

*COMPUTER AIDED ANALYSIS
OF SOLAR
WATER HEATERS*

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SUMMARY OF THE PROJECT.

The objective of this project was to develop the appropriate computer software, in order to predict the performance of a (D.H.W) hydroptic type system.

This project provides a comprehensive account of the principles of solar energy needs. It begins with a detailed treatment of solar radiation and provides some formulas, tables for the evaluation of some outcome elements. A review of heat transfer by convection and radiation and properties of materials relevant to solar processes are provided.

It shows the theory to model a hydroptic type solar collector. By the modelling of the collector, its performance can be evaluated. All the formulas, and the theory needed in the evaluation of the performance of the collector is presented.

The theory of the storage system is presented too, for both stratified and unstratified storage unit. All the derived from books formulas are included.

After the modelling of the storage system and the presentation of its theory this project provide all the necessary information, formulas, controls for the simulation of its performance.

Not only the prediction of the performance of a system theory this project presents, but and a chapter on the economic factor, which shows the theory and the formula for the evaluation of the economics of the modelled system.

After the presentation of the theory a users manual for the developed software is provided, in order to run this program smoothly as much as easy. Flow charts are provided, to show how the program works to do the simulations.

Finally one diskette is available in the project with the developed software stored with the name (FOSS).

This developed program provides comprehensive information on the functions, design and economics of solar thermal processes for researchers, designers, engineers and students.

C O N T E N T S

ACKNOWLEDGEMENTS -----	[1]
PREFACE (INTRODUCTION) -----	[3]
CHAPTER 1 --- [4 - 8]	
1.1 THE SUN -----	[4]
1.2 SOLAR CONSTANT -----	[5]
1.3 SOLAR RADIATION -----	[6]
1.4 DIRECTION OF BEAM RADIATION -----	[8]
CHAPTER 2 --- [11 - 52]	
2.1 FLAT PLATE COLLECTOR -----	[11]
2.2 RADIATION TRANSMISSION THROUGH COVERS AND ABSORPTION BY COLLECTORS -----	[21]
2.3 OPTICAL PROPERTIES -----	[27]
2.4 TRANSMISSION FOR DIFFUSE RADIATION -----	[30]
2.5 TRANSMITTANCE - ABSORPTANCE PRODUCT -----	[32]
2.6 ABSORBED SOLAR RADIATION -----	[34]
2.7 MONTHLY AVERAGE ABSORBED SOLAR RADIATION-	[35]
2.8 COLLECTOR OVERALL HEAT LOSS COEFFICIENT--	[37]
2.8.1 Top loss coefficient-----	[37]
2.8.2 Back loss coefficient-----	[41]
2.8.3 Edge loss coefficient-----	[42]
2.9 COLLECTOR HEAT REMOVAL FACTOR-----	[43]
3.0 EFFECTIVE TRANSMITTANCE PRODUCT-----	[48]
3.1 N-COLLECTOR CONNECTED IN SERIES-----	[50]
3.1b OUTLET TEMPERATURE AT Nth COLLECTOR-----	[52]
CHAPTER 4 --[53 - 58]	
4.0 ENERGY STORAGE -----	[53]

CHAPTER 5 ---[59 - 63]

5.0 SYSTEM MODELLING (analysis)----- [59]

CHAPTER 6 ---[64 - 65]

6.0 ECONOMIC FACTORS ----- [64]

USERS MANUAL ----- [66]

FLOW CHARTS ----- [84]

CONCLUSIONS ----- [88]

APPENDICES ----- [90]