

analysis linking the nature and pattern of soil macropores and the flow characteristics of water and solutes through soils will provide the basis for a classification of soils into broad groups with respect to the likely occurrence of rapid solute transfer to underlying materials. (from Authors)

#### 955070

##### **Ways of investigating radionuclide migration processes in the lithosphere and hydrosphere**

A. P. Belousova, A. I. Shmakov & O. V. Galaktionova, *Environmental Geology*, 24(4), 1994, pp 306-308.

The zone of aeration is considered to be the zone separating groundwater from surface contamination. In respect to radioactive contamination, soils that may fix a large quantity of radionuclides serve as a protection zone of a higher order. Mapping of protectibility was done for each radionuclide taking into consideration the specific structure of the flow medium and migration properties of a radionuclide.  $^{90}\text{Sr}$  and  $^{137}\text{Cs}$  have different mechanisms of transport; convective transport is characteristic of the former and diffusive transfer of the latter. This is conditioned by different physico-chemical properties of the radionuclides and principally by their sorption capacities. The coefficient of distribution of  $^{90}\text{Sr}$  is in many times less than the coefficient of distribution of  $^{137}\text{Cs}$ . (from Authors)

#### 955071

##### **Transport of reactive contaminants in heterogeneous porous media**

M. L. Brusseau, *Reviews of Geophysics*, 32(3), 1994, pp 285-313.

This paper consists of a brief review of some of the major aspects associated with the transport of reactive contaminants in heterogeneous subsurface environments. It begins with a review of basic concepts related to contaminant transport, followed by a discussion of the results obtained from some of the few well-controlled field experiments designed to investigate transport of reactive contaminants in the subsurface. Some of the major factors controlling contaminant transport are discussed, followed by a review of conceptual and mathematical approaches used to represent those factors in mathematical models. A brief overview of future needs and opportunities in contaminant transport closes the discussion. (from Author)

#### 955072

##### **Solute transport in heterogeneous media: a discussion of technical issues coupling site characterization and predictive assessment**

Chin-Fu Tsang, L. Gelhar, G. De Marsily & J. Andersson, *Advances in Water Resources*, 17(4), 1994, pp 259-264.

Long-term predictive evaluation of solute transport and transformation in geologic media is a critical element in the performance assessment of nuclear waste geologic repositories and in the environmental restoration or control of contaminated sites that is facing many countries today. Since the geologic media are heterogeneous and their details can never be known deterministically, longterm prediction of flow and transport in such systems requires new thinking. Thus, it is no longer possible to consider site characterization and predictive modeling calculations to be separate activities; rather they are highly coupled. This paper presents a discussion of the coupling and proposes a framework of technical issues that need to be studied. (Authors)

#### 955073

##### **Migration of lignosulfonates in a karstic-fractured-porous aquifer: history and prognosis for a Zn-Pb mine, Pomorzany, southern Poland**

J. Motyka, S. Witczak & A. Zuber, *Environmental Geology*, 24(2), 1994, pp 144-149.

Lignosulfonate lyes, which had been deposited by a paper factory for about 50 years into Quaternary sediments and accumulated in a quasistagnant depression, became mobile when a depression cone caused by mine activity in a deeper aquifer reached the erosion window close to the disposal site. Their transport parameters in the karstic-fractured-porous carbonate aquifer are shown to be mainly governed by diffusion between the mobile water in karstic channels and fractures and the stagnant water in matrix, although the hydraulic conductivity is shown to depend mainly on the karstic system. (from Authors)

#### 955074

##### **Contaminant leakage from deeply buried cylindrical repositories**

J. R. Booker & C. J. Leo, *International Journal for Numerical & Analytical Methods in Geomechanics*, 18(8), 1994, pp 565-580.

The effects of contaminant leakage in general are not well understood. Thus it is the aim in this paper to develop some semi-analytical solutions of leakage problems occurring in deeply buried cylindrical repositories. In the solution approach, a series of integral transforms is used to simplify the governing equations and solutions are found in the transform space before numerical inversions are applied to obtain the contaminant concentrations in real space and time. (from Authors)

#### 955075

##### **Delineation of effluent contaminated zones by electrical surveys at two industrial sites in Visakhapatnam, India**

C. Subbarao & N. V. Subbarao, *Environmental Geology*, 24(4), 1994, pp 281-286.

The industrial effluents sent through open channels or closed pipes with leaks contaminate the surface layer and infiltrate to add salinity to groundwater. Extents of contaminations are delineated through isoresistivity maps. Vertical electrical sounding gives the contaminated resistivities of the second layer. The technique is used for two industrial sites: polymer and zinc smelter plants of Visakhapatnam. The results of the studies are compared. (Authors)

#### 955076

##### **Exploitation simultanee des alluvions et des eaux souterraines**

##### **(Simultaneous mining of alluvial soils and underground waters)**

B. Chassefiere, *Mines & Carrieres*, 76(October), 1994, pp 42-45.

Supplying cities with aggregates requires mining of the natural deposits in alluvial plains which are also used by these same cities as a source of water. This mining has varied effects on the water tables - hydrodynamic, physico-chemical or biological. This article reviews these interactions as well as those caused by mining of marine deposits on the coast. (English summary)

#### 955077

##### **The interaction of acid mine drainage with a carbonate terrane: evidence from the Obey River, north-central Tennessee**

J. A. Webb & I. D. Sasowsky, *Journal of Hydrology*, 161(1-4), 1994, pp 327-346.

The production of acidic drainage from active or abandoned coal mines is controlled by a complex series of reactions triggered by the oxidation of sulphide minerals. Limestone is frequently used as a neutralizing agent; neutralization occurs both through dissolution of the limestone and exsolution of carbon dioxide from the water. Demonstration of these processes in a natural system is provided by the East Fork of