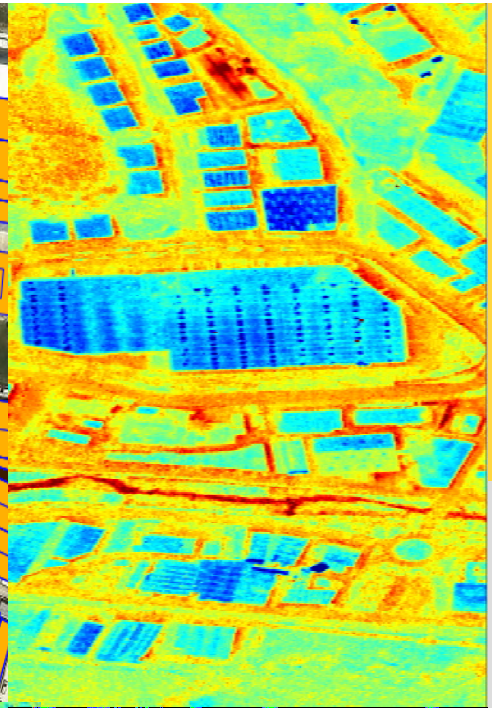
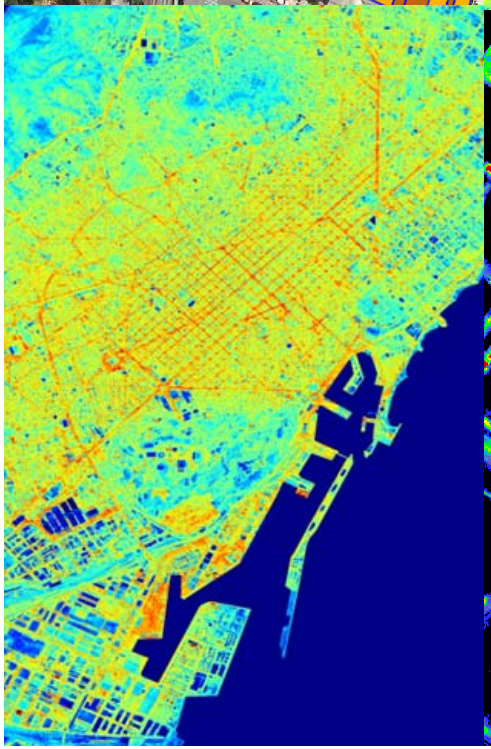
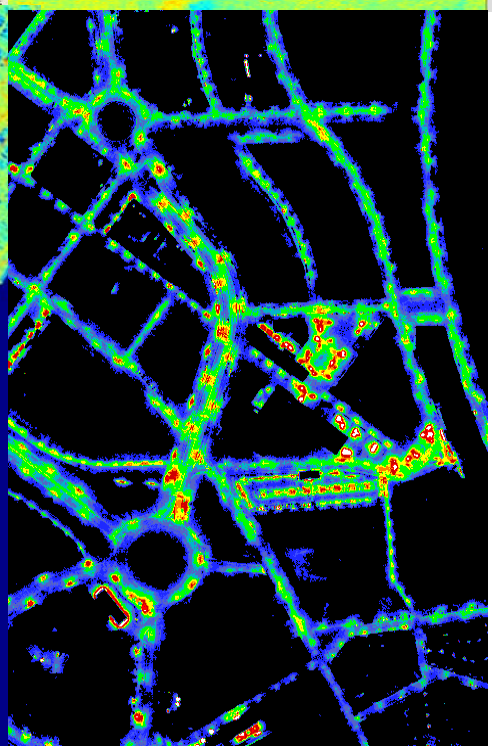






Industrial building efficiency management: heat leaks detection and solar power potential on covers

Luca Pipia, Fernando Pérez, Jordi Corbera, Anna Tarda, Antoni Ruiz and Antonio Magariños

