



Head office:

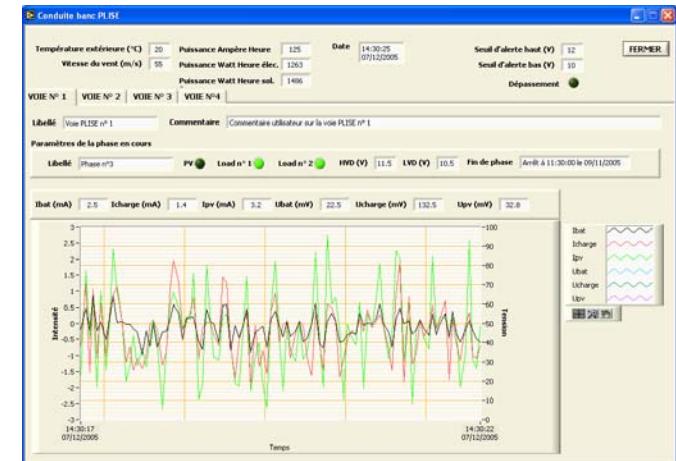
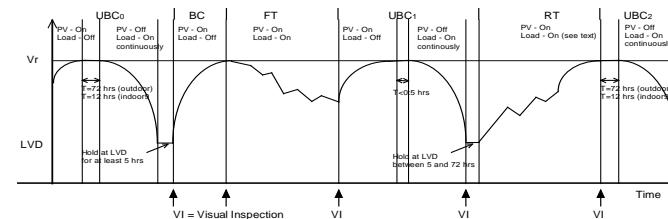
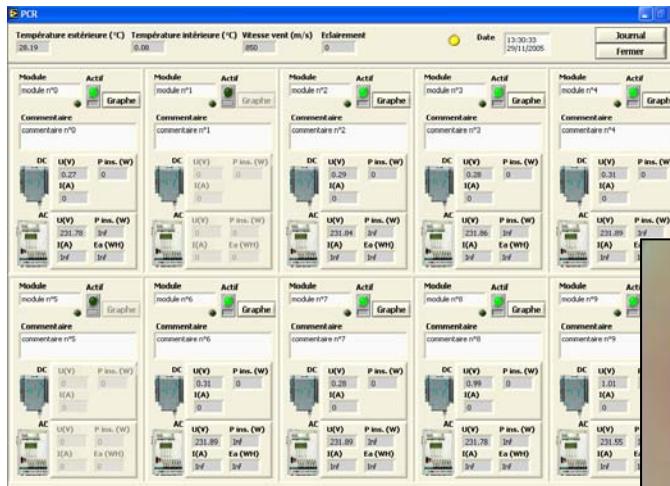
**ATI *SYS* Concept** ZI de TOULON EST – BP145  
901 avenue Alphonse Lavallée – 83088 – TOULON CEDEX 9  
[www.atisys-concept.com](http://www.atisys-concept.com)

# References in 2 activity domains

Metrology, monitoring &  
command/control

Energy innovative system  
conception and data  
analysis

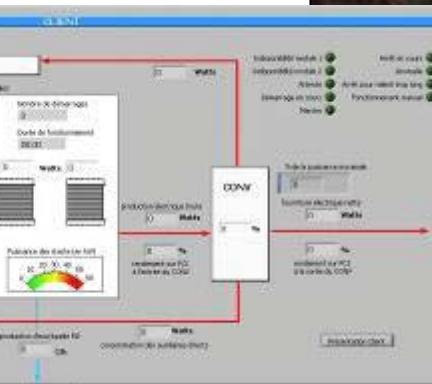
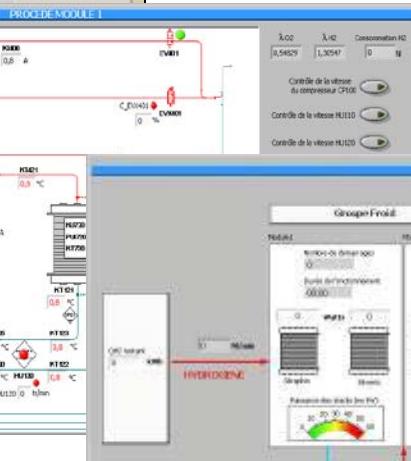
# Monitoring of PV test platforms



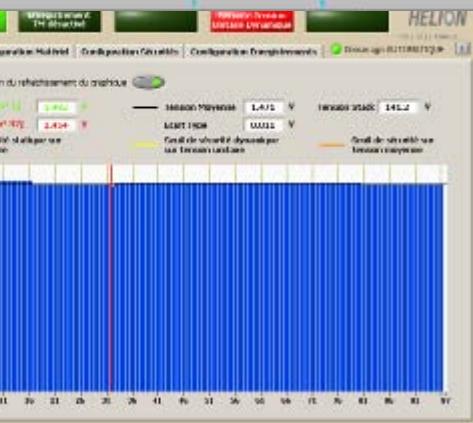
Référence: CEA-INES

# COMMAND & CONTROL OF 80 kW PEM FUEL CELL

The screenshot shows the software interface for managing fuel cell stacks. At the top, there are tabs for 'Mesures courantes' (Current Measurements), 'Historique' (History), 'Configuration Matériel' (Hardware Configuration), 'Configuration Sécurités' (Safety Configuration), 'Configuration Enregistrements' (Recording Configuration), and 'Démarage AUTOMATIQUE' (Automatic Start). The title bar indicates 'HELION FUEL CELL MASTER'. Below the tabs, a section titled 'Informations sur la structure des fichiers' (Information about file structure) displays two file paths: 'Tg\_Nom du stack\_.annee\_mois\_jour-heure\_minute\_seconde.txt' and 'Tm\_Nom du stack\_.annee\_mois\_jour-heure\_minute\_seconde.txt'. On the left, there are several configuration sections with dropdown menus: 'Fichier de tendance générale TG', 'Fichier de tendance minimale TM', 'Fichier Journal', 'Dossier de sauve...', 'Activation / Désa...', 'Fréquence "norm...', 'Seuil de déclenche...', 'Fréquence d'entrée...', 'Activation / Désa...', 'Fréquence d'entrée...', 'Sélection des voi...', and 'Limitation de la t...'. The main area features a complex process flow diagram with various components like 'EVAD0', 'KP100', 'KP101', 'KP102', 'KP103', 'KP104', 'KP105', 'KP106', 'KP107', 'KP108', 'KP109', 'KP110', 'KP111', 'KP112', and 'KP113'. Each component has associated parameters such as pressure (bar), temperature (°C), and flow rates (m³/h). A red dashed box highlights a specific part of the diagram involving 'KP100', 'KP101', and 'KP102'. To the right of the diagram, a status bar shows 'PROCE DE MODULE 1' and 'C\_E04501 (0)'.



