

First Experience by Using the PC-Versions of ESATAN and ESARAD

Advantages and disadvantages by switching from workstation version to PC-version

Errors in the programs and suggestions for improvement

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Jena-Optronik GmbH

The Jena-Optronik GmbH is an operationally independent company within the EADS corporation. It was founded in June 1992 from research and development capacities of the former Carl Zeiss JENA.

Today at our company work about 115 employees.

The research and development potential of the company Jena-Optronik covers all the know-how necessary for the design, assembly and testing of optical and opto-electronic instruments.

The Jena-Optronik company is engaged in the fields

- Opto-electronic sensors and instruments for aerospace applications
- Operation of Earth observation sensor systems and data management
- Development and delivery of products, derived from space technologies, as well as corresponding engineering services

History

Our employees have gained special experience in space instrumentation during 25 years of complex project realisation for manned and unmanned space missions.

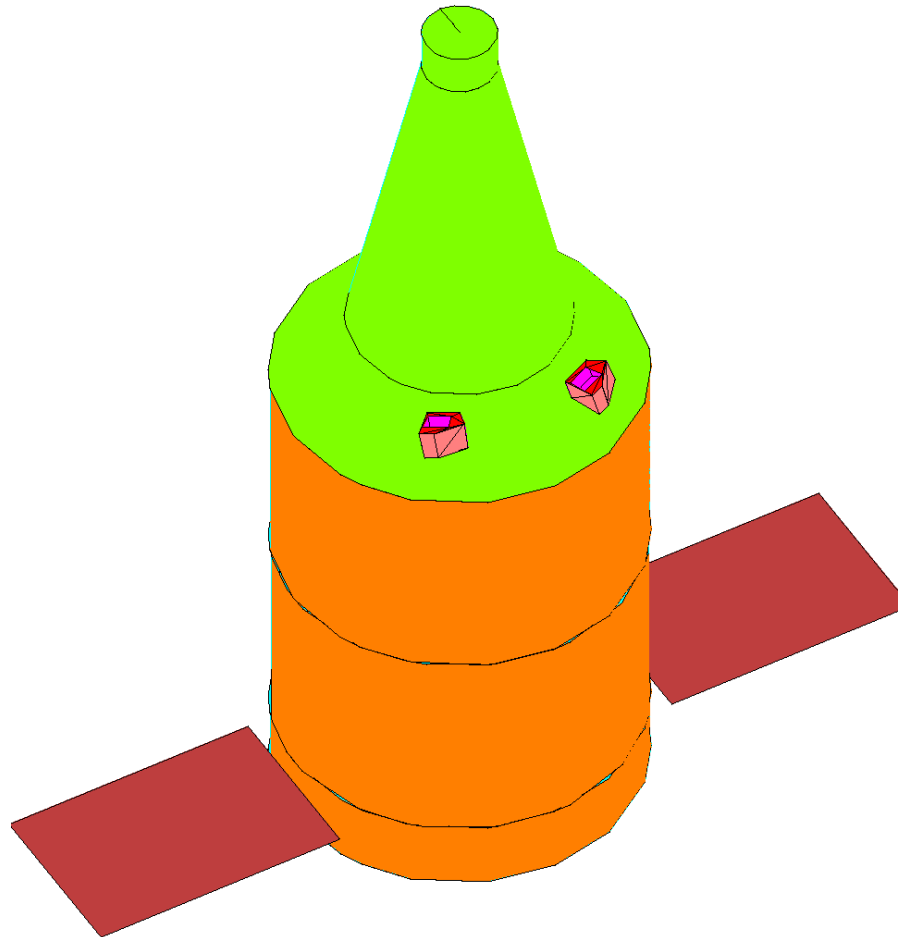
Software

S/W package	Version	Date of first installation
ESATAN	8.5 at PC	November 1993
ESARAD	4.1.4 Beta at PC	September 1995
ESABASE	5.1.2 at unix-workstation	August 1998

There is one thermal design engineer in a group of engineers for optics and electronics.