ICGC
Institut
Cartogràfic i Geològic
de Catalunya

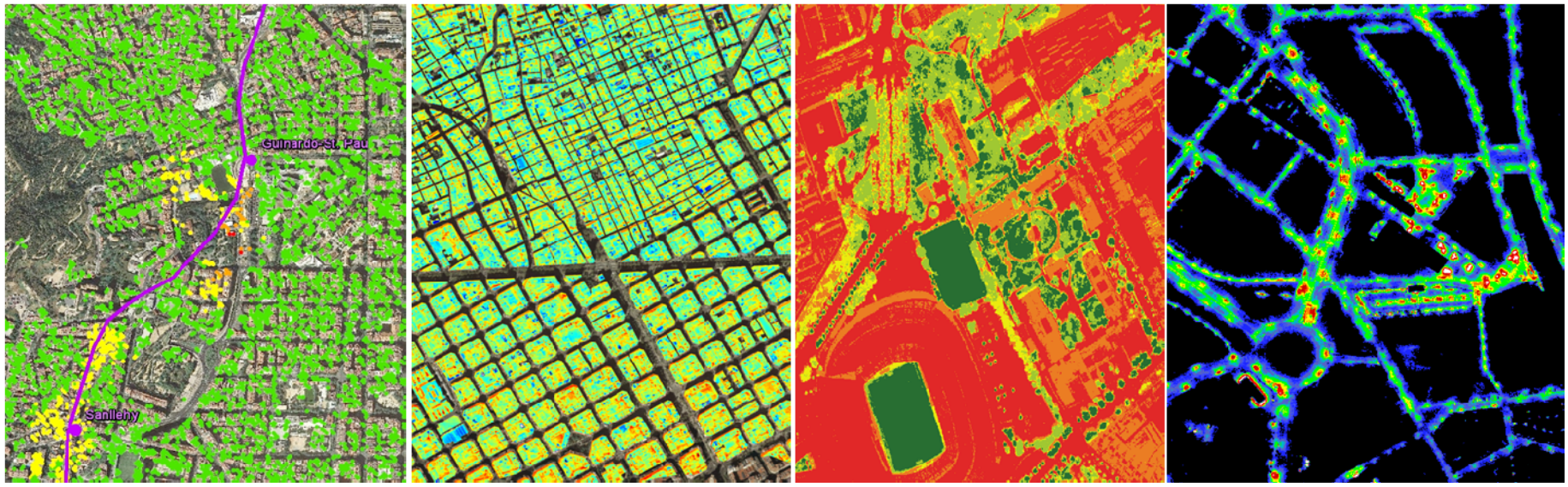
Generalitat
de Catalunya

Dr. Jordi Corbera – jordi.corbera@icgc.cat

URBAN ECOSYSTEM

Transforming data into knowledge

SCIENCE + TECHNOLOGY + REAL CHALLENGES TO BE SOLVED = ADDED VALUE



Heat Leaks and Solar Power Potential on industrial covers: two examples about how to transfor data into knowledge into the urban/ peri-urban ecosystem to suit institutional requirements

Ajuntament de Rubí

RUBÍ brilla

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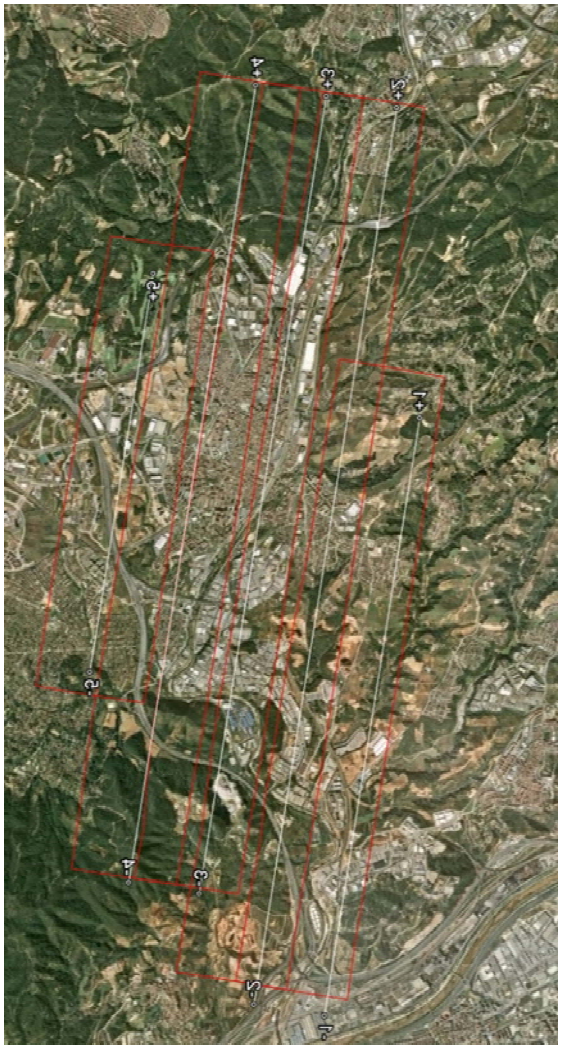
HEAT LEAKS

