

The Rasa River estuary (Istra, Croatia - see: Figure) was chosen as a model of karstic river mouths in studying the land/sea interaction. The principal vehicle of this interaction are suspended mineral particles and consequently their sedimentation. The particles originate from the northern part of the drainage basin, where Eocene flysch sediments are exposed. The southern part of the drainage basin and the whole estuarine system are developed in Cretaceous carbonate rocks.

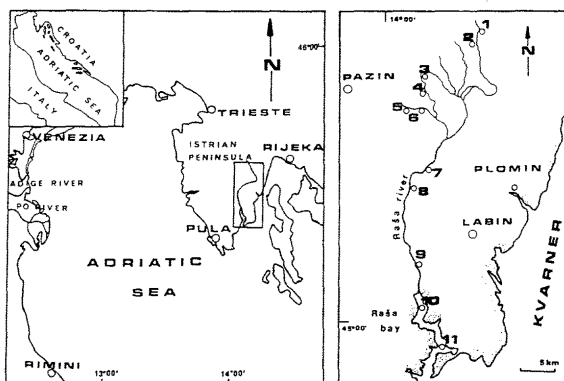


Figure: The Rasa River estuary and the sampling stations

The hydrology of the Rasa River is typically karstic : small flux with high seasonal variations : at sampling station (ST 7) the reported mean flux is 2.3 m³/s, whereas at the river mouth (ST 10) the corresponding figure is 12 m³/s.

Sampling in the drainage area includes terrestrial sources (ST 2, 3 and 5), riverine sediments (ST 1,4,6,7,8, and 9), and estuarine (sea) sediments (ST 10 and 11). The results of sedimentological analysis of these samples are presented in the Table.

Standard techniques have been used in producing data shown in the Table: X-ray diffraction for semiquantitative mineral composition ; gas volumetry for carbonate share ; nitrogen adsorption for the BET surface area determination ; standard wet sieving and Coultercounter sizing for granulometry.

TABLE : Characteristics of materials

Sampling station	Mineral composition*	Carbo-nates %	S _{SSA} m ² /g	Mz / μ m	Rock/soil type	
I	2A	Ca, Q, F, I, Ch	62	2.6		sandstone
	2B	Ca, Q, I, Ch, S, K, F	46	10.9		marl
	2C	Ca, Q, I, Ch, F	51	12.8		marl
	3A	Ca, Q, S, I, Ch, F	39	14.6		marl
	3B	Ca, Q, F, I, Ch	52	5.3		sandstone
5	Ca, Q, I, S, Ch, F	46	8.2		marl	
II	1	Ca, Q, Ch, I, S, F, K	38	16.2	6.7	clayey silt
	4	Ca, Q, I, Ch, S, F	28	26.5	8.1	clayey silt
	6	Ca, Q, I, Ch, S, F	46	15.0	6.0	silty clay
	7	Ca, Q, I, S, Ch, K, F	28	25.5	3.5	silty clay
	8	Q, Ca, I, S, Ch, K, F	19	30.5	3.0	silty clay
9	Ca, Q, I, Ch, S, F	39	8.7	3.6	silty clay	
III	Ca, Q, I, Ch, S, F			3.0	silty clay	
IV	10	Ca, Q, I, S, F, Ch	38	10.0	3.7	silty clay
	11	Ca, Q, I, Ch, D, F	32	13.3	4.3	silty clay

The mineral composition of the clastic source rocks is predominantly carbonate, but noncarbonate, quartz and clay minerals are present in significant shares. The latter are the minerals found in riverine and estuarine sediments due to its transport from its flysch origin through the carbonate zone into the estuary. The main part of the terrigenous clastic particles is deposited in the estuary. The Rasa River estuary is an illustrative example of transport of suspended matter and sedimentation under the influence of the Coriolis force, as indicated by the high turbidity of water at the right bank. The main reason for accumulation of terrigenous material is the estuarine circulation with the ingoing bottom saline water and outgoing surface brackish water. The foregoing is corroborated by studies of BENAC *et al.* (1991) of the Rasa River basin, and by JURACIC and PROHIC (1991) of the Krka River estuary.

REFERENCES

- BENAC C., ARBANAS Z. and PAVLOVEC E., 1991. - Origin and Geotechnical Characteristics of the Rasa Valley and Bay (in Croatian) *Pomorski zbornik* 29.
 JURACIC M. and PROHIC E., 1991. - Mineralogy, Sources of Particles, and Sedimentation in the Krka River Estuary (Croatia). *Geoloski vjesnik* 44, 195 - 200.