Daily Work

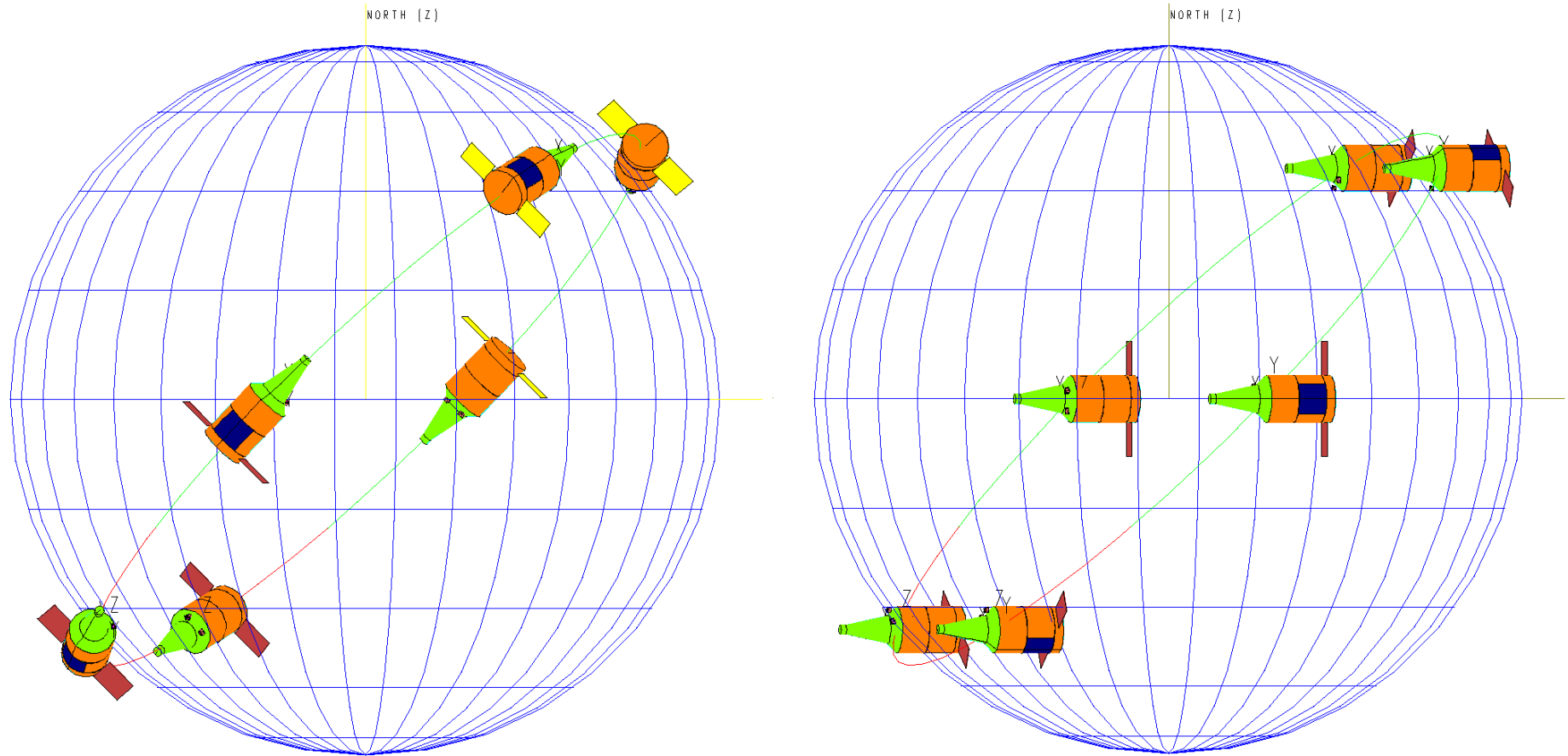
Rendezvous sensor
mounted at ATV



