

ABSTRACTS OF PAPERS IN ENGLISH

EFFECT OF RESERVOIR ELEVATION ON THE DYNAMIC RESPONSE OF CONCRETE FACED ROCKFILL DAMS

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Abstract

In this paper, dynamic response of Concrete Faced Rock Fill Dams (CFRD) are studied with emphasis on the effect of reservoir elevation on the response. The ongoing research regards the dynamic response of CFRD is reviewed. The characteristics of the software used and the method of solution are briefly discussed and the modification applied on the used software (ANSYS) is briefly described. The geometry of the problem and the material characteristics of the CFRD used in the analysis are introduced. It is worthwhile to note that an elastoplastic, critical state, nonassociated material behavior is considered for the rockfill material. Finally,

the results of dynamic analysis including modal analysis, response of dam body and response of the concrete face of the dam using modified ANSYS program are presented and discussed.

In this paper, the emphasis is put on the effect of reservoir elevation on the dynamic response of CFRD. The results of the analysis indicate that there will be a separation between the rockfill and the concrete slab near the crest resulting in a major uplift in slab during an earthquake when the reservoir elevation is low. Therefore, care should be taken for such a condition.

SOLVING FLEET ASSIGNMENT PROBLEM WITH SIMULATED ANNEALING METHOD

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Abstract

Flight scheduling is one of the major problems for any airline company. This problem has been investigated as an optimization problem for many years. Usually, the flight scheduling problem is divided into a number of sub-problems, one of them being the fleet assignment. In this problem, given a flight timetable and aircraft specifications, the type of aircraft is determined for each flight. In recent studies, the fleet assignment problem has been modeled as a multi-commodity network flow problem with integer and real variables, which has been solved by conventional methods. In this research, one of the existing models has been modified for a domestic airline company and simulated annealing (SA) algorithm is used to solve it. This algorithm was implemented for the fleet assignment problem and used to solve some sample problems. Comparison of the results of solving sample problems by SA algorithm and GAMS software indicates that the SA has a good capability for solving the fleet assignment problem.

**RESIDENCE LOCATION,
TIME-OF-DAY, AND HISTORY
DEPENDENCIES OF DESTINATION
CHOICE IN NON-HOME BASED TRIPS**

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Abstract

In this study a sequential model of daily travel patterns is formulated that consists of home location, time-of-day, and activity history dependent models of activity and destination choice submodels of non-home based trips. The model development takes into account the interdependencies among the choices and the constraints imposed on the movement in time and space. The empirical analysis on a data set from the city of Mashhad shows that non-home-based destination choice is critically dependent on the individual's residence location and that activity choice is influenced only marginally by the accessibility of the origin location. As a practical and

immediate modification of non-home-based destination choice models, this study proposes the inclusion of destination-to-home travel time as a factor that enables more realistic depiction of spatial travel patterns. The results indicate that the simplest expression of history of activity engagements is an adequate descriptor of activity choices. The study results demonstrate that time-of-day variable imposes a constrained environment upon the daily activity participation decisions.

**DYNAMIC STABILITY OF EDGE
CREAKED PLATES**

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Abstract

This paper presents a finite element study on the vibration, buckling and dynamic stability behaviour of a cracked plate subject to an in plane compressive / tensile periodic edge load. The effects of crack length and orientation are analysed. Under tension load, the results show that the frequency of the plate increases with the load. The size and the orientation of the crack and the loading parameter can all have a significant effect on the dynamic stability behaviour of the plate under both compressive and tensile loading. The effects of these parameters are discussed.

**OUT-OF-PLANE STABILITY OF GATE
BRACING**

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Abstract

In most residential buildings in Iran, using x and chevron type bracings might face some architectural obstacles due to the existence of doors and windows in the east-west direction of the structures. Gate bracing system is one of the options, which is considered by many structural engineers. This system is similar to chevron bracing, however, each chevron brace member is divided into two separate parts with different slopes and the separation joint is linked to the corner of the bay. Gate bracing is more efficient than the chevron bracing due to the provided architectural space, but has less lateral stiffness. Out-of-plane buckling in this system is a serious problem and its connections require special consideration.