 <b>AREVA</b> Enregistrement H1 activé	Enregistrement EMI activé	Enregistrement EMI activé	Enregistrement EMI activé	Enregistrement EMI activé
				
<a href="#">Mesures courantes</a>   <a href="#">Historique</a>   <a href="#">Configuration Matériels</a>   <a href="#">Configuration Sécurités</a>   <a href="#">Configuration Enregistrements</a>    				
<i>Informations sur la structure des fichiers</i>				
Fichier de tendance générale TG	TG_“Nom du stock_”année_mois_jour-heure_minute_seconde.txt			
Fichier de tendance minimale TM	TM_“Nom du stock_”année_mois_jour-heure_minute_seconde.txt			
Fichier Journal	Journal_“Nom du stock_”année_mois_jour-heure_minute_seconde.txt			
Dossier de sauvegarde	C:\DATA\Nom du stock_”année_mois_jour			
<i>Fichier de tendance générale</i>				
Activation / Désactivation de l'enregistrement du fichier	 <b>Activé</b> <small>current</small>			
Fréquence "normale" d'enregistrement du fichier	1 Hz (1 s)  1 Hz			
Seuil de déclenchement de l'enregistrement rapide	0.15 V/s  0.15 V/s			
Fréquence d'enregistrement du fichier sur seuil de déclenchement	10 Hz (100 ms)  10 Hz			
<i>Fichier de tendance minimale</i>				
Activation / Désactivation de l'enregistrement du fichier	 <b>Activé</b>			
Fréquence d'enregistrement du fichier	1 Hz (1 s)  1 Hz			
Selection des voies à enregistrer dans le fichier	sélection des Voies 			
Limitation de la taille des fichiers d'enregistrements	15 Mo  15 Mo			
<b>APPLIQUER LES NOUVEAUX PARAMÈTRES</b>				

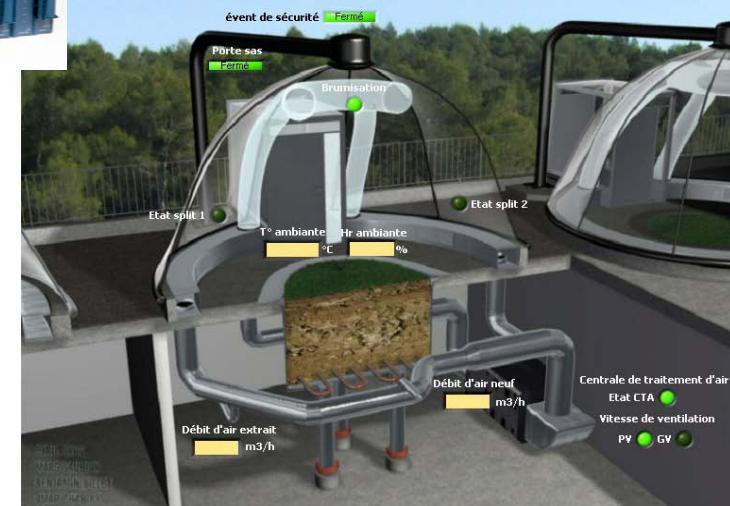
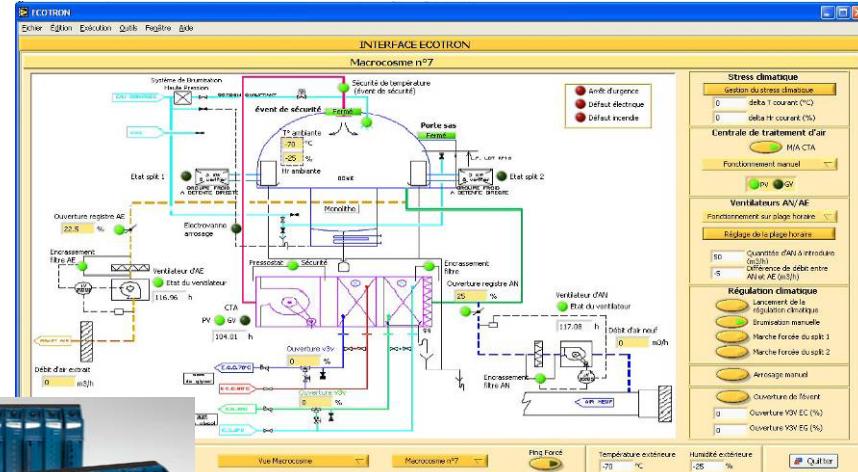


Ref.: ***HELION*** (AREVA)

# COMMANDÉ/CONTRÔLE OF AN ECOLOGICAL TEST FACILITY « ECOTRON » PROJECT



Réf. : 80-WF



**CUSTOMER :** *C.N.R.S. Délégation Languedoc-Roussillon  
Sub contracting of COFELY AXIMA (GDF SUEZ)*

**GOAL :** Research European Platform for studying system ecoresponse to controlled climat changes.

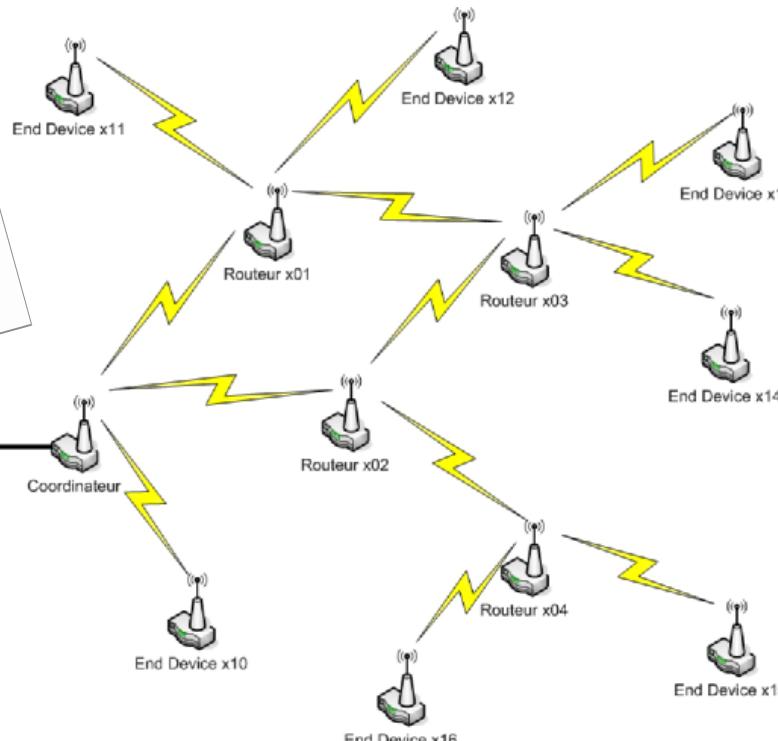
**RÉALISATION :** A measurement network including **69 transducers channels**, **257 state channels**, **60 analog control channels** and **257 action control channels**. System performs full data history.

**LA SOLUTION :** NATIONAL INSTRUMENTS Compact FieldPoint (15 units) powered with LabVIEW/RT, 3 dedicated PC.

# Wireless monitoring system: COBWEB



MODULAR PROCESS CONTROLLER



COBWEB NETWORK (IEEE 802.15.4)

## APPLICATIONS

- Optimization of thermal comfort and Performances monitoring
- Hygrothermal ambient monitoring (laboratories, museums, food industry, etc...)
- programmable alarms
- Transmission of alerts via GRPS, e-mail, etc ...

## MEASURED QUANTITIES

Temperature, RH, meteorological data, CO<sub>2</sub> concentration, energy counting, ...