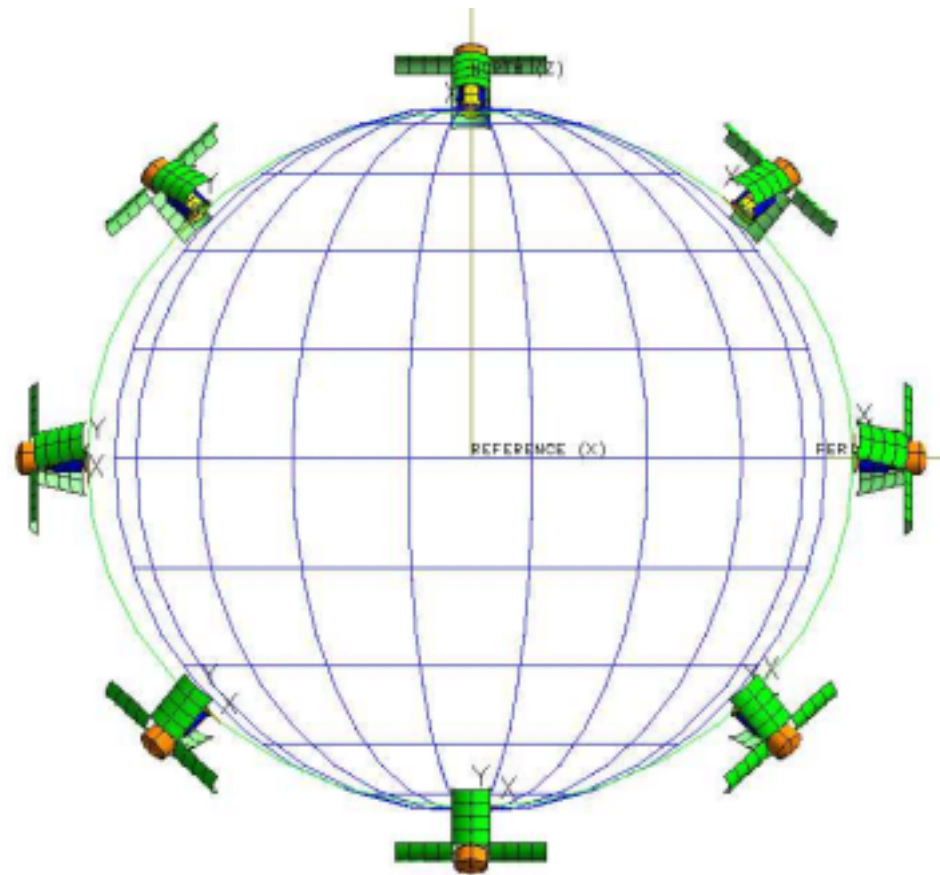
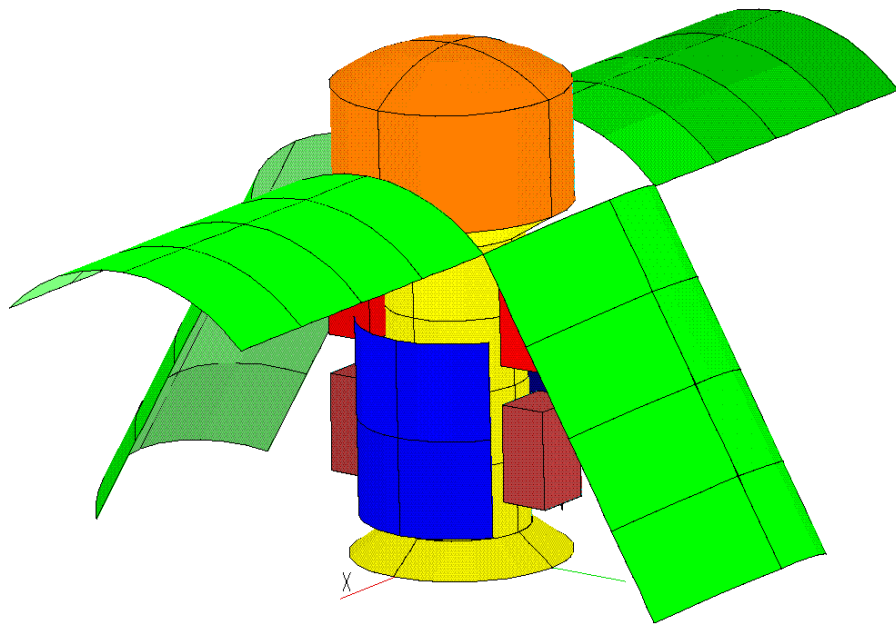
PC versions of ESATAN and ESARAD