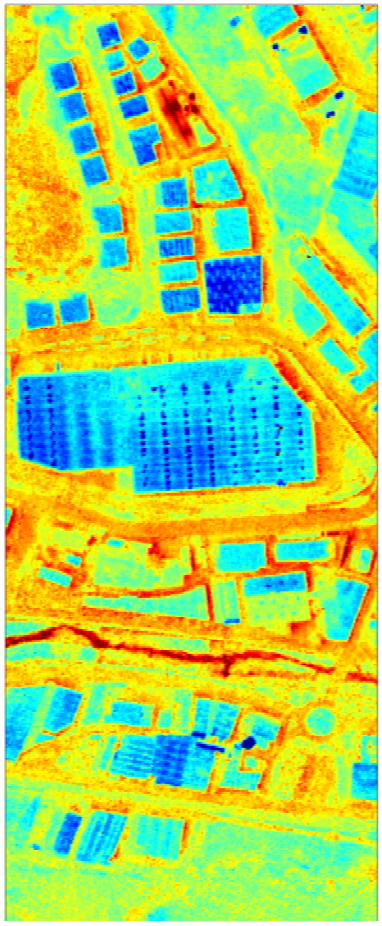
SENSOR TASI	
FOV	40º
Altitude	1600 metres
Spectral resolution	32 bandes
Píxels per line	600 píxels
Pixel across track	2 m
Pixel long track	2 m
SWATH	1100 metres



Code track	Name TASI image	Period t1 (Flight 1)	Period t2 (Flight 2)
1	RU01_K1P_T028F01.rf	00:00/00:03	06:08/06:10
2	RU03_K1N_T028F02.rf	00:05/00:09	06:13/06:17
3	RU04_K1P_T028F03.rf	00:12/00:16	06:19/06:23
4	RU05_K1N_T028F04.rf	00:18/00:21	06:26/06:29
5	BA11_KTN_D378F17	00:24/00:27	06:31/06:34
6	RU02_K1N_T028F06.rf	00:30/00:34	06:40/06:43

HEAT LEAKS

T@~0:00 (UTC)



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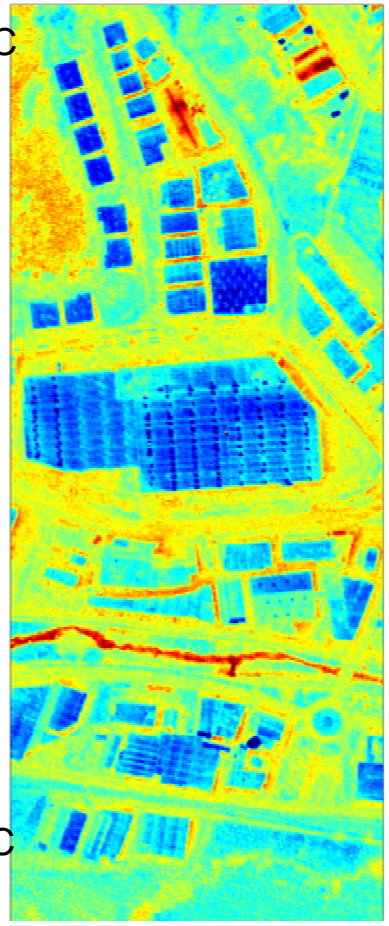
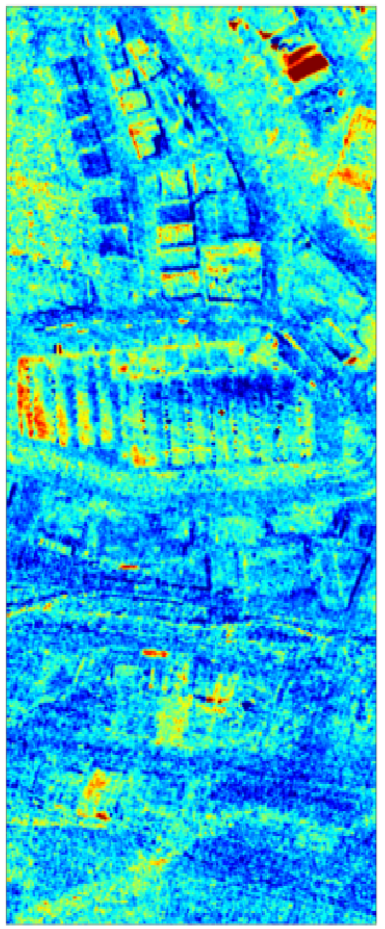


