

Thirty-five selected samples were analyzed by the technique of fluorescence X-ray spectrometry (FRX). Twenty samples were picked up from very fine sand lithofacies. The remainder fifteen samples were taken from mud beds and 'mudrock' beds. The boron was analyzed using an inductively emission coupled plasma spectrometry (ICP-AES). None fusion was used in the samples in order to prevent boron-tourmaline contamination, which is extremely common.

The elements analyzed were the following, major elements: CO<sub>3</sub>Ca, P<sub>2</sub>O<sub>5</sub>, Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, CaO, K<sub>2</sub>O, MnO. These molecules were measured by a percentage. Tracé elements analyzed were: Rb, Cs, Ga, Zr, Ta, Nb, Sr, Ba, Cr, Ni, Zn, Pb, Cu, V and Boron. The study carried out by means of simple plotting in cartesian axis using common softwares reveals that several elements act as markers and concentrate according with different lithofacies among very fine sand, mud and mudrock. Ten selected samples of loessial beds were used as regional background and confront values.