Designed and produced by ATISYS  
Try <http://cobweb.atisys-concept.com/accueil.htm>

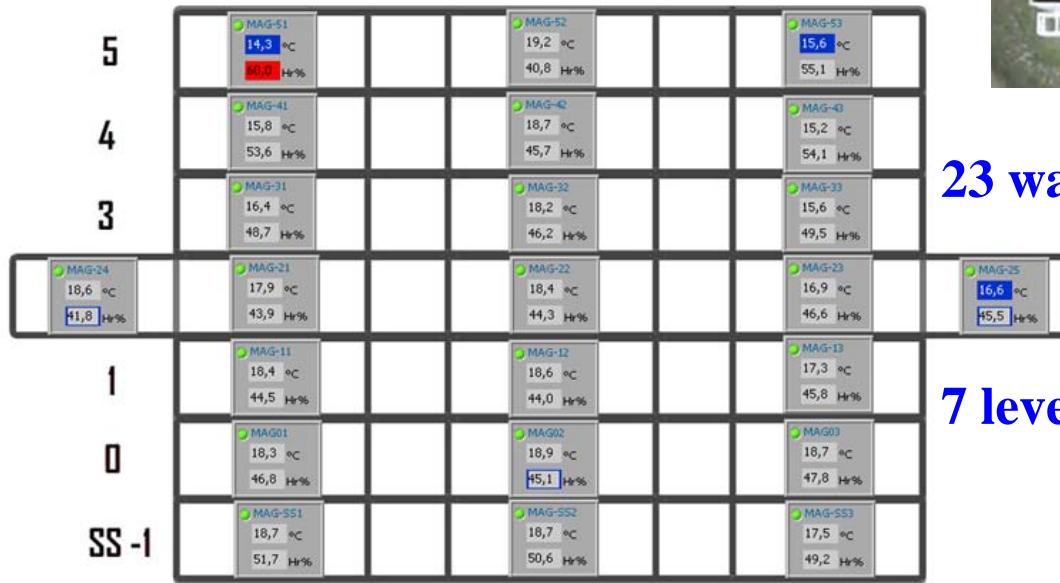


Concentrateur/Routeur  
**COBWEB**



Thermo-hygromètre  
**COBWEB**

# On-line hygrothermal monitor of museum, archives, ...



23 warehouses

7 levels



Département du  
Puy de Dôme

# Thermal ambient monitoring and inner air quality control (nurseries, schools, ...)



## Building view

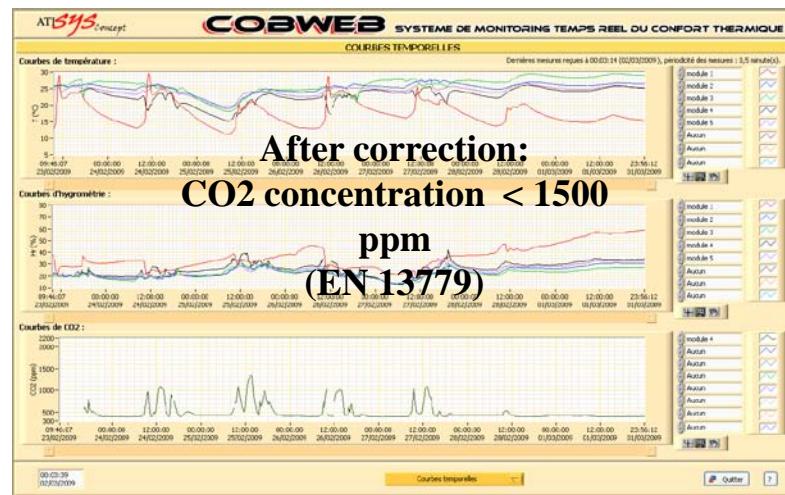
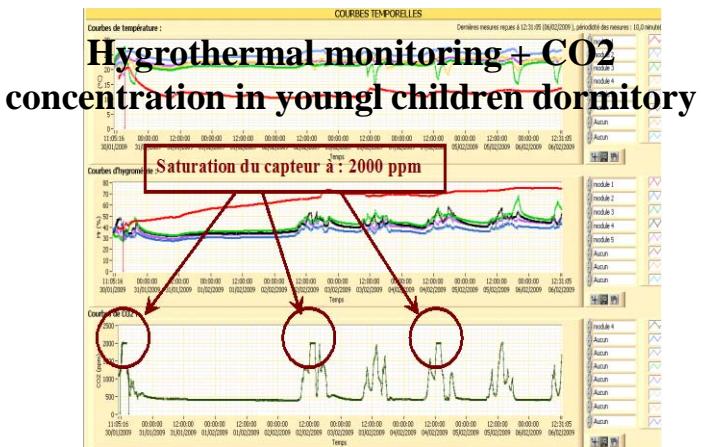


The figure shows a floor plan of a building with several rooms and hallways. A compass rose in the bottom right corner indicates the cardinal directions: North (N), South (S), East (E), and West (W). Five specific locations are highlighted with green circles and labeled as 'module' followed by a number and percentage:

- module 1**: 12,0 °C, 73,0 %RH
- module 2**: 25,1 °C, 38,6 %RH
- module 3**: 21,7 °C, 47,3 %RH
- module 4**: 23,1 °C, 50,4 %RH  
1436 ppm
- module 5**: 22,3 °C, 44,7 %RH

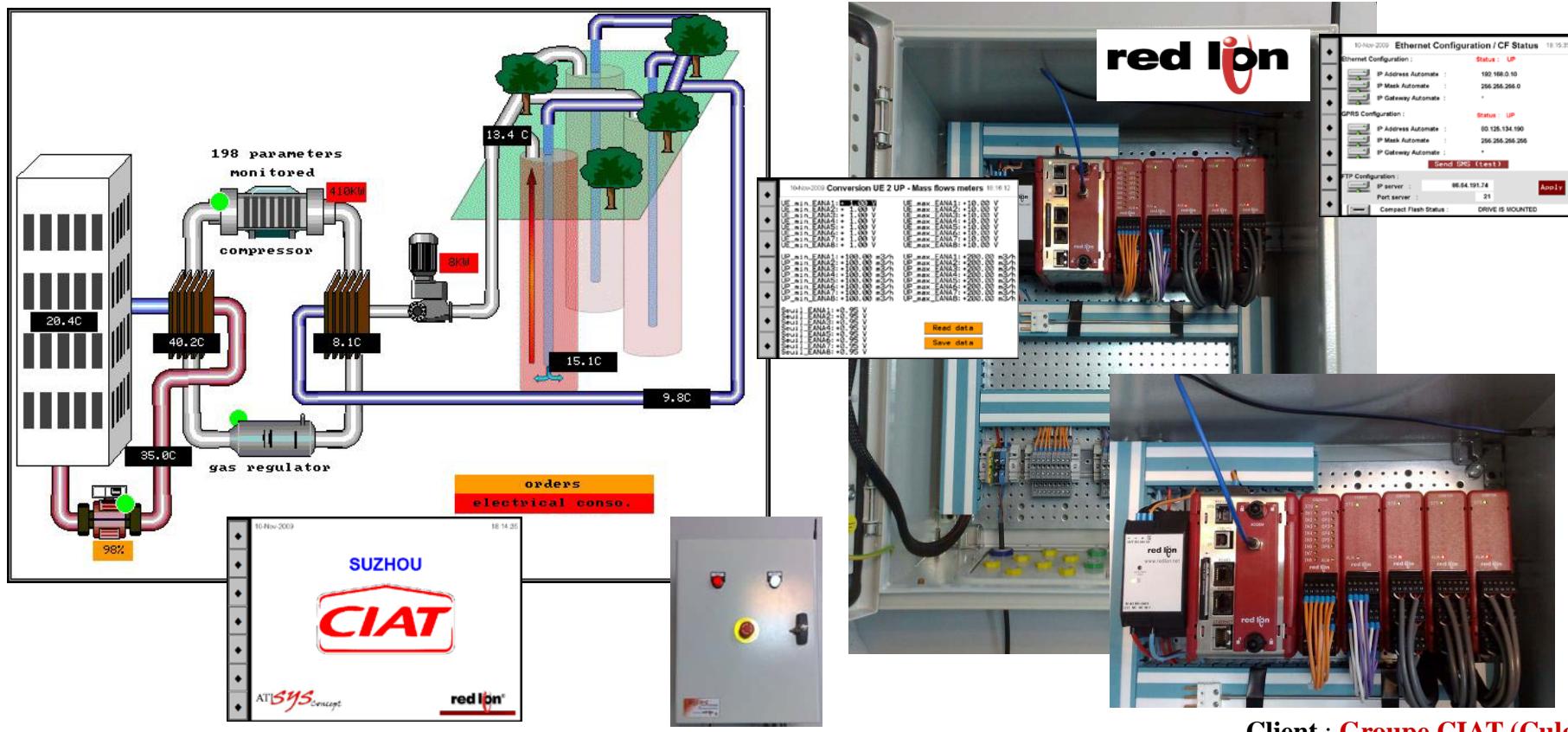
Handwritten notes are present in the plan, including 'SOUTIE NORD' and 'SOUTIE SUD' near the bottom center, and 'abri inviolé' with an arrow pointing towards the center of the building.

