

My Internship at ESA/ESTEC

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"Estágios tecnológicos no CERN, ESA, ESO"

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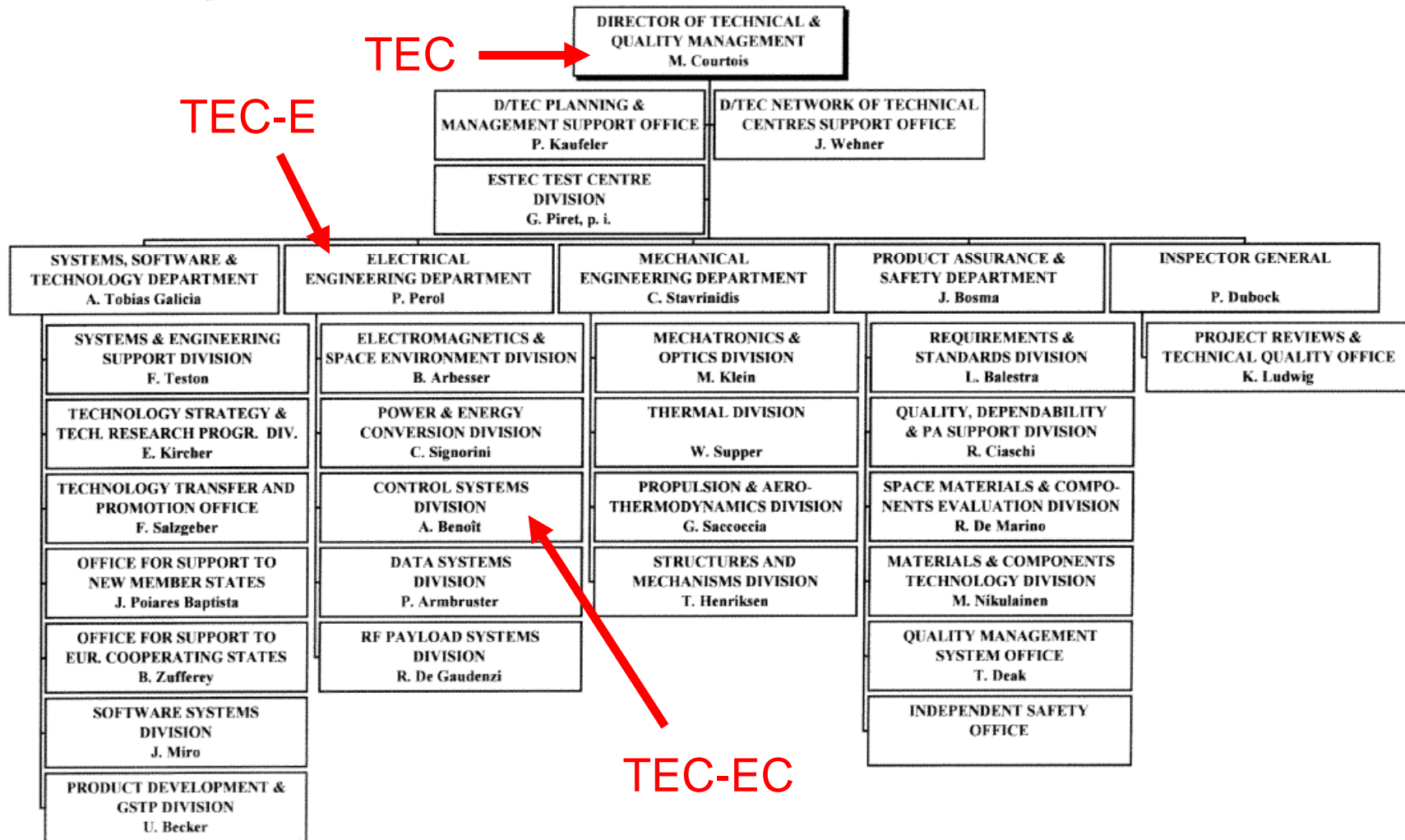
My Work Place: ESA/ESTEC

- The *European Space Research and Technology Centre* (ESTEC) is the largest site and the technical heart of *European Space Agency* (ESA)
- It is located in Noordwijk, The Netherlands



My Section: TEC-ECM (1)

- My section is the *Dynamics and Mathematical Analysis Unit* (TEC-ECM)
- TEC-ECM belongs to...