ΔT: T@~6:00 -T@~0:00 (UTC)



(Animation)

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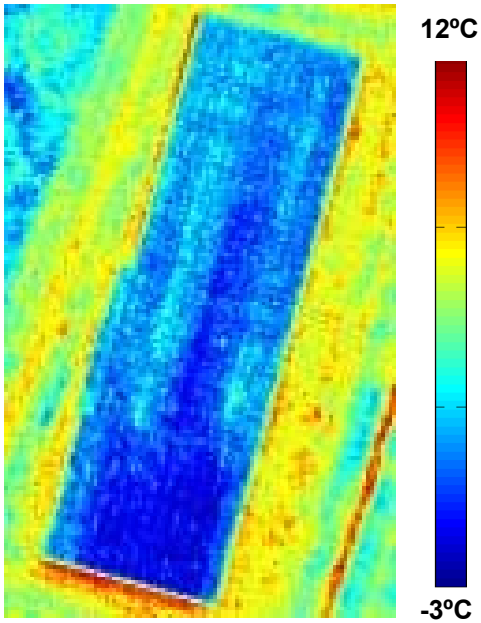
HEAT LEAKS

(All the industrial covers where properly identified – materials, period of industrial activity, isolation materials and estructural- by a ground survey conducted by the Polytechnic University of Catalonia)

Example 1 : BJC MATERIAL ELECTRIC (9) – Electric components and equipment

Low gradient ...



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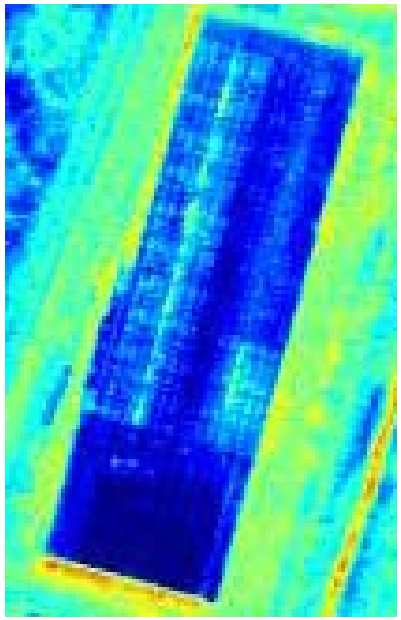

