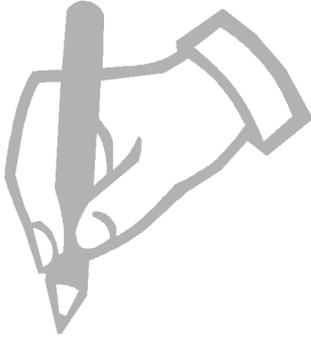




CRISP NEWS

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CRISP



Editorial

It has been a fairly busy summer for CRISP, and those associated with it. The first major event was the SAGE CRISP Course, followed immediately by the 1st CRISP Developers Conference - both held at Cambridge University but aimed at rather different audiences. Two months later, the 9th CRISP Users

Workshop was held at South Bank University - continuing a tradition stretching back to 1982. Short reports on all of these events are contained in this Issue of CRISP NEWS

Another milestone this summer was the establishment of The CRISP Consortium - an introduction to which you will also find in this issue. CRISP Users, whether new or of long standing, will be especially interested to hear about this organization, as it will be largely responsible for steering the future development of the program.

In addition to the UK-based courses and meetings mentioned above, CRISP has also been represented at a number of venues around the world, with more

overseas courses planned for later in the year. The CRISP-USERS discussion list at Mailbase has been put to good use over the past few months, with spirited exchanges taking place on a number of issues. If you have access to electronic mail and have not yet joined this list, you really should get onto it as soon as possible (see panel below).

In the next issue of CRISP NEWS we will be starting a regular series of short articles on different aspects of the program and its use. If you have any suggestions for such articles, I would be pleased to hear from you - especially if you are offering to write one!

Rick Woods

CRISP on the Internet

WWW Site

SAGE CRISP now has its own pages on the World Wide Web. the address is :

http://ourworld.compuserve.com/homepages/SAGE_Engineering

The site has been designed as an information source for users of CRISP and SAGE CRISP. It currently contains: an on line publication directory, contact information for CRISP around the world, frequently asked technical support questions and answers, and other interesting WWW sites to visit. Let us know what you think!

CRISP Users Discussion list

Join this list by sending the following e-mail message to "mailto:mailbase@mailbase.ac.uk":

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join crisp-users firstname lastname
stop
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(substitute your own names; do not include anything else in the message.) You will be added to the discussion list, and will receive instructions on its use.

Please remember that this list is a possible free forum for discussion on any aspect of CRISP. It has been set up by the users for the users. Technical support for SAGE CRISP should be done through SAGE Engineering-using the contact details below.



THE CRISP CONSORTIUM EXPLAINED

Many of you may have heard one of my presentations on the CRISP Consortium or discussions involving the Consortium over the past six months. Few people, however, have fully understood the significance of the CRISP Consortium for the future of CRISP. In this article I will try and unravel some of the mystery.

Over the past five years, development of the CRISP finite element "engine" has taken place outside of Cambridge University, without a global framework or direction. There has been a great deal of development of CRISP, but this knowledge is rarely communicated effectively. Hence, the effort going into these developments is not being fully exploited. Most CRISP developments often stay within the environment in which they were developed; they are not officially incorporated into the authorised version of the program, and are not widely distributed.

The new SAGE CRISP interface has dramatically increased the use of CRISP. Since the beginning of the year, more than three times the average number of new users per year have purchased the program (this factor is expected to have risen to nearer four by the end of 1996). There has also been a reopening of communications with users and developers in other countries.

The considerable number of abstracts submitted to the 1st CRISP Developers Conference in July were testimony to the interest

which exists in developing the engine. To try and channel available resources, key members of the CRISP community have come together to form The CRISP Consortium Ltd, which has three basic goals:-

- To steer and implement the development of the official CRISP code
- To run training courses world-wide for SAGE CRISP
- To provide specialist consulting expertise using SAGE CRISP

The CRISP Consortium will develop the CRISP code using two methods. Firstly it will fund the general maintenance and upgrading of the main engine. Secondly, it will incorporate research and development work being carried out by various universities into a common version. The CRISP Consortium will employ a professional finite element programmer who will initially go through a period of apprenticeship with Mike Gunn and Arul Britto. He/she will then be responsible (under the guidance of the Consortium) for implementing agreed changes to the finite element engine.

Thus universities will be able to use CRISP to develop and implement their latest areas of research. They will then be able to submit their research and code to the CRISP Consortium for addition, where appropriate, to the official version. This will give other developers and users access to up-to-date theories and models in a user-friendly environment. One of the key roles of the

Consortium will be to ensure that any code added to the main program is fully validated and verified, which will require the programmers to have a full understanding of the program. The potential benefit for both research institutions and SAGE CRISP users is enormous.

The current members of the CRISP Consortium are:-

<i>Malcolm Bolton</i>	Cambridge University
<i>Mike Gunn</i>	South Bank University
<i>Arul Britto</i>	Cambridge University
<i>Roger Chandler</i>	SAGE Engineering
<i>Rick Woods</i>	Surrey University
<i>William Powrie</i>	Southampton University
<i>David Muir-Wood</i>	Bristol University
<i>David Richards</i>	Southampton University
<i>Andrew Chan</i>	Birmingham University
<i>Sarah Stallebrass</i>	City University

Discussions are currently underway with potential candidates for the programmer position - however, readers are invited to contact me if they are aware of other suitable candidates. Also, if you would like to discuss the possibility of implementing the outcomes of any research which your organisation has completed, or would just like to discuss these ideas in greater detail please contact me at the CRISP Consortium.