## Building orientation



# On-line performances monitoring of a high power reversible plant

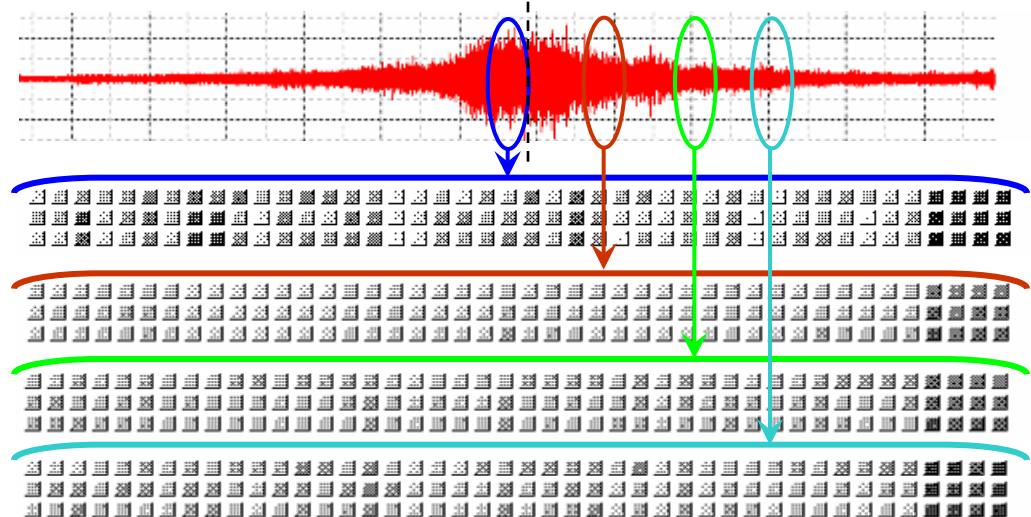
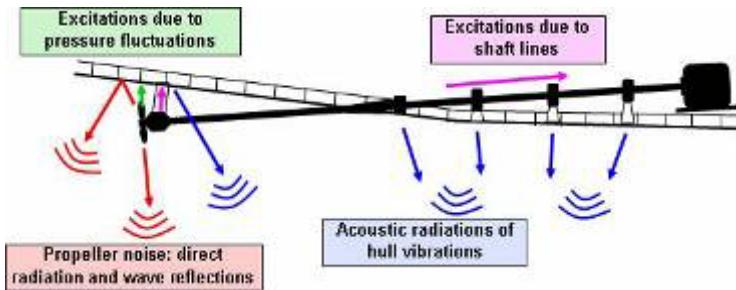
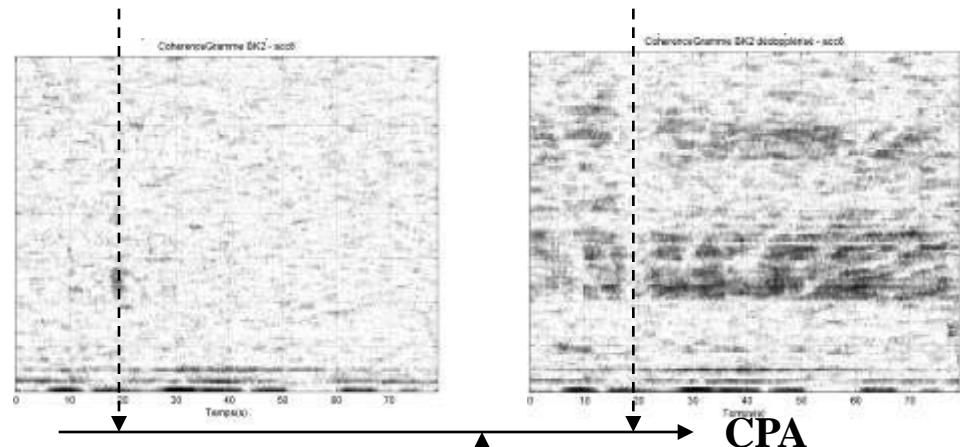
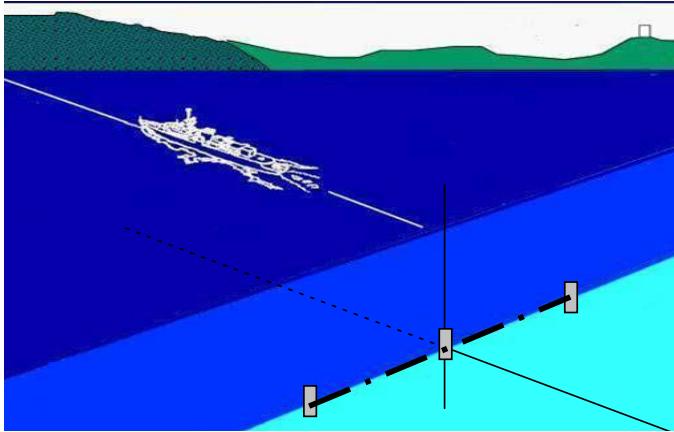
## **CIAT** (Suzhou - CHINA)



Client : **Groupe CIAT (Culoz)**

**Réalisation :** Network of **16** température transducers (PT100), **8** mass flowmeters, **8** energy counters and acquisition of **186** specific data for 2 machineries (**CIAT**) via **MODBUS**.  
monitoring and data history sent **FTP** server  
Remote acces using **GPRS** connexion