- Some fields of expertise of TEC-ECM are:
 - Optimization and analysis of space trajectories such as ascent, loitering, interplanetary, rendezvous, low-thrust, and re-entry trajectories



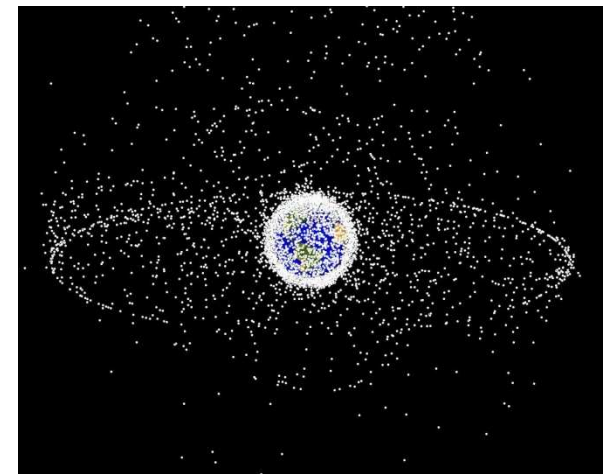
- Some fields of expertise of TEC-ECM are:
 - Optimization and analysis of space trajectories such as ascent, loitering, interplanetary, rendezvous, low-thrust, and re-entry trajectories
 - Astrodynamics
 - Mathematical modelling of dynamic systems
 - Optimization algorithms such as local, global, multi-objective, multi-disciplinary, and mixed-integer optimization algorithms

My Internship (1)

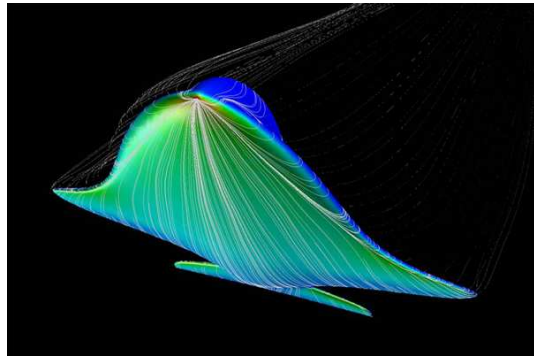
- From April 2008 to March 2011
- Previous projects:
 - Technical support to PROBA-V satellite



- Analysis of conjunctions between objects in orbit



- Current projects:
 - Analysis and design of re-entry, Terminal Area Energy Management (TAEM), and landing guidance systems



- Optimization and analysis of ascent trajectories of Ariane 5 ECA and Vega



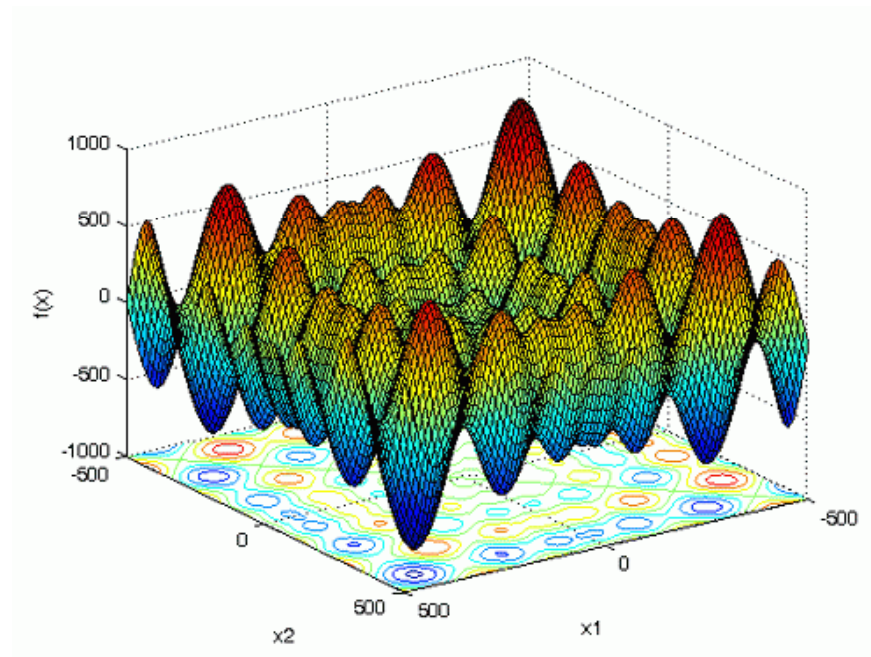
- Current projects:
 - Technical support to PROVA-3 satellites (e.g., analysis of space radiation effects)



- Technology support to the European Re-Entry Black Box and SHARK re-entry capsules



- Current projects:
 - Research and Development (R&D) of a global optimization toolbox based on Interval Analysis (guaranteed global optimization)



- Supervision of a Aerospace Engineering student from *Instituto Superior Técnico* (IST), Portugal, working on space trajectory analysis

- Current projects:
 - Organization of the 4th *International Conference on Astrodynamics Tools and Techniques* (ICATT); *European Space Astronomy Centre* (ESA/ESTEC), Madrid, Spain; 3-6 May 2010

