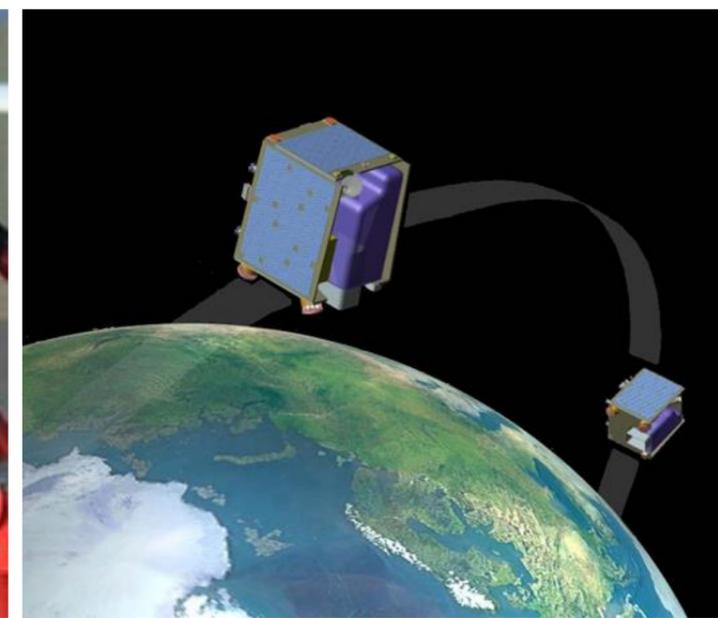


Flyby remote sensing main customers

- Alenia Aermacchi
- Selex ES
- Eni S.p.A.
- Enel Green Power S.p.A.
- European Space Agency (ESA)
- Italian Space Agency (ASI)
- Italian Ministry of Environment, Land and Sea (MATTM)
- NATO Undersea Research Center (NURC)
- Hydrographic Institute of the Italian Navy (IIMM)
- Italian Coast Guard
- Regional Agency for Environmental Protection of Tuscany (ARPAT)
- Regional Agency for Environmental Protection of Sicily (ARPA Sicily)
- Bastia Chamber of Commerce
- Bastia Coast Guard
- Office of the Environment of Corsica (OEC)



Flyby is member of:



**Knowledge
from sky to Earth**



Flyby is certified UNI EN ISO 9001:2008

Flyby S.r.l.
Sede legale e operativa: Via Puini 97, 57128 Livorno – Italy
Sede operativa: Corso Ferrucci 77/9, 10138 Torino – Italy
Phone: (+39) 0586-505016 , Fax: (+39) 0586-502770
info@flyby.it

www.flyby.it
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Flyby is an independent Italian SME company developing remote sensing solutions for Defense and Civil markets. The interdisciplinary background and expertise of its R&D personnel allow Flyby to face challenges in applied research and to develop innovative products that bring a high added value to the end-customer. Flyby's cutting edge competence consists of two main capabilities: to develop dedicated algorithms for the processing of data, especially those coming from optical sensors, and to model complex systems.

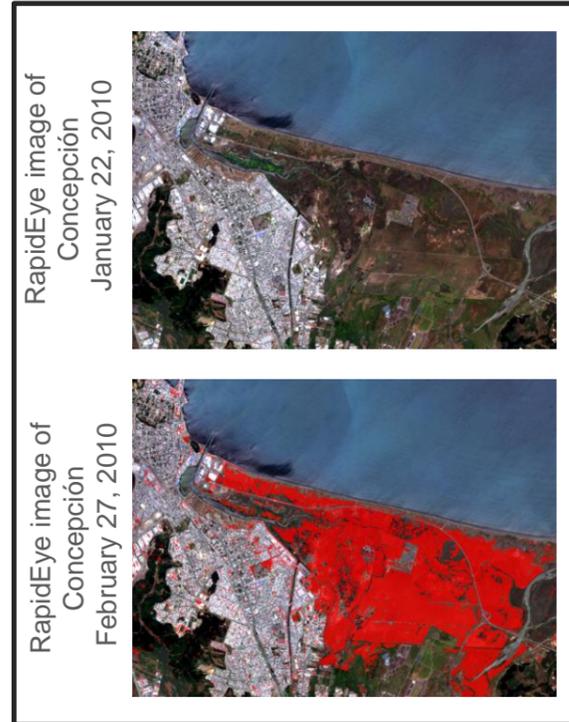
Remote Sensing Services



Flyby delivers Remote Sensing monitoring services based on the measurement of many physical and biological parameters characterizing the status of an environment or ecosystem. Different data sources, such as satellite, aerial, and in-situ sensors, are used and merged together in order to extract the information useful for the customer (e.g. for environmental sustainability management systems).

