

PACKAGE ID - 001252C017600 MATLOC

KWIC TITLE - Transient Non Lin Deformation in Fractured
Rock

AUTHORS - Boonlualohr, P.
Geotrans Inc., (United States)

Mustoe, G.
Geotrans Inc., (United States)

Williams, J.R.
Geotrans Inc., (United States)

Lester, B.H.
Geotrans Inc., (United States)

Huyakorn, P.S.
Geotrans Inc., (United States)

LIMITATION CODE -UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 06/23/1989 **PUBLICATION DATE** - 04/01/1983

DESCRIPTION - MATLOC is a nonlinear, transient, two-dimensional (planer and axisymmetric), thermal stress, finite-element code designed to determine the deformation within a fractured rock mass. The mass is modeled as a nonlinear anistropic elastic material which can exhibit stress-dependent bi-linear locking behavior.

PACKAGE CONTENTS - Media Director; Software Abstract; ONWI-421; Media Includes Source Code, Information File, JCL and Control Information, Sample Problem Input and Output;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 CD Rom

METHOD OF SOLUTION - The numerical solution of the non-linear equilibrium equations is performed using the incremental tangential stiffness method in which the material stiffness matrices are continually updated.

COMPUTER - CDC CYBER176

OPERATING SYSTEMS - Machine dependent

PROGRAMMING LANGUAGES - FORTRAN-IV

SOFTWARE LIMITATIONS - Three-dimensional deformations and discontinuous displacements across open fractures and faults cannot be modeled. MATLOC can solve a problem with of 400 elements, with up to 1000 nodes, of which 200 may be fixed.

PACKAGE ID - 001252C017600 MATLOC

SOFTWARE LIMITATIONS - (CONT)

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - MATLOC is primarily suited for use in room and canister scale studies of the excavation, operational, and short-term post-closure process for sites within geological media which do not exhibit significant viscoelastic (creep) phenomena or in situations where the viscoelastic behavior can be ignored.

RELATED SOFTWARE - In order to perform a complete thermomechanical analysis, MATLOC must be used in conjunction with a SCEPTER thermal analysis code such as DOT-BPMD, or SWENT. The heat transfer code is used to compute the steady-state or transient thermal field in the form of nodal temperatures to be read by MATLOC.

HARDWARE REQS - 80K words.

REFERENCES - Intera Environmental Consultants Inc., MATLOC: A Two-Dimensional and Axisymmetric Nonlinear Finite-Element Transient Thermal Stress Analysis Code for Rock Masses That Exhibit Bilinear Locking Behavior, ONWI-421, April 1983.

ABSTRACT STATUS - Released tested 10/14/1998.

SUBJECT CLASS CODE - R

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
M CODES
DEFORMATION
FINITE ELEMENT METHOD
FRACTURE PROPERTIES

EDB SUBJECT CATEGORIES -
990200

SPONSOR - NEA

PACKAGE TYPE - TESTED