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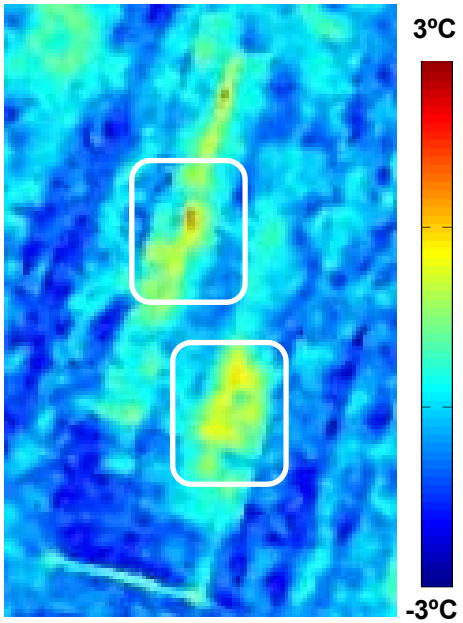
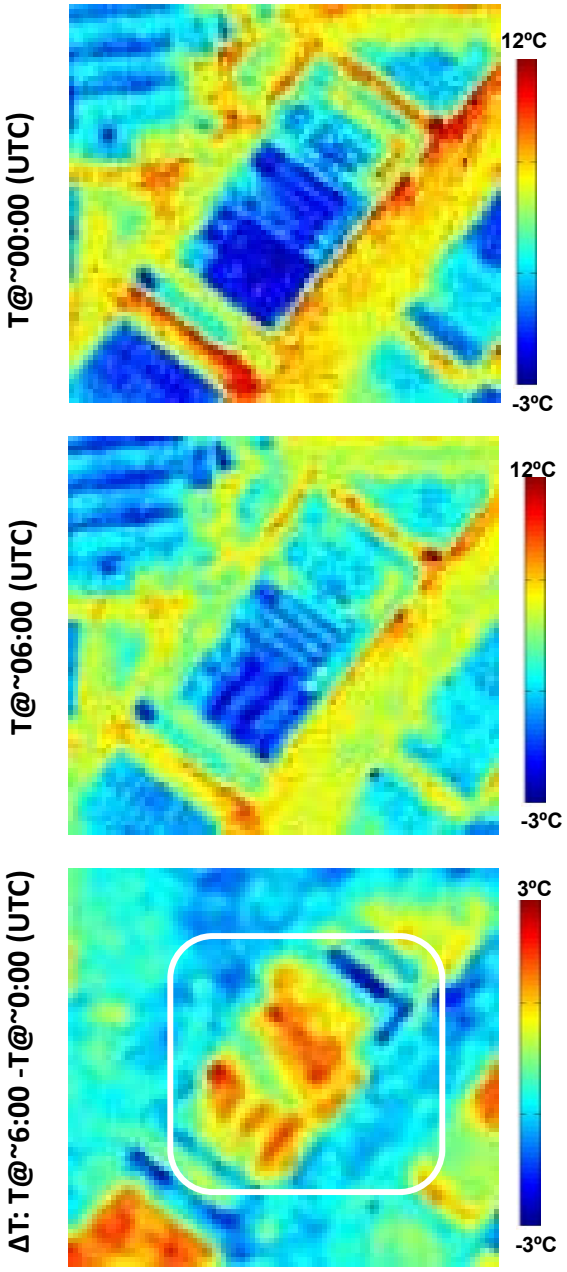


ΔT: T@~6:00 -T@~0:00 (UTC)

HEAT LEAKS

Medium gradient ...

EXAMPLE 2 : JOVI SA (1) – Chemical components for toys and scholar materials



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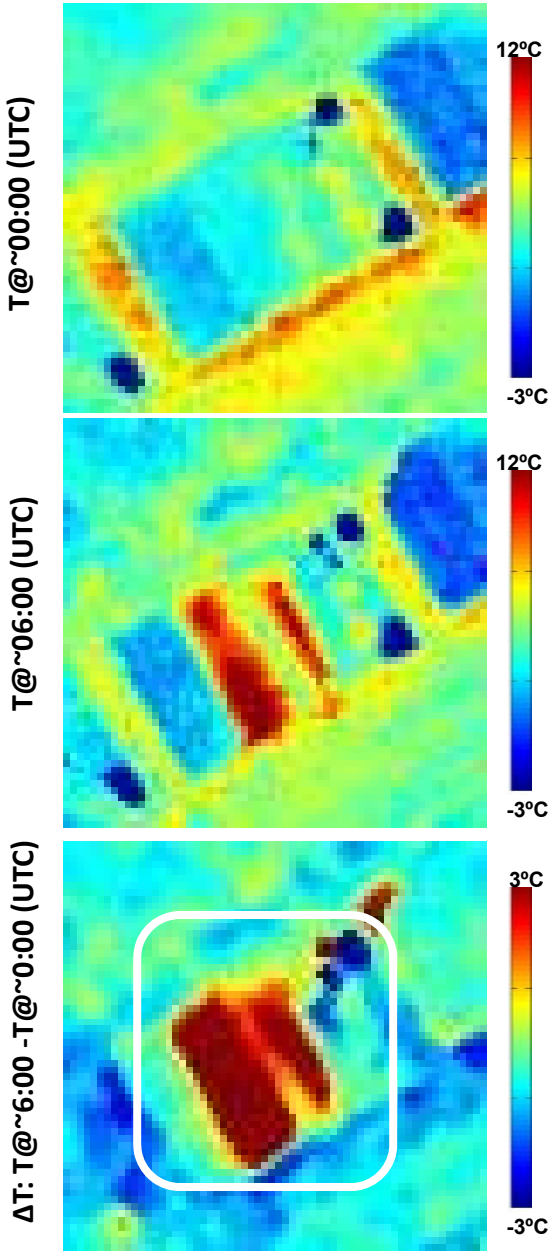
HEAT LEAKS

High gradient...