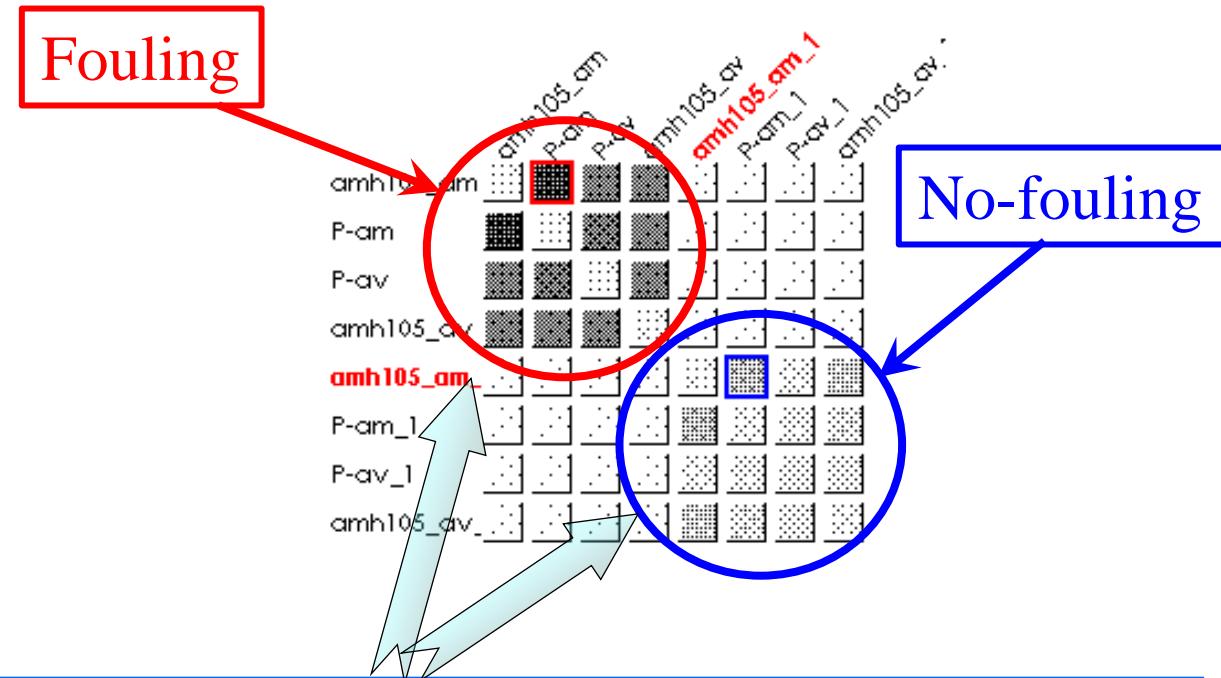
# Noise source identification on a ship



Ref.: DCN (FRANCE)  
NUR (Goa-INDIA)  
NSTL (Visakkapatnam – INDIA)  
MTU (Mumbai – INDIA)

# Non-intrusive detection of fouling in Heat Exchangers

on-line diagnostic of fouling level using vibrational response

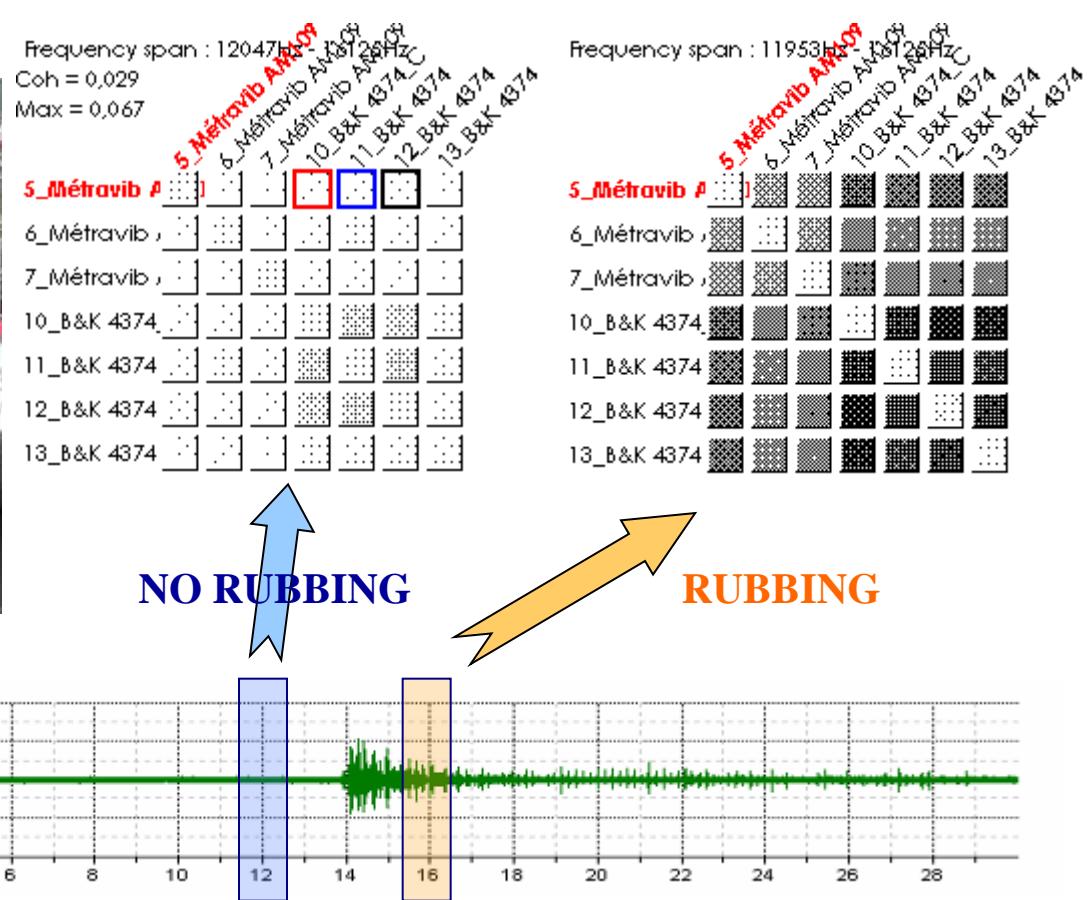


Matrix shows comparison between clean and fouling condition of broad-band dynamic behaviour, of the same heat exchanger, using the same measurement protocol.

Ref.: CEA - Commissariat à l'Energie Atomique)

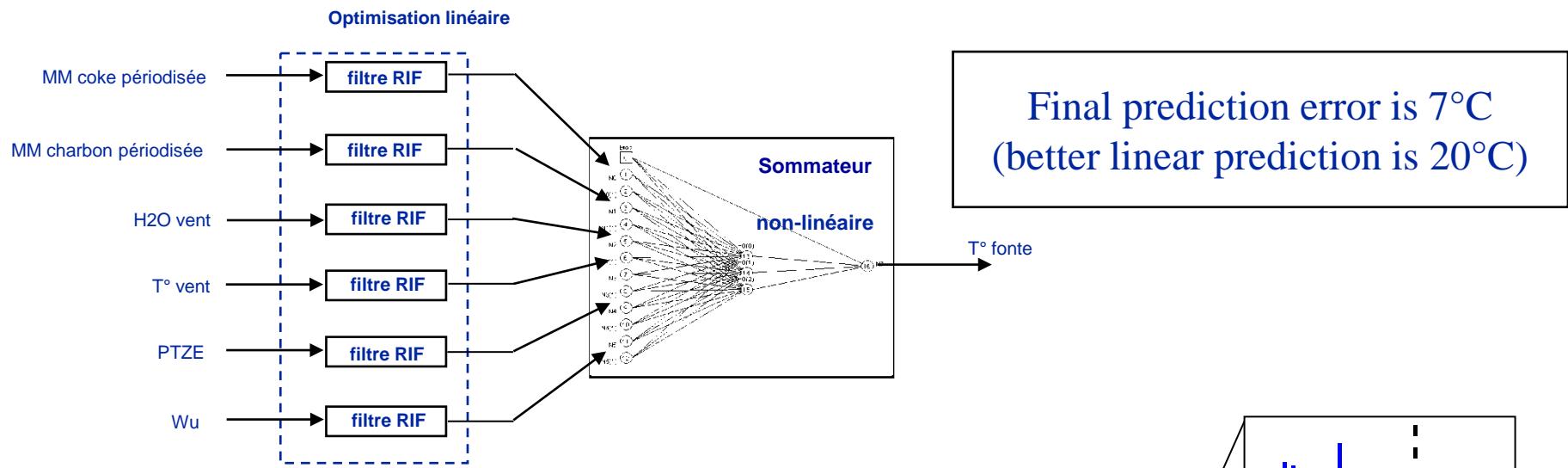
# Rubbing in Gas Turbines

Define and validate method for real-time  
on-line diagnostic of rubbing in gas turbine



