



11/29/97
7 1/24

SOFTWARE RELEASE NOTICE

01. SRN Number: RDCO-SRN-146		
02. Project Title: TSPA & Technical Integration/Assistance		Project No. 20-5708-761
03. SRN Title: UDEC Version 3.0		
04. Originator/Requestor: Bruce Mabrito		Date: 05/13/97
05. Summary of Actions		
<ul style="list-style-type: none"><input type="checkbox"/> Release of new software<input type="checkbox"/> Release of modified software:<ul style="list-style-type: none"><input type="checkbox"/> Enhancements made<input type="checkbox"/> Corrections made<input type="checkbox"/> Change of access software<input checked="" type="checkbox"/> Software Retirement <i>AHC 11-29-01</i>		
06. Persons Authorized Access		
Name	RO/RW	A/C/D
Goodluck Ofoegbu Simon Hsiung Amit Ghosh Rui Chen Mikko Ahola Asad Chowdhury	RO RO RO RW RO	
07. Element Manager Approval: 		Date: <i>5/19/97</i>
08. Remarks:		
On January 7, 1997, Scientific & Engineering Software UDEC V3.0 was placed under version control at the CNWRA in the SCCS system.		

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SOFTWARE SUMMARY FORM

01. Summary Date: 05/13/97	02. Summary prepared by (Name and phone) Mikko Ahola, (210) 522-5799	03. Summary Action: New	
04. Software Date: 12/06/96	05. Short Title: Universal Distinct Element Code, Version 3.0		
06. Software Title: UDEEC, Version 3.0		07. Internal Software ID: 001-000	
08. Software Type: <input type="checkbox"/> Automated Data System <input checked="" type="checkbox"/> Computer Program <input type="checkbox"/> Subroutine/Module	09. Processing Mode: <input type="checkbox"/> Interactive <input type="checkbox"/> Batch <input checked="" type="checkbox"/> Combination	10. APPLICATION AREA a. General: <input checked="" type="checkbox"/> Scientific/Engineering <input type="checkbox"/> Auxiliary Analyses <input type="checkbox"/> Total System PA <input type="checkbox"/> Subsystem PA <input type="checkbox"/> Other b. Specific:	
11. Submitting Organization and Address: ITASCA Consulting Group, Inc. Thresher Square East 708 South Third Street, Suite 310 Minneapolis, Minnesota 55414		12. Technical Contact(s) and Phone: Loren Lorig (612) 371-4711	
13. Narrative: The distinct element method is a recognized discontinuum modeling approach for simulating the behavior of jointed media subjected to quasi-static or dynamic conditions. This program has three distinguishing features which make it well suited for discontinuum modeling. It covers a range of rock mass strengths and confining pressures which are encountered <i>in situ</i> .			
14. Computer Platform SUN	15. Computer Operating System: SOLARIS 2.X 5/22/97 DOS SW	16. Programming Language(s): FORTRAN 77	17. Number of Source Program Statements: ~ 50,000
18. Computer Memory Requirements: Minimum 4 megabytes	19. Tape Drives: N/A	20. Disk/Drum Units: N/A	21. Graphics: VGA Monitor
22. Other Operational Requirements N/A			
23. Software Availability: <input checked="" type="checkbox"/> Available <input type="checkbox"/> Limited <input type="checkbox"/> In-House ONLY		24. Documentation Availability: <input checked="" type="checkbox"/> Available <input type="checkbox"/> Inadequate <input type="checkbox"/> In-House ONLY	
Software Custodian: <u></u> Date: <u>5/19/97</u>			

UDEC 3/24
Folder

To: Bruce Mabrito at CNWRA-OS2
From: Mikko Ahola
Subject: Closeout of Scientific Ntbks #179 & #206
05-23-97 03:57 PM

Bruce,

This note is to inform you that I have completed all work related to the Parametric Study of Drift Stability in a Jointed Rock Mass, specifically Phase II: Discrete Element Dynamic Analysis of Unbackfilled Drifts. The project number is 20-5708-761. The entire dynamic study utilized Version 3.0 of UDEC.

The software sommary documentaion for UDEC Version 3.0 contains a software installation verification test which was run on my Sun Sparc 10 workstation running the SunOS operating system. Since this was a dynamic study, the installation check consisted of a dynamic verification problem which was run, and compared identically to the results published in the UDEC Version 3.0 User's Manual (VOI. II Pg. K-45 - Slip Induced by Harmonic Shear Wave). The comparison is included in the UDEC Version 3.0 software installation documentation.

All the necessary documentation of scientific notebooks #178 and #206 have been completed. All input files, restart files, and plot files have been copied to an 8 mm tape which accompanies the 2 notebooks. Note that the thermal mechanical loading state which was the initial conditions for the dynamic study was verified for accuracy in the Phase I study of this project. Although there was no real way to compare the accuracy of the dynamic predictions, the notebooks document a step by step approach in building the more complex final dynamic model to deternime the best modeling approach and to assure that the dynamic response was realistic.

