Current state of SAGE CRISP 2D and 3D

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SAGE CRISP 2D

Version 5 is now available. This includes the following:

-Enhance Material Model Interface, allowing for easy implementation of new models.

-New HTML style on-line help using WebHelp instead of the obselete WinHelp

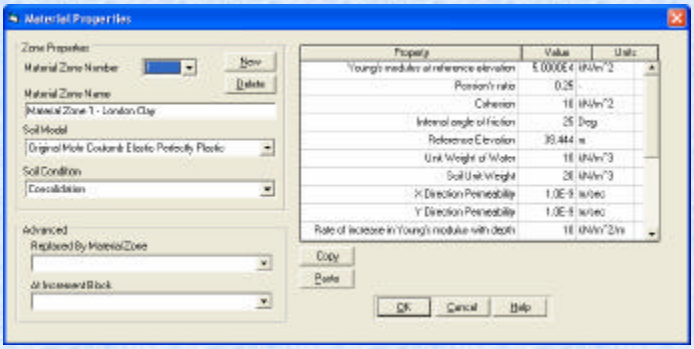
-Improvements to the printing facility which now produces landscape printing with improved display of legend details

-Addition of various contour plots and graphs for the post processor

-Corrections and improvements to the stop/restart facility

SAGE CRISP 2D, continued

For the developer, the most important feature in the above list is the material models interface. In the previous version, the material parameters where represented by non-latin characters which were coded in the GUI. In the new version, the parameters are read from a file which stores the parameters of each model. So providing the model is coded in the FE engine, it can easily be included in the GUI by amending the material properties table as listed in the text file CRISPMAT.DAT.



New featured being developed:

Mesh setup wizards allowing for quick creation of typical meshes such as tunnel mesh, retaining wall, embankment, etc. In this case the used would specify certain parameters defining the problem (eg tunnel diameter, depth, etc) and a SAGE CRISP 2D data file would automatically be created with appropriate mesh

State of CRISP FE engine:

This is now entirely in Fortran 90 making full use of dynamic memory allocations.
The soil models are coded in separate files and the code is available to developers as follows
•Main program (including solver and other main routines) in object linkable format (.obj)
•Selected soil models are provided as open source

Recent additions to the engine
In addition to the improvements above, the following have been added in the past year
•a new small strain stiffness model (Gunn II)
•New 3D tetrahedral element

New development for CRISP FE engine:

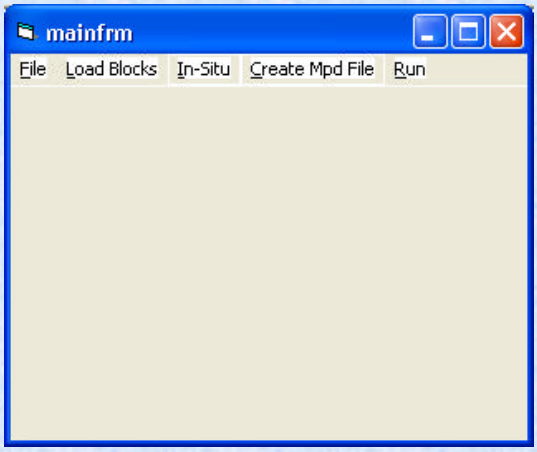
New models are being coded including:
•Matsauka Nakai rounded surface elasto plastic model
•Al-Tabbaa two surface kinematice hardening model

Solution algorithm is also being improved and a new substepping stress evaluation algorithm is being added

Fourier series solution for axi-symmetric problems with anti-symmetric loading is being added

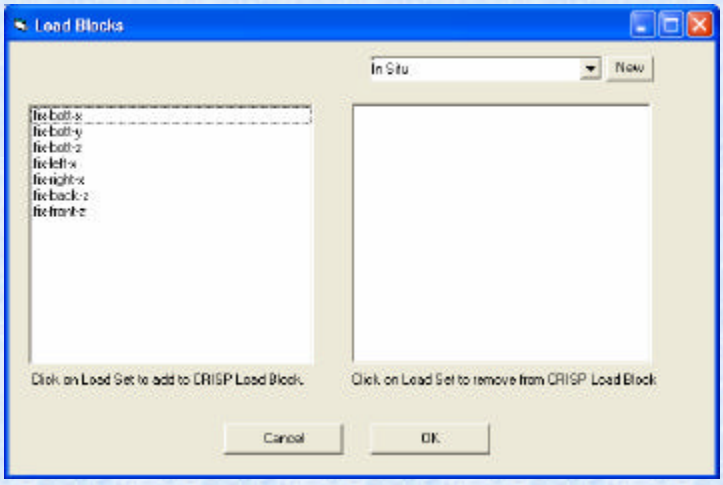
SAGE CRISP 3D

Currently, CRISP engine interacts with FEMAP via a Dos based translator. A new VB interface is being developed which would allow easy preparation of CRISP data from the FEMAP neutral file



SAGE CRISP 3D, continued

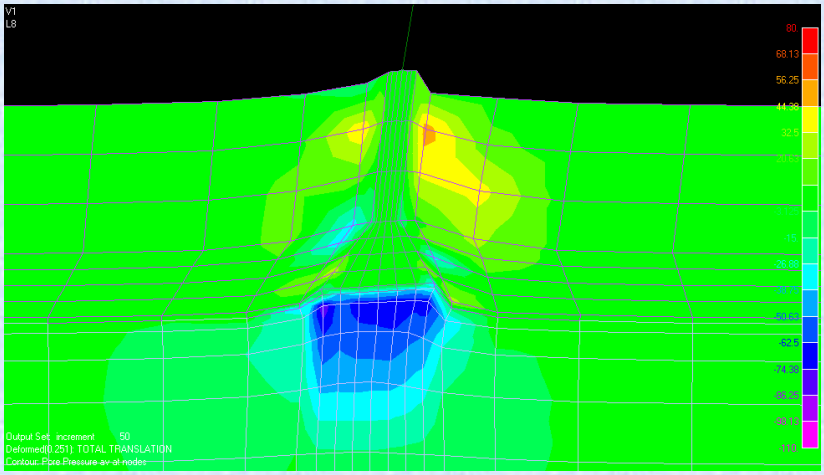
The new FEMAP-to-CRISP interface includes a load block builder which reads the load sets from FEMAP and enter them into newly created CRISP load blocks in the new MPD file. This feature would also be used to add or remove groups of elements as created by FEMAP which represents elements being added or excavated.



SAGE CRISP 3D, continued

Example of SAGE-CRISP 3D analysis.

Pull out of power pylon footing showing variation of pore pressure for undrained analysis (pore pressure is about the same as the applied pull out force)



SAGE CRISP 3D, continued

Example of SAGE-CRISP 3D analysis.

Observation of horizontal stress variation due to installation of piles