Ref.: EDF-DER

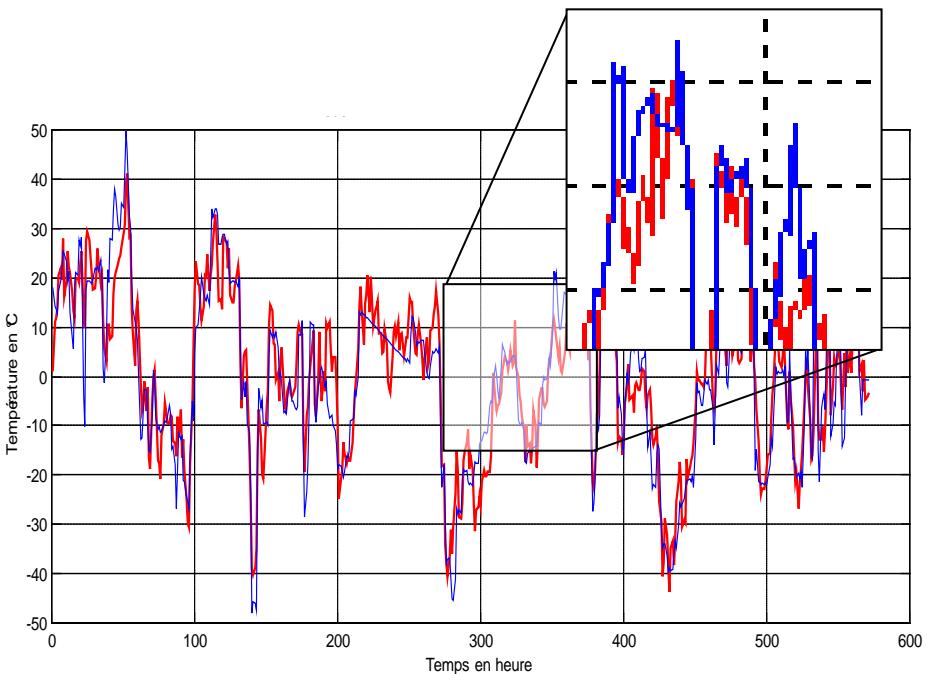
# Neural-network cask-iron temperature prediction



**GOAL :** 10 hours notice prediction of cast-iron temperature prior to casting flow

## SOLUTION

- Physical analysis and memory dimensionning
- Quadratic optimisation of MISO (multiple input, single output) system
- Quadratic optimisation of memory non-linear system (Neural Net approach)
- Combining both approach for result improvement

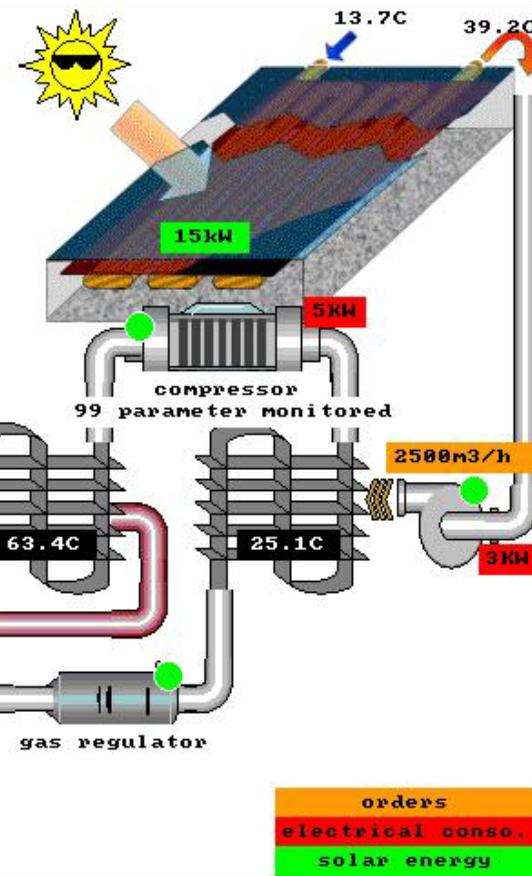
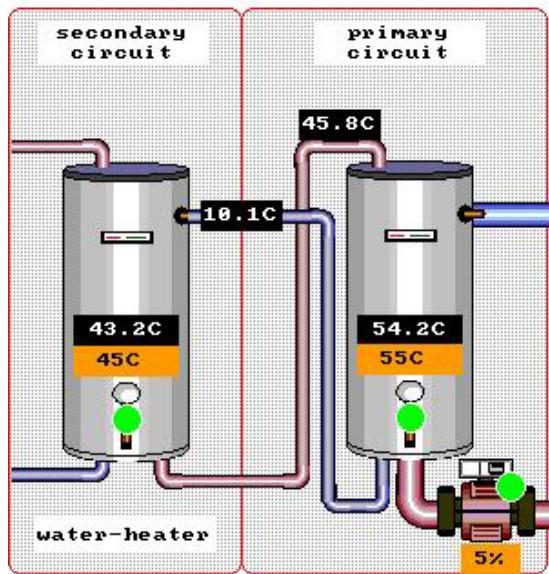


Client : Groupe ARCELOR MITTAL (SOLLAC)

# AERAUSOL project

## use of air cooling of PV panels for DHW production (**CIAT** Group )

**red lion**



Client : **Groupe CIAT (Culoz)**

- Network of **30** température transducers (PT100), **2** mass flowmeters, **8** energy counters and acquisition of **99** specific data for 2 machineries (**CIAT**) via MODBUS.
- monitoring and data history sent FTP server
- Remote acces using GPRS connexion