Mikko Ahola
May 23, 1997

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To: Bruce Mabrito at CNWRA-OS2
From: Mikko Ahola
Subject: Verification of UDEC Ver. 3.0 Installation
05-19-97 10:13 AM

Bruce,

I ran a verification problem from the UDEC Version 3.0 manual to make sure the installation of Version 3.0 on the Sun Sparcstations was correct. Since I was doing mostly dynamic modeling, the particular problem verified the dynamic routines within UDEC. The results from the verification run on my Sun workstation were identical to those presented in the UDEC Version 3.0 Volume II manual (Section K.5.2 - Slip Induced by Harmonic Shear Wave). The results and comparison have been included with the rest of the Installation documentation given to Linda.

Regards,

Mikko

5/24

File in
UDEEC V. 3.0
SOFTWARE
Folder

Date: 11/11/98
Sender: Bruce Mabrito
To: #DIRS-MGRS, #SA-WO_TECH
bcc: Padilla, Maria, Mabrito, Bruce, Ehnstrom, M., Caudle, Bonnie, ttrbovich@swri.edu, rfolck@gateway.net at Internet, gmabrito@interconnect.net at Internet
Priority: Normal
Subject: INFORMATION ON UDEC V. 3.0 -- IDENTIFIED FLAW

Please note that a very seldom used feature in the UDEC Version 3.0 scientific and engineering software has been identified as faulty. Rui Chen describes (below) the narrow portion of the code that provides wrong thermal calculations.

If you have utilized this segment of UDEC Version 3.0 for studies/papers submitted to any of our clients, please contact me immediately.
Bruce

Forward Header
Subject: Fwd:to Run fr Branko
Author: Rui Chen
Date: 11/11/98 12:11 PM

As we talked earlier, there is a bug in udec30 that resulted in incorrect thermal calculations. Itasca found out that the code mistakenly takes single zone blocks as heat sinks. Therefore, if a specific model has many small blocks that are zoned as single zone blocks, the calculated temperature will be very wrong. Consequently, thermal stresses are incorrect. This indicates that the more single zone blocks a specific model has, the further off the thermal results are from the correct solution. The only case that this bug does not appear to affect the results is for models that do not have any single zone blocks.

Itasca claims that the problem is fixed by making the change described in the following e-mail message from Branko. I was just able to compile udec30 after making the correction and am in the process of testing it.

-Rui

Forward Header
Subject: to Run fr Branko
Author: <icg@itascacg.com >
Date: 11/3/98 2:44 PM

Rui,

This is the only change to your source needed to fix the bug:

In file udecom.inc
change:

. kbtem=25, kbdt1=26, kbthm=27, kbfix=28, kbdtm=29)
to:
. kbtem=25, kbdt1=26, kbthm=27, kbfix=27, kbdtm=29)

If you have any problems let me know.

Best regards,

Branko

Itasca Consulting Group, Inc.
708 South Third Street, Suite 310
Minneapolis, MN 55415, U.S.A.
(612) 371-4711 (phone)
(612) 371-4717 (fax)
icg@itascacg.com (email)

3/24
Please file in
UDEEC Software
Folder. *[initials]*

Date: 3/10/98
Sender: Simon Hsiung
To: Bruce Mabrito
Priority: Normal
Subject: Fwd: CODES AT CNWRA -Reply

Bruce;

FYI

Simon

Forward Header

Subject: CODES AT CNWRA -Reply
Author: "Mysore Nataraja" <MSN1@nrc.gov>
Date: 3/10/98 9:28 AM

Sally,

At present, no one on the staff is using the two codes --FLAC and UDEC. The Center is still using these two codes and paper work has been submitted by the Center in the past regarding Y2K compliance. Any additional paper work (if needed) is being handled by Henry Garcia at the Center.

>>> Sally Cornell 03/02/98 10:50am >>>

Mr. Nataraja - per our conversation earlier today, here's the information. Back on 9/16/97, Henry Garcia of CNWRA sent in a letter along with a chart which certified the Year 2000 compliance of codes used by CNWRA. For the two that you are shown as "cognizant individual" for, the CNWRA person who did the "certification" is shown below, along with any special information they included.

FLAC - Version not specified - tested OK - by S. Hsiung
UDEEC - Version 3 - tested OK - by S. Hsiung

Please, as we talked about, contact S. Hsiung and re-confirm with him/her that these codes are compliant. Then, if you will, just e-mail me back at SAC1 and let me know the results of your conversation. Right now the codes are shown on the NRC Agency table has having possible Year 2000 problems with a "fix schedule" of 2/27/98....

THANK YOU

sally c



RFC822.TXT

To: Bruce Mabrito at CNWRA-OS2
To: Simon Hsiung
CC: Linda Hearon at CNWRA-OS2
From: Pat Starkweather
Subject: TOP-018 Control of S&E software
05-13-97 11:09 AM

Mr. Mabrito;

Herewith notification that an S&E Software code has been placed under Version Control in accordance with TOP-018.

Details

Program Name: UDEC 3.00
Date Entered: 7 Jan 97
Control Method: SCCS
Location: mammoth:/lan/rcs/udec30

Only the core source code that is udec 3.0 was put under control; ancilliary / utility code is not under control.

Please notify me if an additional tape is required.

Pat Starkweather
x-5238

Information on Pages 8 through 24 contains UDEC Version 3.0 Manual copyright information and is therefore not included in this file.