

Appendix I

ALSTOM Product Developments

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Abstract

Overview of new features introduced in the latest versions of the products.


Thermal & ECLS Software Workshop

ESATAN-TMS Development Status

2008

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Introduction

Presentation of recent developments

- New layout for the ESATAN-TMS workbench
 - Permanent set of menus now available
- Additional Geometry Building Capabilities
 - Shell Assignment
- Modelling Time & Temperature Dependency
 - Support for boundary condition & thermal properties
- Non-Orbital (ground-based) Analysis support
 - Extended support of the Radiative case
- Extended Analysis Case Tree Menu Options
 - Fast and efficient way of performing operations

Introduction

Presentation of recent developments

- New Utility Menu for complete thermal tool integration
 - Direct launch of ThermNV, Parametric Manager...
- Support for new HDF result data file
 - Compatible with all of ESATAN-TMS
 - More scalable and smaller file
- Improvement for transient solver SLCRNC
- Maintenance and Enhancement
 - Pre-processor error message improvement
- ThermNV new display label
 - Units, etc

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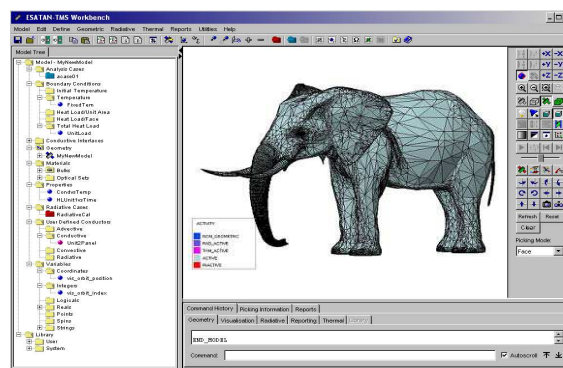
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Introduction

Live Demonstration

- Importing an ESATAN Thermal Model into ESATAN-TMS Workbench
- Non-orbital (ground-based) Thermal Analysis Example



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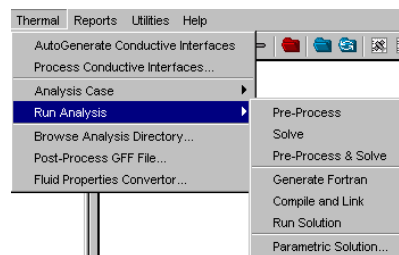
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ESATAN-TMS Workbench – New Layout

- Focus to Streamline the complete thermal modelling process
 - Efficient environment/less error prone
 - avoid learning multiple interfaces
- New set of permanent menus
 - Model, Geometric, Radiative, Thermal



- Dedicated Thermal menu with special care for our PcESATAN users



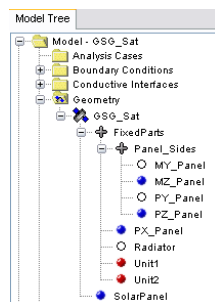
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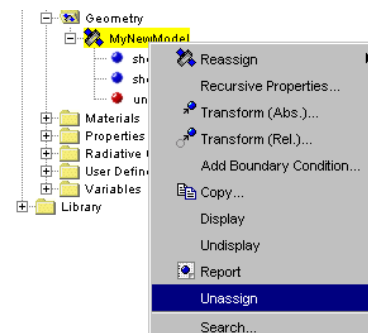
ESATAN-TMS Workbench – Shell Assignment

- Development to support CAD and FEM model
 - Removal of some modelling restriction



- Top-down geometry building approach
 - Shell can now be defined as placeholder

- Overall Model unassign facility
 - Following user request on easing the process of model building



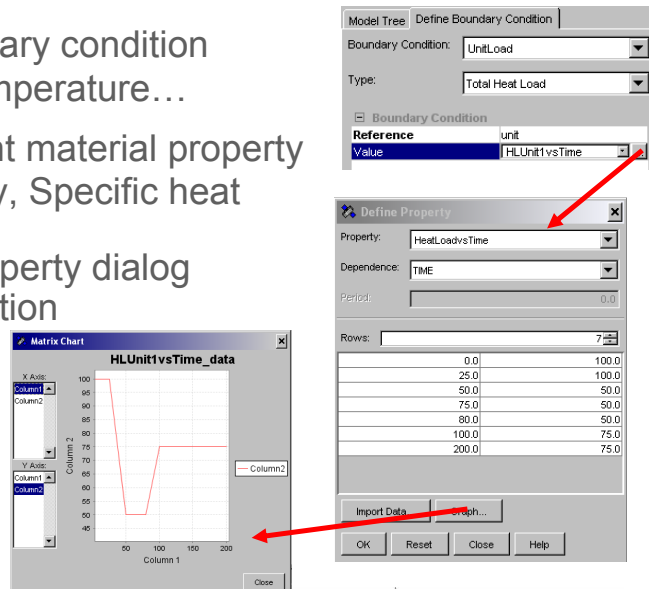
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ESATAN-TMS Workbench – Modelling Time & Temperature Dependency

- Direct extension of work released in last version as part of ESARAD 6.2
- Time dependent boundary condition
 - Heat load, Fixed temperature...
- Temperature dependant material property
 - Density, conductivity, Specific heat
- Definition through a property dialog with quick visual inspection



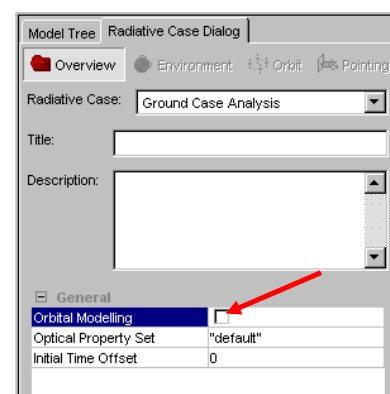
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ESATAN-TMS Workbench – Non-Orbital Analysis

- Non-orbital radiative analysis requirement
 - Satellite in test chamber
 - Component in casing
 - Internal parts of engine
- Extended Radiative Case support
 - Orbital modelling flag
 - Disable mission related dialogs
- Easy generation of the thermal model using the analysis case functionalities
 - Template file
 - Chaining of radiative case results



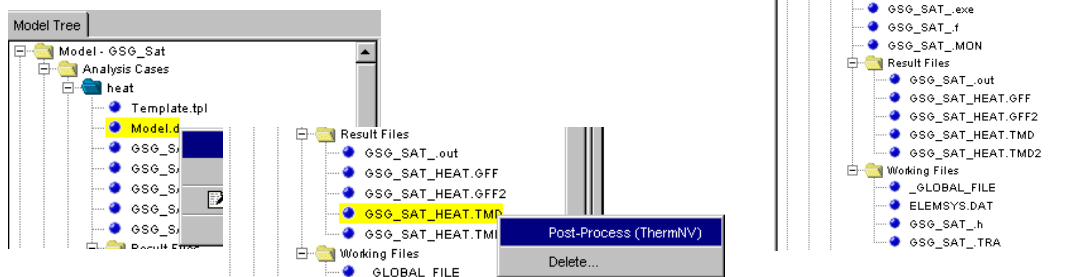
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ESATAN-TMS Workbench – Analysis Case Tree Menu Options

- Implementation of a fast and efficient way of performing operation
 - User model files sorted in dedicated order
- Extended interactive model tree options
 - Dedicated Right click menu on specific files
 - Double click option on opening text file



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Conclusion

- ESATAN-TMS streamlines the complete thermal modelling process
- Enhanced functionalities of Pcesatan
- ESATAN-TMS Workbench is a fully integrated solution for thermal analysis

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