

Havana development 2004

SAND/09/04

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Abstract: This document reports on the work carried out within Havana research and development in 2004.

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Target group: Havana sponsors

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1 Improved parametric fault model

Up to and including version 5.2 of Havana the fault pillars were treated in a peculiar way internally in the code. The pillars were homogenized so that they all had equal vertical lengths. The motivation was that this lead to simplified mathematical expressions and consequently, simplified code for the parametric fault model (PFM). Unfortunately, it later became apparant that this simplification caused severe problems with crossing pillars and invalid PFM models.

A main objective with this year's development was to remove this restriction in the Havana code. The following modules were affected

- PFM
- Pfm2PfmEclipse
- Eclipse2Pfm
- InputParametricFaults
- SimulatePFM
- StructuralModelling

The changes have been made, tested and released to the Havana users on 2004-10-23 in Havana Belabusto (version 5.3).

2 Support for new file formats

2.1 Fault file format

The Norwegian Computing Center (NR) and Roxar Software have agreed to implement a new common fault file format in order to simplify communication between RMS and Havana. The advantage is that Havana will then no longer depend on the undocumented file formats of RMS. The new format is called RMS Pillar Format (RPF) by Roxar and Open Fault Format (OFF) by NR.

On the Havana side we have implemented two conversion actions, OFF2PFM and PFM2-OFF to allow conversion to and from the new file format.

2.2 Well file format

The export to RMS Ascii Well format has been removed from RMS in version 7.3. Therefore we have added support for the simple xyz Ascii file format for well paths. This functionality is available in the released Havana Belabusto (version 5.3).

3 Increased robustness of the action IntoPermeability

The permeability computations for Eclipse grid cells with degenerated sides have been improved so that more cases are handled with greater accuracy.

4 General improvement

The effort to increase the quality of the code has continued. More self-consistency tests have been added at compile time and in the testing phase.

In addition to bug fixes, some error messages and warnings have been given more comprehensible texts, and the User's Manual have been edited.

5 Available platforms

Havana is now available for the following platforms:

Linux i686 (32 bits) optimized for Intel pentium pro architecture.

Linux x86_64 (64 bits) optimized for AMD k8 architecture.

Sun Sparc v9 (64 bits)

SGI IRIX (32 bits) support for this platform is deprecated*

6 Conclusion

The work suggested in the project proposal *Forkastninger og strukturell usikkerhet. Videreutvikling av Havana i 2004* (Faults and Structural Uncertainty. Havana development 2004) has been carried out and the results have been delivered in the Havana Belabusto software release.

*SGI will only be supported as long as our old SGI box is living