Flyby is partner of RapidEye and distributes RapidEye imagery

The red footprint shows the areas damaged by the earthquake



Integrated Services based on space assets



FishSAT is a system employing space assets (earth observation, satellite navigation, satellite communication) and terrestrial technologies (local sensors, radio links, webGIS) in order to acquire data onboard a fishing boat and to deliver them to onshore users for very different purposes: fisheries and fish markets can use the data for selling more fish at better prices, while the sea authorities can use the data to strengthen law enforcement.



HappySun is a real time service aiming to help the tourist in preventing solar erythema due to an excessive exposure to solar UV radiations. Standard UVI index, exposure time and protective factor of the sunscreen are provided to the user on the internet and via SMS on the mobile phone.

Manned & Unmanned Airborne Remote Sensing Systems



FlySight is a suite of products and services answering to UAS manufacturers who need customized optical remote sensing solutions to be integrated in their systems and end-user applications.

The FlySight team can identify, design and manufacture the proper UAS/UAV solution for application in many civil fields like Environmental monitoring, Oil & Gas, Precision Farming, Maritime and Coastal planning as well as Defence & Security.

Special features are offered in the dual-use applications (civil & military) devised for critical situations like e.g. disaster management, fire fighting, sea pollution management, etc.

Custom product

Flyby develops custom solutions according to customers needs:



SENSOR DESIGN & CUSTOMIZATION

Development of custom stabilized EO sensor :
VIS camera, IR camera or multispectral camera integration,



VIDEO SOFTWARE CUSTOMIZATION

Real Time and Post Processing tools

Main functions:

- Video tracking
- Video fusion
- Real time video mosaicing
- Automatic target detection

Partnership and Distribution

Flyby is third-party tech partner and the Italian distributor of the following brands:



Cloud Cap Technology is specialized in stabilized camera gimbals for surveillance, inspection, law enforcement, situation awareness, environmental monitoring.



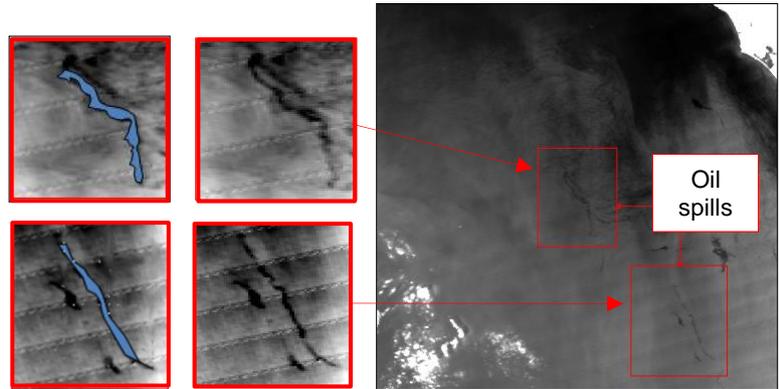
Simlat provides high-end ISR (Intelligence, Surveillance and Reconnaissance) and UAV/UAS mission training Systems and Simulators for every Platform, every Mission and every Payload.



ICS provides a professional range of NATO compliant products for UAS. SkyView Ground Control Station SW allows support for the internationally accepted standard NATO STANAG 4586.

Pollution Monitoring

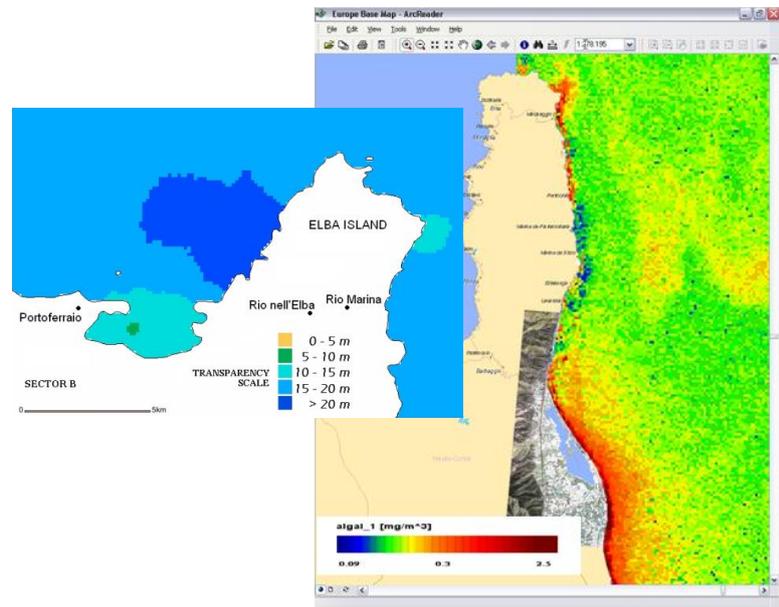
Satellite images and airborne sensed data allow for pollution detection and monitoring. Flyby S.r.l. provides services for the identification and analysis of different pollution sources, such as oil discharge at sea or plumes over industrial areas.



