

Introduction

PROMES is a Research Unit of CNRS (UPR 8521) belonging to the Institute for Engineering and Systems Sciences (INSIS) under contract with the University of Perpignan (UPVD). The laboratory is located in three sites: Odeillo-Font Romeu (Solar Furnace facilities), Targasonne (Central receiver facility) and Perpignan, Tecnosud site. CNRS and UPVD have created the IN'SOL Unit devoted to solar innovations that is supported by PROMES in Tecnosud site.

Gilles Flamant and Laurent Thomas are respectively the Director and the Deputy Director of PROMES.

The laboratory staff includes 160 persons (among which 90 permanent staff) from CNRS and UPVD working together on a common subject, solar energy development. PROMES hosts about 45 PhD students, 15 post-doctorate fellows and engineers and about 20 master students per year.

PROMES is organized in 7 research groups and 7 technical and scientific departments. The main research fields are “materials and extreme conditions” and “conversion, storage and transport of energy” as shown in Figure 1.

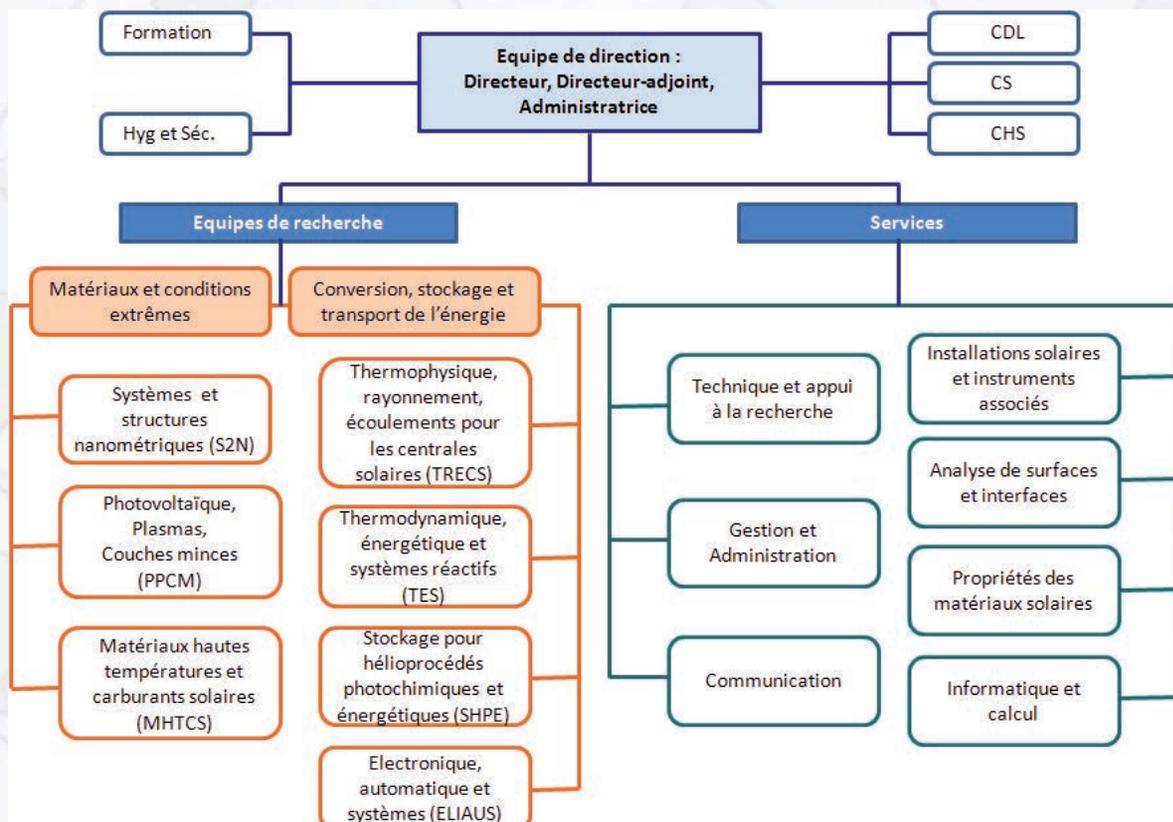


Figure 1: Structure of PROMES laboratory

PROMES leads the laboratory of excellence SOLSTICE (Solar Energy: Science, Technology and Innovation for Energy Conversion) whose partners are: University of Perpignan, CNRS, University of Montpellier 2 (IES laboratory) and Albi School of Mines (RAPSODEE laboratory). It also leads the equipment of excellence SOCRATE (Concentrated Solar Energy, Advanced Researches and Energy Technologies) that is the National Platform on concentrated solar energy. This platform includes the CNRS solar facilities in Odeillo-Font Romeu and the Themis solar tower. This large research infrastructure named FR-SOLARIS is the French node of the EU-SOLARIS European project that aims at linking together the European concentrating facilities under her umbrella of the ESFRI initiative. Thus, one of PROMES' original missions is to develop researches with the large scale concentrating facilities of both CNRS in Font Romeu (particularly the solar furnaces) and "Pyrénées Orientales" Council in Targasonne (Themis central receiver plant). These researches may be carried up to the demonstrator level as currently done for the PEGASE project.

PROMES' professors, assistant-professors, researchers and engineers are deeply involved in training at the University of Perpignan. They especially manage the Doctoral School "Energy and Environment" (ED 305), the Master degrees in the fields of "Solar Energy", "Electronics, Automatic Control and Computer Science", and "Solar thermal Energy" (as a EUREC European master Specialty); and Engineer degrees in the frame of the "Renewable Energy Department" of PolyTech Montpellier at Perpignan and of the "SupEnR"

Engineering school of UPVD that will start in September 2016.

At regional level, PROMES is the key laboratory of the DERBI Cluster (Development of Renewable Energy for Building and Industry) and participates to the Cluster management.

The reader will find in this report a summary of the main results obtained by the Laboratory during the period 2013-2015. These research works have been co-funded by many partners such as Agencies (ADEME, ANR, CNES, NASA, etc), the European Commission and Companies that are cited in every related action. Thank you to all these partners that contribute to our scientific and technological advances.

Gilles Flamant

Director of PROMES-CNRS