# AERAUSOL project : use of air cooling of PV panels for DHW production (**CIAT** Group )



# Projet AERAUSOL

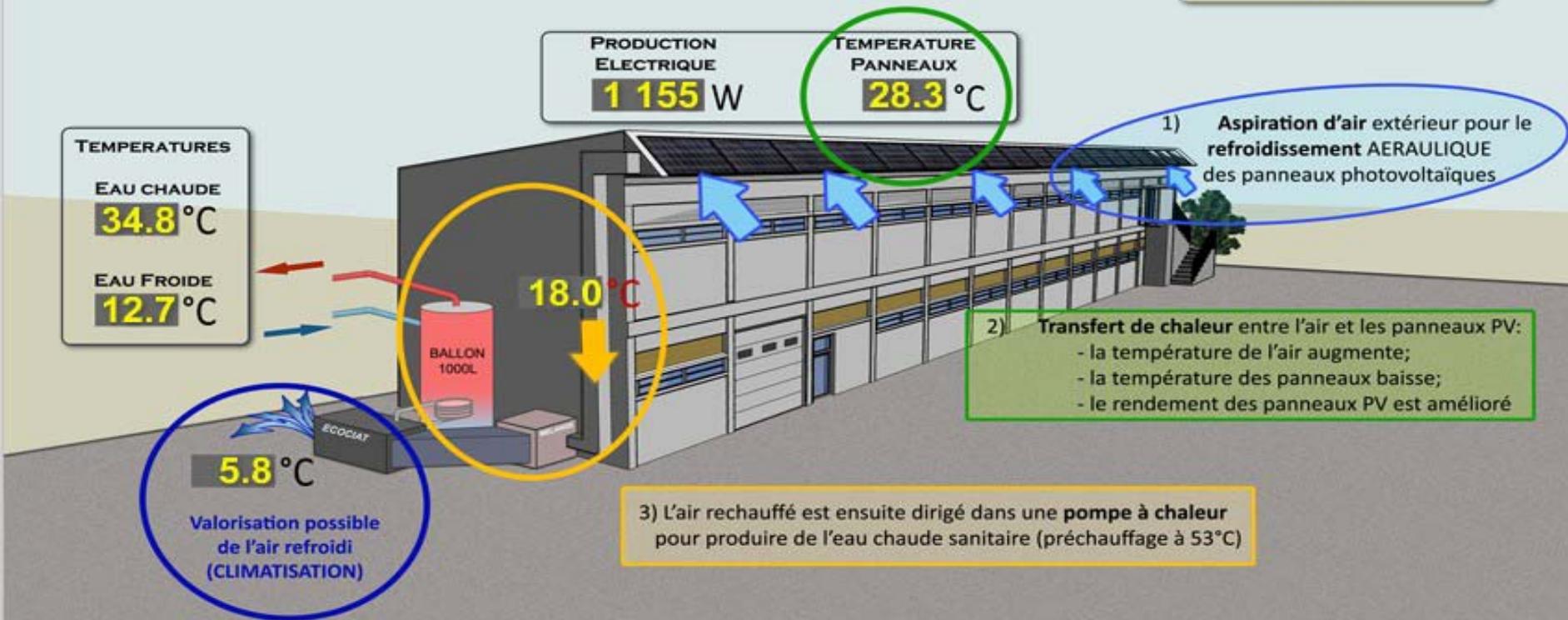
PRODUCTION D'EAU CHAUDE SANITAIRE (ECS) PAR VALORISATION  
DE LA CHALEUR DES PANNEAUX PHOTOVOLTAÏQUES (PV)