Water Quality Analysis

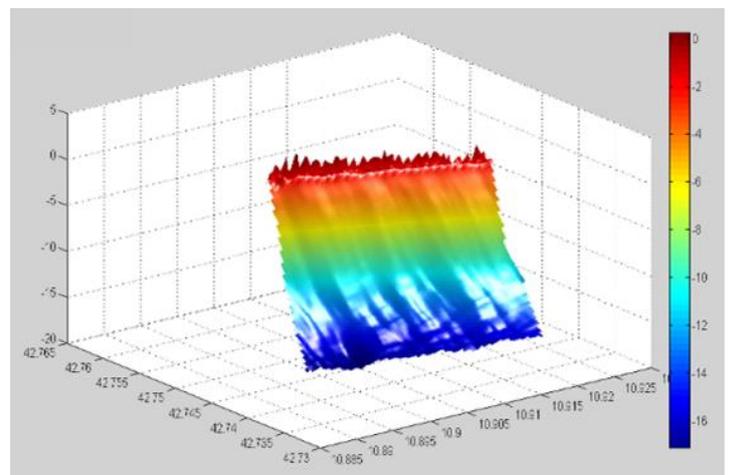
Flyby S.r.l. offers services for water quality analysis from hyperspectral or multispectral satellite/airborne sensed data. Just two examples:

- retrieval of sea water constituents concentration from satellite optical sensors allows to identify the presence of algal blooms or other phenomena,
- water turbidity maps can be used for environment protection and anthropic impact evaluation.



Bathymetry Analysis

Sea bottom depth estimation from satellite/airborne multispectral optical images represents an accurate and low-cost methodology for exploring remote areas which could hardly be accessed, with no need for expensive and time consuming in-situ measurement surveys.



Land Management

Land management can be efficiently improved by the use of land cover maps. These maps are obtained by means of specifically tailored techniques for change detection, land cover classification, crop monitoring and urban settlement control.



Disaster Management

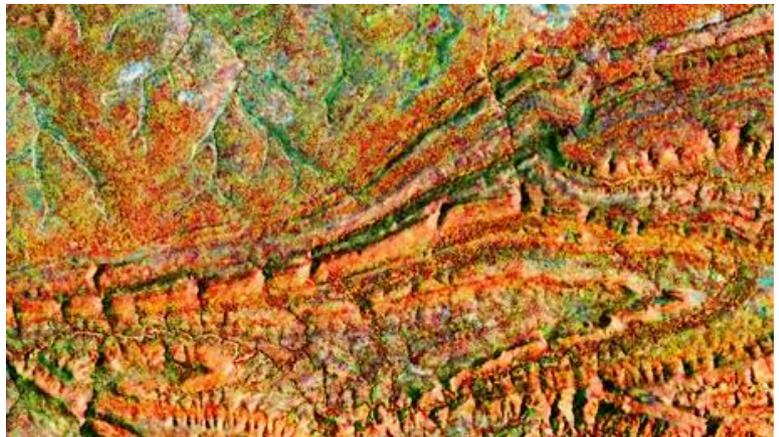
Earth observation data analysis can support decision making systems by providing information on possible disaster evolution and allowing to observe large areas in near real time. Many different applications can be addressed, such as:

- Pollution assessment and managing,
- Flood monitoring,
- Fire detection,
- Desertification monitoring.



Geological Mapping & DEM Extraction

Satellite imagery can be regarded as a valuable tool in geological mapping and exploration. The fast observation of large territories make it easier to map terrain elevation (DEM) and the geological structure, thus offering a support to feasibility studies for regional mapping plans or soil/stream sampling campaigns. Moreover, such services can provide information on the probability of occurrence of various materials.





Flight segment

The FlySight suite of products offers many real-time image processing applications that can be executed by the onboard processors of the airborne platform.

Image processing SW

Geographic Functions

The Real Time Geographic function allows:

- to hold a tagged geographical position in the centre of the image. It includes the selection of an Area of Interest;
- to compute the geographical coordinates of the viewed object centered in the video frame.

Video Stabilization

Video stabilization is achieved by means of algorithms based on optical flow estimation. This allows to significantly remove platform vibrations at the same time.