In this paper, the out-of-plane buckling of gate bracing system, with various geometries and connection details, has been investigated. Results indicate that in order to prevent the out-of-plane buckling of the bracing, the ratio of the out-of-plane to in plane cross sectional moments of inertia of the brace members should not be less than a certain amount, which depends on the geometry of the frame.

■ GEOTECHNICAL STUDIES OF ORUMIEH LAKE BED SEDIMENTS

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Abstract

Geotechnical investigations have been carried out on bed sediments of many brine lakes such as Great Salt Lake in the United State and Dead Sea in the north of Africa. Orumieh Lake is one of the brine lake which is located in the north west of Iran. In literature there is no significant geotechnical information on very soft, unconsolidated of this lake bed sediments.

This paper presents the study performed on lake bed sediments along the Tabriz-Orumieh highway path. Subsurface investigation was performed. The program

included drilled boreholes to obtain soil profiles, insitu and laboratory tests to determine the geotechnical behaviour of the lake bed sediments up to the required depth. Physical properties, compressive strength, shear strength, consolidation characteristics and sensitivity of the soil lyers were determined. Finally correlations between the above parameters were analysed.

The results of this analysis are significant in providing a quantitative estimate of deformation characteristics of thick, very soft unconsolidated soil sediments for design purposes in lake environment.

■ SYSTEM DYNAMICS MODELING OF HYDROPOWER RESERVIOR OPERATION

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Abstract

There exists a strong need to explore simulation techniques that not only represent complex dynamic system in a realistic way but also allow the involvement of end users in model development to increase their confidence in the modeling process. System dynamics, a feedback-based object-oriented simulation approach, is presented for modeling reservoir operations. The increased speed of model development, the trust developed in the model due to user participation, the possibility of group model development, and the effective communication of model results are main strengths of this approach. The ease of model modification in response to changes in the system and the ability to perform sensitivity analysis make this approach more attractive compared with systems analysis techniques for modeling reservoir operations.

In this paper, system dynamics is used to simulate a hydropower reservoir operation. The developed model is applied to the Tang-e-Mashoure reservoir in upstream of Karkhe in Iran.

DESIGN OF DRAINAGE SYSTEMS FOR PERMEABLE ABUTMENT OF EARTH DAMS

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Abstract

In the design of earthdams, the abutment of the dam may be a hill with high permeability. The head at the dam upstream controls the flow rate through the abutment. High seepage through the abutment may cause dangerous stability problems. One of the most important problems in the design of drainage systems is the calculation of the seepage through the abutment of the dam. For the drainage of permeable abutment of earthdams, drain pipe or drain channel (filled by drainage materials) can be used in a proper place in downstream slope of abutment. In this study, for drainage of abutment of the berenjestanak earthdam, the method of drain channel at the downstream slope of abutment have been used for determining the location and characteristics of the drain, MSEEP software has been used. To reduce the seepage surface in downstream slope of abutment and increase the flow rate through the drain, the size of this drain channel is calculated as $2^m \times 3^m$ with 0.05m/s for coefficient of hydraulic conductivity. The best place for constructing the drain channel is the lowest position of the seepage surface.

REVIEW OF WATER QUALITY INDICES AND APPLICATION OF NSFQI TECHNIQUE TO WATER QUALITY KAROON RIVER

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Abstract

The zone of river pollution may be a primary and essential step in an appropriate quality management in order to establish a suitable strategy to control water pollution in river. Different methods of data analysis of river water quality and its zone have been investigated among which "water quality indices" is one of the simplest and most applied one. In this article, along with a quick review of the different methods of water quality indices and determining their advantages and disadvantages, the index of NSFQI (National Sanitation Foundation of Water Quality Indices) is considered in detail. Using this method with available data, Karoon River-Dez has been studied. The result of the chemical water quality study of the river is shown as medium or bad, which may have been caused by the pouring of domestic, and industrial pollutants in it.