EMPRESA: RH ROCHE HNOS (17) – Plastic materials and components

InstaMaps

http://www.instamaps.cat/geocatweb/visor.html?businessid=15d048cb784dc2ac3e13b4f2f0a725df&id=441212&title=Eficincia-energtica-de-les-cobertes-de-naus-industrials-de-Rub



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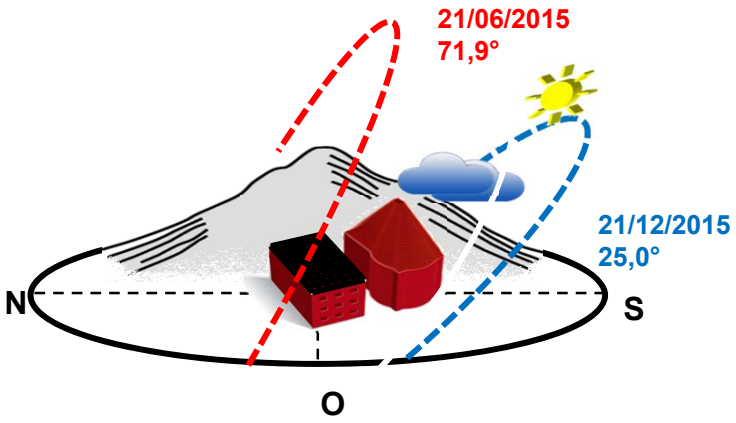
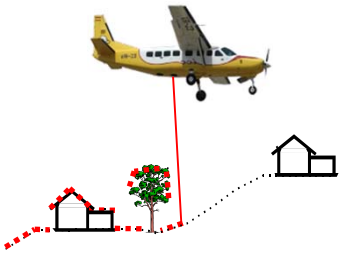
SOLAR POWER



- Astronomical variables: Sun trajectory
- Stadistical variables: Metheorological data
- Computing: Determination of shadows (Topography and urban elevations) and radiation for each surface element (cell irradiation)
- **cell irradiation roof is segmented into plans by using own LOD2 models**



