Satellite-based plant construction monitoring

What you get

> Remotely monitoring of the renewable energy plant construction status

> The service enables users to check the plant status, supporting the decision-making process.

> Collecting and processing plant satellite images to be exploited for plant diagnostics and predictive analysis, linked to predictive maintenance service, displaying all results in a coherent 4D.

> Costs reduction for plant implementation by means of a better operations management

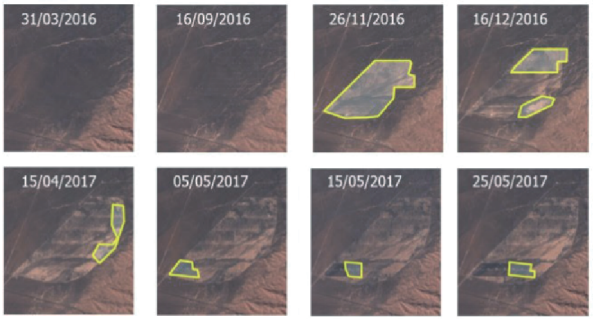
> Costs reduction in the plant documentation management

Performance

> Satellite LR monitoring service

The service monitors the work status during the new plant development phase, processing Low Resolution (LR), 10m at ground, satellite images to evaluate the progress of a new plants construction.

Service Time Resolution	- 5 days (depending on satellite data availability)
Information Provided	- Satellite imagery of the plant area (10m resolution at ground) - Construction process percentage (area completion) - Detection of the areas changed from the last acquisition



Detection of the areas changed from the last acquisition.
Modification between acquisitions are detected and highlighted.

> Satellite LR monitoring service

The service provides customers with advanced Key Performance Indicators for the main relevant building phases of a new plant, exploiting High Resolution (0.3m - 0.5m at ground) satellite images.

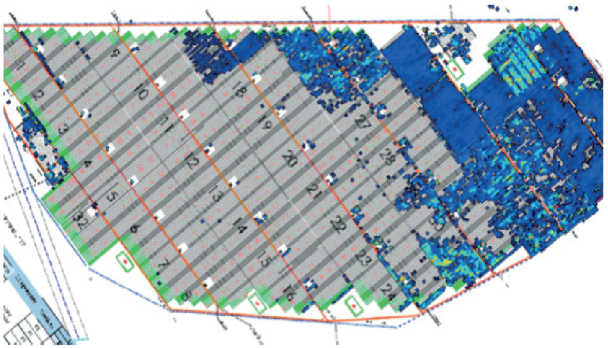
In particular, for PV plants:

- number of the **poles** installed on site
- number of the **trackers** installed on site
- number of the **PV panels** installed on site
- number of **cabin units** installed on site.

Moreover, the service provides the following information and data:

- high resolution images
- plant changes detections between images acquisitions
- images (as overlay on the project table) for the evaluation of the building process
- Key Performance Indicators evolution charts

Service Time Resolution	- 1 month (depending on satellite data availability and customers' needs)
Information Provided	- Plant area satellite imagery (0.3m and 0.5m at ground depending on satellite acquisition angle) - Changed areas detection from last acquisition - Construction Process percentage (area completion) - Detection of poles, trackers, panels and cabin units installed (as a percentage of the total)



Changes detections:
the adapted colors intensity in the images represents the areas with most important changes detected.

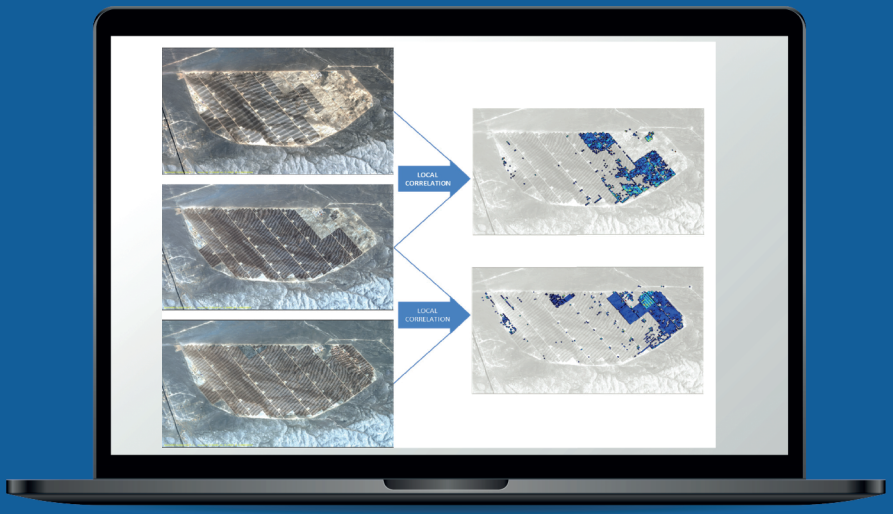
Did you know that... ?

Using HR satellite-based images you can remotely monitor the contruction status of solar plant, reducing management costs.

The provided information exploiting satellite HR monitoring service are:

- Detection of the areas chenged from the last acquisition
- Construction process percetange (area completion)
- Detection of (as a percentage of the total):

  . poles installed (error <5%)
  . trackers installed (error < 3%)
  . PV panels installed (error <4%)
  . cabin units (CU) installed (error <2%)



Key Benefits:
- Plant implementation costs reduction by means of a better management of the operations
- Plant documentation management costs reduction
- Work progress monitoring

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