Video Fusion

Different sources of information can be fused in a unique image by exploiting real time image fusion techniques.

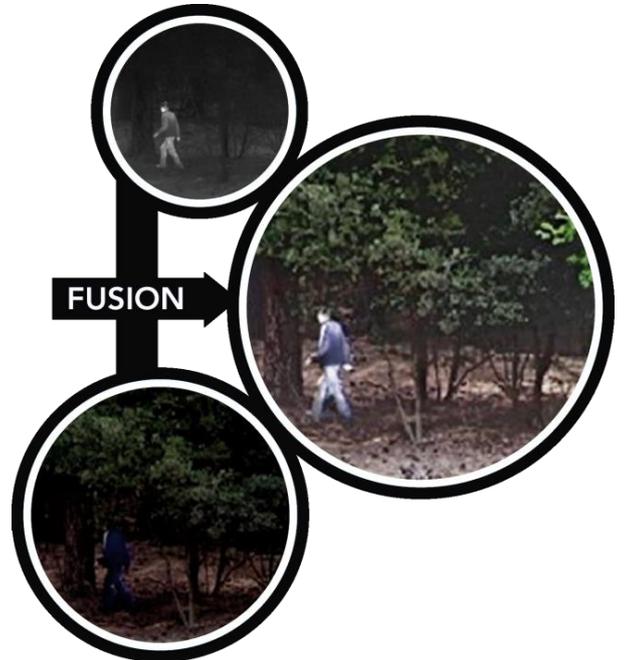
Video Contrast Enhancement

The use of dynamic compression and contrast enhancement methodologies allows to enhance important details within complex scenes.

Custom Solutions

The FlySight team is able to develop custom solutions for adding video processing capability to airborne vision system, e.g.:

- Detection of particular events (Fire, Pollution, etc.),
- Object tracking,
- Object detection and recognition.





FLYSIGHT

Ground segment

Images stored onboard can be downloaded to the Payload Ground Control Station after the flight. Here they are processed to obtain the final interesting information.

FlySight Suite of product offers standard post-Flight SW and processing tools dedicated to customer applications.

Image processing SW

Image Mosaicing

This function performs the automatic mosaicing of the images captured during the flight. The function exploits the metadata available from the avionics and the texture information contained in the images.

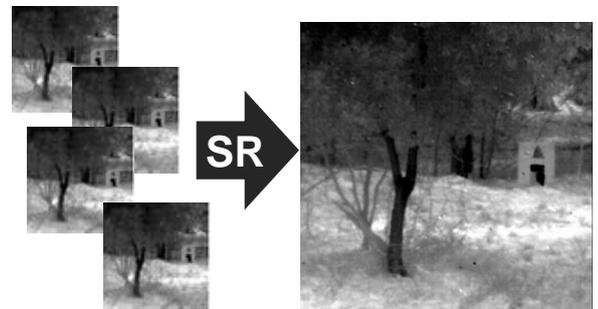


Image Ortho-Georeferencing

This function performs the orthorectification and the georeferencing of the single images and of their aggregated mosaic view.

Image SuperResolution

This function allows for image enhancement. The super Resolution methodologies can be used to increase resolution when different images of the same scenarios are available.



Target detection

Target detection in complex backgrounds for urbanization control. Applications range from abusive urban development to urbanization indexes definition.

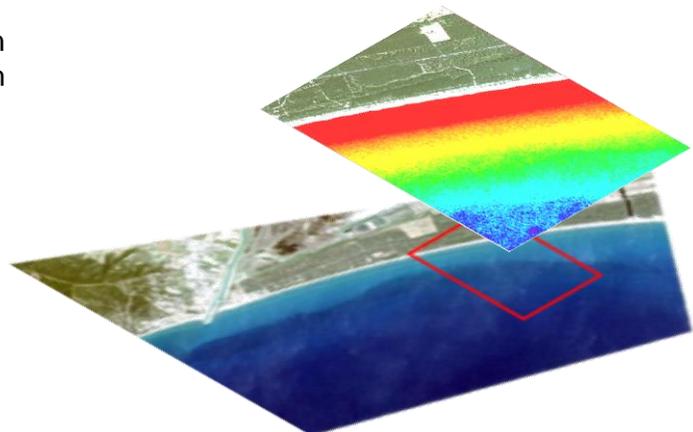
GIS Exporting

All the acquired data can be exported and visualized in standard GIS format to assure the interoperability with other commercial/open GIS platforms.

Custom Solutions

The FlySight team is able to develop custom solutions for adding image processing capability to Payload Ground Control Station:

- Land cover mapping,
- Fire front mapping,
- Vegetation classification and health status.



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