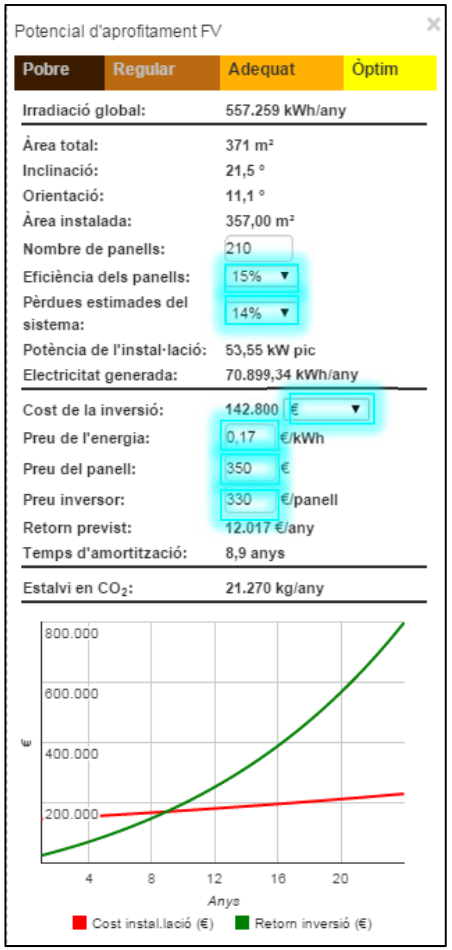
LiDAR campaign

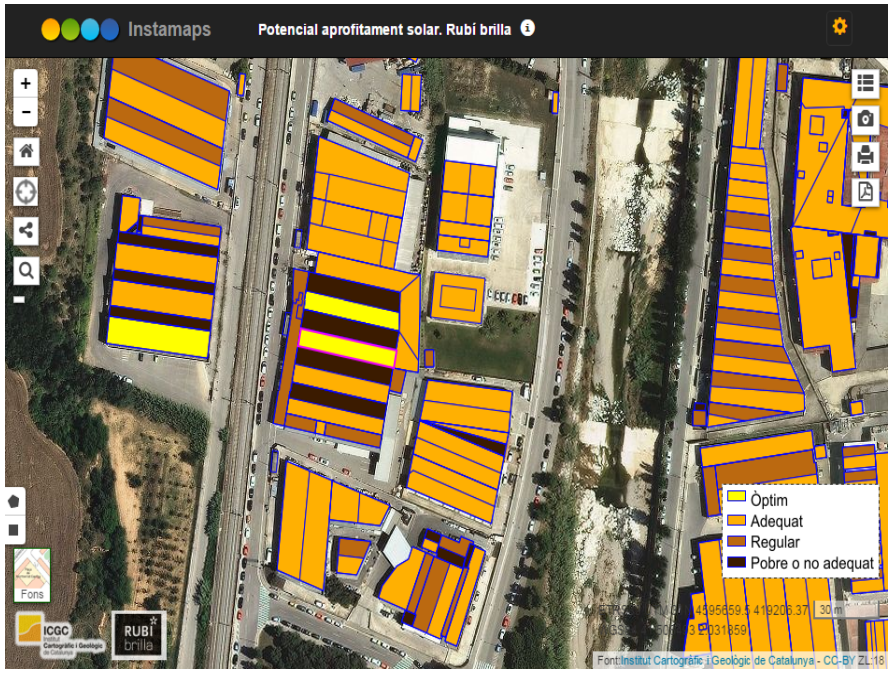
SOLAR POWER

Unlike other potential solar products/services, thanks to the methodology developed by the ICGC is possible to assign a value to each suitability roof plans.

Also, the analysis of economic and energy efficiency can be documented/analyzed through a web application developed using ICGC technology: INSTAMAPS.

The performance calculator allows the introduction of variable fields (performance panels, energy prices, the price of the installation) to tailor results to the particularities of each user/epoch/regulations.





InstaMaps

http://www.instamaps.cat/geocatweb/visor_psolar.html?businessid=41d5e2fb2b981a65c871e47bfc84ce56

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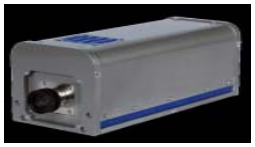
CONCLUSIONS

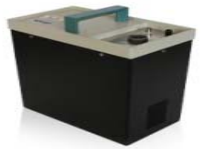
- E.O techniques offer a synoptic and quantitative view to evaluate, surveillance and support environmental regulations and policies (i.e energy efficient) but the use of additional datasets is paramount to complete a product or service

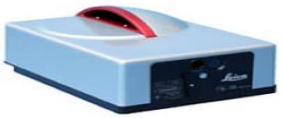
- To offer Operational Earth Observation products and services means to manage the complexity of different skills, backgrounds, and requirements. A 4 helix model is a key approach to achieve good results

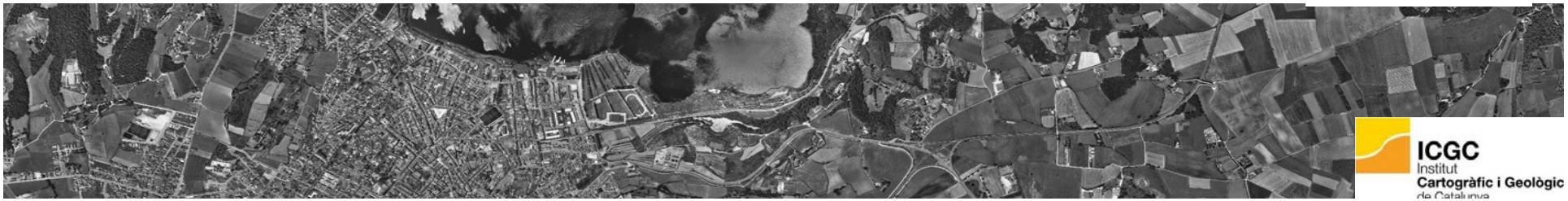
- The “usability” (+ feasibility and viability) is a key factor to successfully provides innovative geoinformation products and services Two demonstrative open and share services has been implemented

- **Next step:** collect feedback and implement the final service design and standardization of datasets









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