*Roger Chandler (Director)
The CRISP Consortium Ltd*



Cambridge SAGE CRISP Course Review

The unique pull of Cambridge University in the summer and the successful history of the CRISP course managed to attract 28 delegates to the Cambridge SAGE CRISP course in July. Delegates from Singapore, Korea, South Africa, Italy, Lithuania and the UK enrolled on the 4 day course which covered theoretical soil mechanics, FE analysis, hands on experience with SAGE CRISP and practical contributions from UK consultants and academics.

One of the most important parts of the course (and, judging from course feedback forms, one of

the most appreciated) was the refresher on Critical State Soil Mechanics. The task this year was expertly tackled by a new combination of lecturers on the course - Prof. William Powrie, Prof. Andrew Schofield and Prof. David Muir-Wood.

The new interface to the program also added to the success of the course. For the first time in the history of the course there was a general feeling that perhaps too much time was allocated to hands-on experience, with many delegates managing to complete a couple of moderately complex

analyses in around 5 hours. The program received praise for the ease of use and the quality of the manuals (all but two delegates now have their own copy!).

One of the aims of the course has always been to provide a friendly and relaxed learning environment, where interaction between the lecturers and the delegates is encouraged. Judging by the high level of social interaction between the resident guests and the lecturers, and the popularity of trips to the local hostelrys after dinner, this aspect seems to have succeeded.

Roger Chandler



9th CRISP Users' Workshop

This year, the Users' Workshop was held at South Bank University on 13th September - the first time it had been hosted by a London institution for nearly ten years. As always, the presentations covered a wide range of topics, including theoretical aspects and practical applications. The usual high level of informality and participation was present, with good interaction between speakers and audience. It was evident that CRISP continues to be a versatile tool, with a growing list of successes to its credit.

There will be another Users' Workshop next year - probably at the same time (late September), with the venue to be confirmed in due course. As it will be the 10th Workshop, no doubt the occasion will be marked in some suitable manner.....

Rick Woods

Speakers and topics were:
Use of AutoCAD to produce CRISP meshes

A Swain

Use of Simpson's "brick" model in retaining wall analysis

D J Press

Tunnels in Layered ground

R J Grant

Back-analysis of geotechnical failures using CRISP

R I Woods

Construction sequences using elements with in-situ stresses

S E Stallebrass

Analysis of unconsolidated soils

M J Gunn

Multiple tunnels in close proximity

A Swain

The CRISP WWW site

R Chandler

CRISP User Support

G R Watson

1st CRISP Developers' Conference

The 1st CRISP developers' conference was held at the University Engineering Department in Cambridge on Friday 19 July 1996. The day comprised eight half-hour presentations by different researchers, each of whom described a development of CRISP with which they had been involved.

Most of the presentations concerned the implementation of a new soil model (e.g. the Simpson Brick model and a three-surface kinematic hardening model) or an associated feature (e.g. non-associative flow and cross anisotropy), but some were of a more general nature.

The conference provided an excellent forum for the discussion of recent developments and modifications to CRISP, at which the merits (and in some cases demerits) of various developments were debated in quite a lively manner. It is to be hoped that the developers' conference enters the calendar alongside the users' meeting, as a regular annual or biennial event

William Powrie

Dates for your diary

3rd - 6th February 1997 - Introduction to geotechnical numerical modelling using SAGE CRISP. AIT Bangkok, Thailand. Contact Prof Balasubramaniam (phone (66-2) 516011029)

2 - 4 July 1997 - 6th International Symposium on Numerical Models in Geomechanics (NUMOG 6), Montreal, CA - Contact: G.pande@uwcs.ac.uk

9-11 April 1997 - NAFEMS World Congress '97, University of Stuttgart. Contact: tkenny@nafems.org

Speakers and topics were:

Implementing non-associative elasto-plastic models in CRISP

A H C Chan

3D interface element / Nonlinear elasticity for small strain stiffness

M J Gunn

A nonlinear cross-anisotropic elastic model for CRISP

N Pierpoint

Development of GeoFEAP

K Soga

Implementation of the three-surface kinematic hardening model in CRISP

S E Stallebrass

Constitutive modelling of unsaturated soils using hyperelasticity and other work with CRISP

I C Pyrah

Implementation of the Naylor continuous plasticity critical state model in CRISP

R I Woods

Implementation of the Simpson brick model in CRISP

R Chandler

Modelling the Lowering of Water table in Excavations under Transient Coupled Flow and Deformation using CRISP. Implementation of the Hysteretic Compaction in CRISP

M S S Almeida

CRISP Modified for Large Displacements, Ground Water Flow, Seepage and Slope Failure

M Budhu

A 2D Unstructured Mixed Element Generator for CRISP. Adding Mesh refinement to CRISP

El Hamalawi

Development to CRISP at the centre for Soft Ground Engineering (CSGE), National University of Singapore

F H Lee

Modification of the Interface Element in CRISP90

P Ng

Analysis of Embankments on Soft Ground Incorporating Basal Reinforcement and Vertical Drains

I C Pyrah

Implementation of Elastic-Visco-Plastic Constitutive Model for Soft Clays

F Soccodato

In future issues....

- Modelling hinged connections in retaining structures
- Company profiles
- Who's who in the CRISP world
- Other geotechnical and/or finite element Web sites