

Training Opportunity for Portuguese Trainees

Reference	Title	Duty Station
PT-2015-TEC-MT	Thermal modelling and analysis (ESATAN-TMS)	ESTEC
<p><u>Overview of the Unit missions:</u></p> <p>The Thermal Division TEC-MT is the centre of competence of the Agency in all areas related to thermal design, engineering and verification. It provides support to projects, preparatory programs and technology programs. Within this frame, the Thermal Control Section TEC-MTT is in charge of all thermal and environmental control aspects, and the Thermal Analysis & Verification Section TEC-MTV is the focal point for analytical methods and software tools as well as experimental/test services executed in the Mechanical Systems Laboratory.</p>		
<p><u>Overview of the field of activity proposed:</u></p> <p>1. Thermal modelling and analysis: Perform thermal modelling and analyses including steady state/transient analyses of instrument and satellites.</p> <ul style="list-style-type: none"> - Familiarisation with project requirements - Training with the tools (ESATAN-TMS) - Definition of modelling assumptions - Model construction - Definition of worst design cases - Model checks and execution of analyses - Post-processing and evaluation of analysis results <p>2. Analysis methods and tools: Identify, assess and prototype advanced algorithms to improve thermal analyses capabilities, parameter variation/sensitivity analysis/design optimisation/accuracy estimation in combination with stochastic methods</p> <p>3. Analysis tools in support to testing activities: real time model correlation vs test data, spatial and temporal extrapolation of measured temperatures, error localization in models to support the correlation, effect of convection during test at ambient pressure. Contribute to development and validation of: ESATAN-TMS/FHTS (thermal/thermo-hydraulic analysis package).</p> <p>4. Correlation of models using flight data. Gather feedback from flight on the thermal performance of spacecraft by using telemetries obtained from the satellite operation in space. Update of the thermal model to reproduce the flight conditions (operational mode, measured dissipations, attitude and orbital parameters), execution of the analyses and comparison of predicted and measured temperatures. Investigation of the discrepancies to highlight lessons learned on the modelling assumptions and applied margins.</p>		
<p><u>Required Education:</u></p> <p>Applicants should have just completed, or be in their final year of a University course at Masters level in a technical or scientific discipline.</p> <p>Candidates must be fluent in English or French, the official languages of the Agency.</p> <p>Candidates should have good interpersonal and communication skills and should be able to work in a multi-cultural environment, both independently and as part of a team.</p> <p>Specific required knowledge is different, depending on the field of activity selected:</p> <p>Physics, thermal / mechanical engineering university degree or equivalent, with basic knowledge of thermodynamics, radiative and conductive heat transfer, thermal analysis, fluid/thermal simulations and numerical methods.</p>		