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First Experiences



MEGA-Project



ESARAD version 3 to 4 — Changes

Oracle Data base is no longer used

Java run-time environment is necessary

Installation is easier

No data base administration

Requirements to the computer are higher

Installation on my unix machine was possible, but you cannot work with it. Waiting time for each menu point is about 10 seconds

Conclusion:

Stay on ver 3.2.7 and waiting for a better machine

Unix-ESARAD to Pc-ESARAD

Affected Modules	Problem	Solution
All	Copy and paste with old logfiles into the command history window is only possible by ignoring the lines BEGIN_MODEL and END_MODEL.	minor problem
Visualisation	Ability for Dump of results (“coloured temperature plots”) is not available *** Warning Error: current function is yvp_interface *** Thermal Pre/Post-Process Overlay: Failed to find the extraction utility	no solution known
ESATAN model creating	creating ESATAN-modelfile including submodels: In the GR-list you can find in some cases two “:” example: GR(3000, BAFFLE::2600) = 1.0;	use of a text editor and change the “:”

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Affected Modules	Problem	Solution
ESATAN model creating	Sometimes capacities are calculated but not in all cases. Why?	must be manually added
Visualisation	Export into GIF-File: Result file is not readable by other programmes.	feature is not usable
Geometry dump	Export of full model geometry: For the type "SHELL_SCS_RECTANGLE" parameter height will be not exported.	must be manually added
Geometry dump	ESARAD language: bulk1=[density, specific heat, conductivity] ESARAD 4.1 exported: bulk1=[specific heat, density, conductivity]	change the values by hand
Visualisation	Change of background colour leads to program crash in about 80% of all changes	restart of ESARAD necessary

Unix-ESATAN to PC-ESATAN

Affected Modules	Problem	Solution
Fortran language	List of variables following a WRITE-command: brackets are not allowed correct: WRITE(52,'(A,A)') CHAR(9), case_description false: WRITE(52,'(A,A)') (CHAR(9), case_description)	changes in older models are necessary
Internal editor	“Del”-key deletes the character left from cursor and not right from cursor like usual	
Internal editor clipboard	Copy result with Ctrl-C is not in the Windows clipboard, but only in an internal PC-ESATAN clipboard.	
Internal editor	@-character is not possible to input (only via Alt-Gr-0064)	
GUI	In ESATAN-Model-directory-tree it is not possible to use subdirectories.	only one level is allowed

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Affected Modules	Problem	Solution
Pre-processor	ESARAD Flux-Tables are not readable in ESATAN \$TABLE: 1.87142E-006 "Invalid expression" 1.87142E-06 is ok	use of a text editor to change the numbers

ThermXL

AddIn for Microsoft Excel: Run time error 1004. It is not possible to use the software up to now.

Conclusion

Suggestions for Improvements

ESATAN

Stable, no significant problems

ESARAD

Not 100% stable, some bugs require intervention by the user

- Use of orbital arcs preferred
- Better post-processing capabilities preferred

ESABASE

User interface is difficult to operate (not up-to-date)

Graphical control of the actual model status is not possible

Variables are not available.