ENSOLEILLEMENT

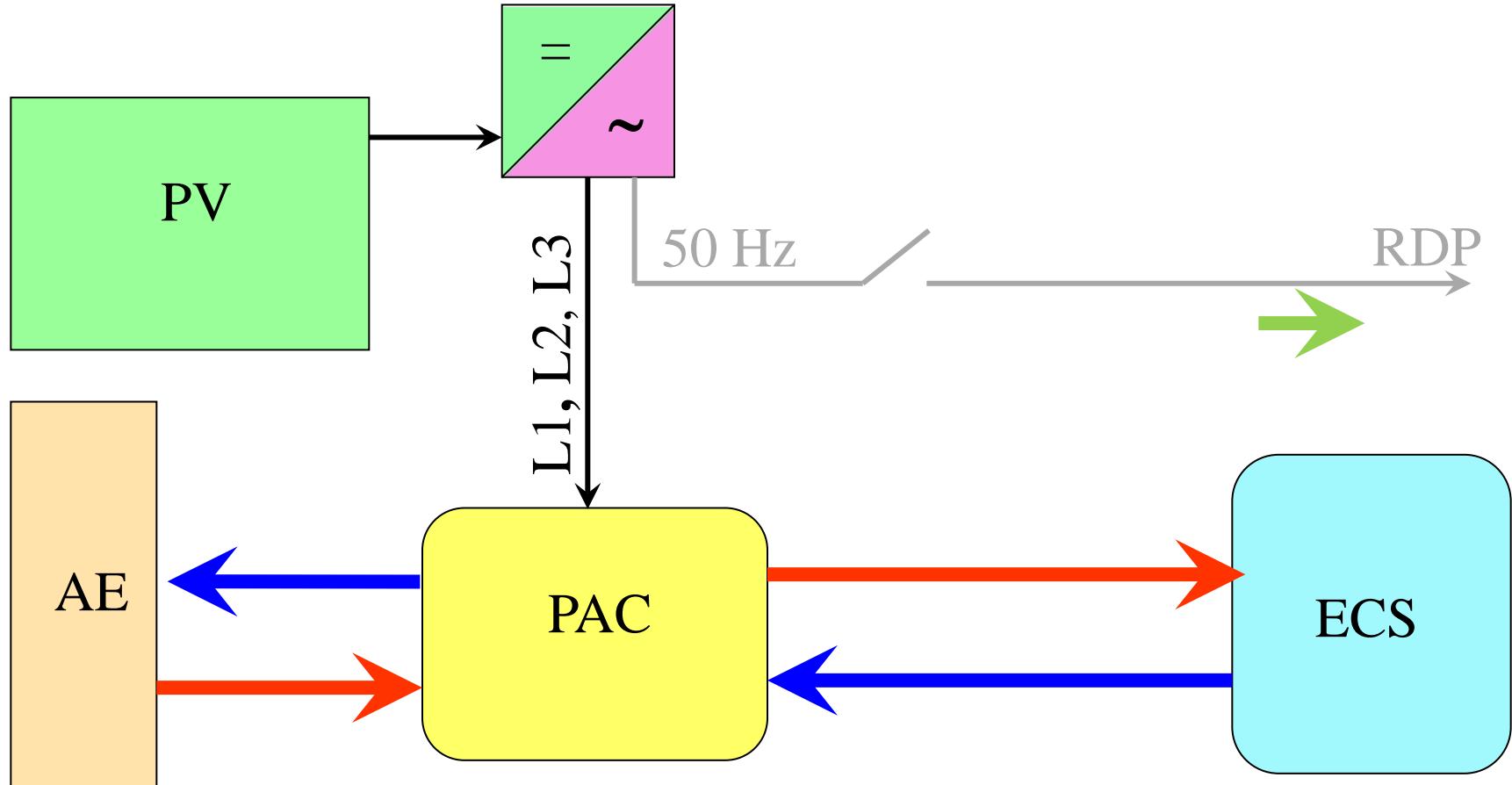
**534 W/m<sup>2</sup>**

TEMPÉRATURE AIR AMBIANT

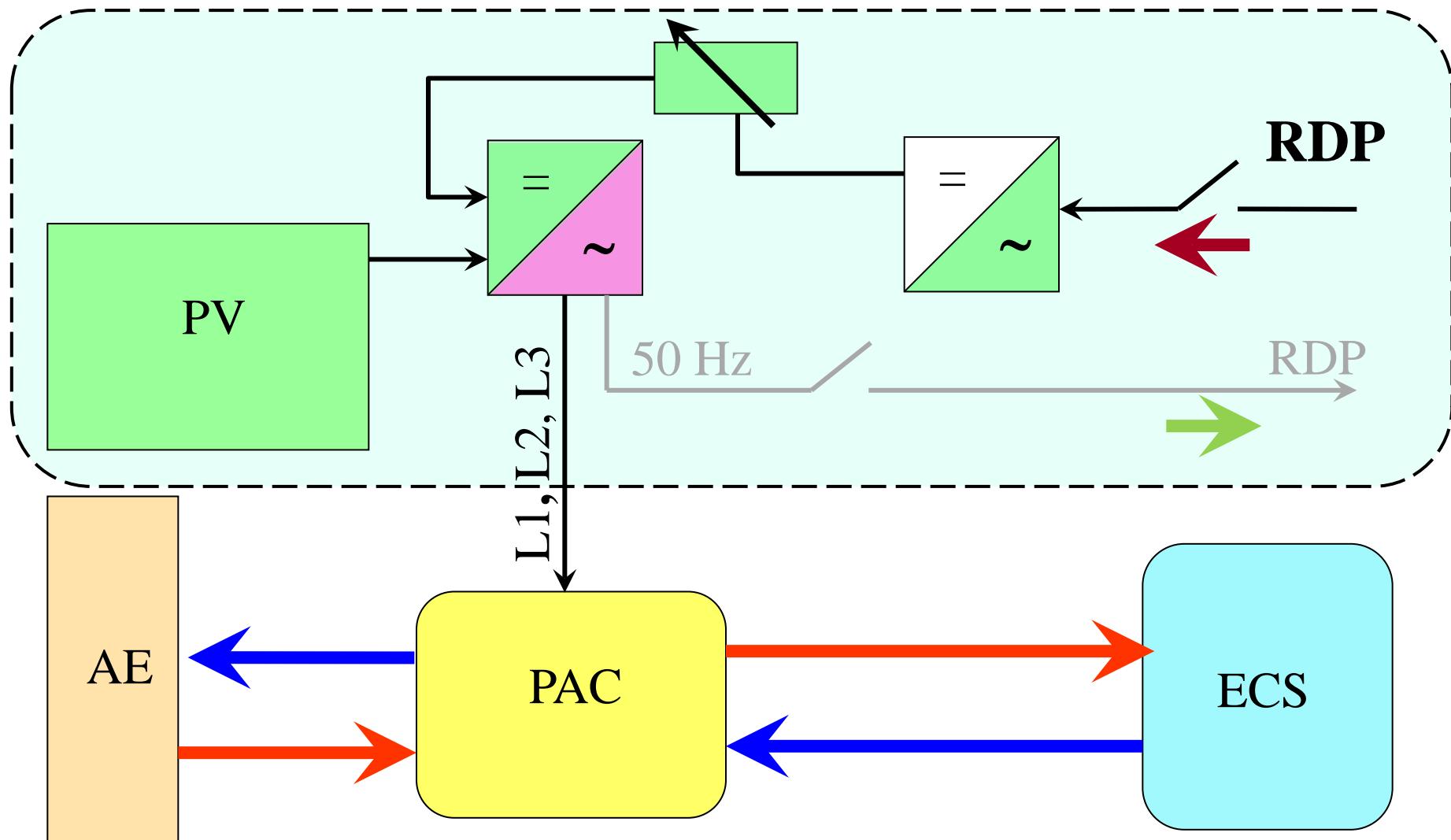
**6.3 °C**

# Coupling PV with heat-pump compressor

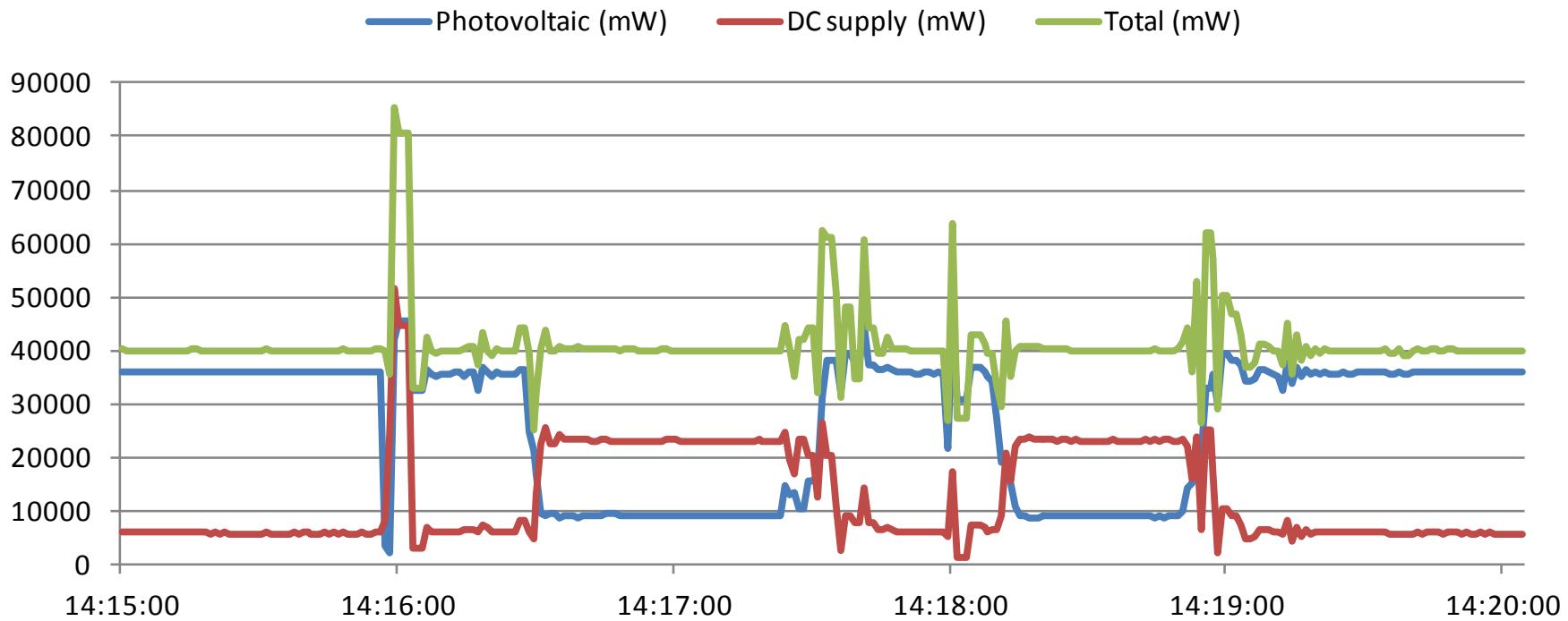
What about a passing cloud on PV field ?



# Adaptive DC complementary supply with PV power



# Adaptive DC complementary supply with PV power



# Interest in IEA task

- Driving HP compressor with PV energy
- Adaptive HP compressor control with PV ressource

# References

## In FRANCE :

**ARCELOR/SOLLAC, AREVA, CEA (Cadarache, Grenoble, LITEN/GRETh), CIAT, CNRS Languedoc-Roussillon, COFELY AXIMA, Conseil Général du VAR, Archives Départementales du Puy-de-Dôme, DGA, DCNS DASSAULT AVIATION, EDF (DER, DTG), HELION, INES, IRSN, PSA, RENAULT, THALES SAFARE, TECHNICATOME, VALEO ...**

## Export :

**QINETIQ (UK) , University of CRANFIELD (UK), Johannes Gutenberg Universität - MAINZ (Allemagne), Naval Underwater Range-GOA (Inde), Naval Scientific Technology Laboratory – NSTL (Inde), Machinery Technological Units-MTU (Inde)**

**Thank you for attention ...**