Characterizing ecology and Monitoring ecological / human interactions from Space: the KALIDEOS Bretagne framework

Thomas Houet, Laurence Hubert-Moy, L. Houpert, Jean Nabucet, Samuel Corgne, E. Pottier, Hervé Nicolas, Nicolas Bellec

To cite this version:


HAL Id: halshs-02191762
https://halshs.archives-ouvertes.fr/halshs-02191762
Submitted on 23 Jul 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
Characterizing ecology and Monitoring ecological / human interactions from Space: the KALIDEOS Bretagne framework

Houet T. 1, 2, Hubert-Moy L. 2, Houpert L. 3, Nabucet J. 1, Corgne S. 2, Pottier E. 4, Nicolas H. 5, Blec N. 6, and others.

* LTER / ILTER Zone Atelier Armorique

1. CNRS, Université Rennes 2, CNRS UMR LETG 6554, Place du recteur Henri Le Moal, 35043 Rennes Cedex, thomas.houet@univ-rennes2.fr
2. Université Rennes 2, CNRS UMR LETG 6554, Place du recteur Henri Le Moal, 35043 Rennes Cedex
3. CNES, DSO/SI/2A, 18 avenue Edouard Belin, 31400 Toulouse
4. IETR UMR CNRS 6164, Université Rennes 1. Campus de Beaulieu 263 Avenue du Général Leclerc - CS 74205, 35042 Rennes Cedex
5. Agrocampus Ouest, UMR INRA/Agrocampus 1069 SAS, 65, rue de St-Brieuc, CS 84215, 35042 Rennes Cedex
6. GIS BreTel (Bretagne Télédetection), Telecom Bretagne, Technopôle Brest Iroise - CS 83818, 29238 BREST Cedex

Objectives and rationale

Providing high resolution spatial and temporal remotely sensed imageries to

1. characterize ecological properties of landscapes (habitat mapping, ecological metrics...)
2. monitor land use and land cover changes and their ecological implications at various spatial and temporal scales
3. produce and transfer replicable products dedicated to researchers and decision makers to facilitate the understanding, management and adaptive governance of territories and natural resources.

As remote sensing provide innovations for...

- Ecology
- Hydrologie
- Land management

The KALIDEOS Bretagne framework

END-USERS REMOTELY SENSED DATA PROVIDED

**Optical / Thermal**
- Pléiades (0.7m – 2.4m / monthly)
- SPOT 6-7 (6m / monthly)
- Sentinel-2 (10m / 5 days)
- Landsat (30m / 15 days)

**Radar**
- Sentinel 1 ()
- ALOS 2 ()
- TerraSarX (1.5m /)

**3D**
- Tri-stéréo Pléiades (summer / winter)
- Stereo-SPOT6-7 (Summer / winter)

A PROJECT-BASED INITIATIVE

Remote Sensing data a **freely** provided for Research and Development projects on request
Provided by CNES using a web interface

https://bretagne.kalideos.fr/drupal/

A CLOSE COUPLING WITH ZA ARMORIQUE

Applications on Rural landscapes (yellow), Rennes Urban area (green) and urban/rural gradient (red)
Over 15 years of scientific data
Collaborations of scientists in ecology, geography, hydrology, climatology, agronomy, geology...

ON GOING PROJECTS

**Urban sprawl and related environmental implications**
Mapping vegetation, materials, urban heat island, ecological corridors

**Ecological networks in urban / rural landscape**
Land cover mapping, characterizing habitats in lowlands, identifying agricultural practices, assessing functions of wetlands, Blue and green corridors

**Methodological developments**
Time-series, big data, fusion of multisource data, deep-learning

**Innovative proposals**
Nighttime corridors / light pollution mapping, monitoring air quality with RS, invasives plants detection, agricultural land uses (yields, fertilizing...)

EDUCATION AND PROSPECTS

Master degrees are implicated for educational prospects
We support new companies and startup

JOIN OR SUPPORT US!

You’ve got a project / an idea?
We’ve got the data and experienced partners!
We promote collaborative initiatives