



Au service de l'agriculture

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DEFENCE AND SPACE

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Responsable de l'équipe expertise thématique

AIRBUS



AIRBUS

An Unrivalled Access to Space Imagery

NEXT



OPTICAL CONSTELLATION

RADAR CONSTELLATION

SIGNAL INTELLIGENCE

Pléiades Neo

Pléiades

SPOT

DMC Constellation

Vision-1

TerraSAR-X

TanDEM-X

PAZ

NovaSAR

HawkEye

(Partners)



Radio Frequency

AIRBUS

Intelligence Operational **Service**



Institutions

Imagerie

Mise en place et suivi
des politiques
agricoles



Assurance

Grassland
Production Index
(GPI)

Indice de production
des prairies pour la
mise en œuvre
d'assurance climatique



Agriculture de précision

Farmstar

Conseils / OAD pour
augmenter l'efficacité
des intrants auprès de
16 000 agriculteurs



Agro-Industries

Starling

Mise en place et suivi des
engagements no-
déforestation d'une chaîne
d'approvisionnement

Nos capacités d'acquisition

Public
Constellation

Radar Constellation

SPOT

Pléiades
Neo

Pléiades

Vision-1





Constellation publique : essai en parcelle agriculteur

- 10-20 m resolution
- Optique 4 (VNIR) – 13 bandes spectrales
- Revisite théoriques 2-5 jours



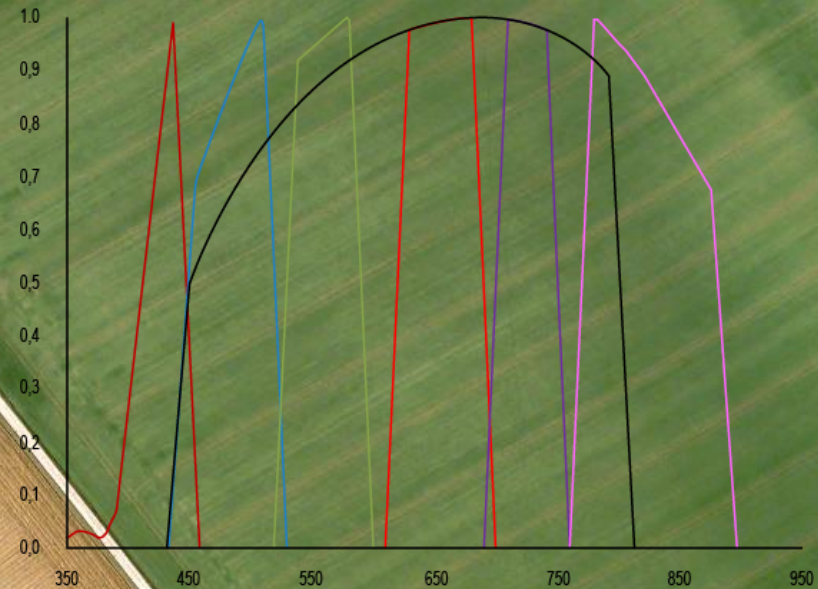
SPOT : essai en parcelle agriculteur / essai en bande

- 1.5 - 6 m resolution
- Optique 4 bandes spectrales MS (VNIR) + PAN
- Revisite théoriques 2-3 jours – Hebdo à bi-mensuelle

An aerial photograph showing a patchwork of agricultural fields and forest. The fields are in various stages of growth, with some appearing as vibrant green and others as golden-brown. A dense forest of dark green trees is visible on the right side. A small building is located in the lower-left quadrant. The image is used as a background for a presentation slide.

Pléiades : essai en bande / micro-parcelle

- 0.5 - 2 m resolution
- Optique 4 bandes spectrales MS (VNIR) + PAN
- Revisite théoriques 2-5 jours – Hebdo à mensuelle



Panchromatic: 450-800nm

Multispectral channels:

Deep Blue: 400-450nm

Blue: 450-520nm

Green: 530-590nm

Red: 620-690nm

Red-Edge: 700-750nm

Near Infrared: 770-880nm

PAN

Pléiades NEO : essai en bande / micro-parcelle

- 0.3 – 1.2 m resolution
- Optique 6 bandes spectrales MS (DP - VNIR – Red Edge) + PAN
- Revisite théoriques 2x/jour – A définir en opérationnel pour le marché agriculture



To keep in mind



The world's most reactive commercial satellite constellation with 30cm resolution and inter-day revisit capabilities

**4 IDENTICAL
SATELLITES**



**30cm
RESOLUTION**

Revisit
**2-TIMES
A DAY**

CAPACITY PER DAY

2Msq.km



Designed for a
10-YEAR
NOMINAL LIFETIME

100%
COMMERCIALY
AVAILABLE



AIRBUS

Imagery products



30cm
NATIVE
RESOLUTION

Advanced products

STEREO • MULTI-TEMPORAL STEREO
GEOMETRICALLY CONSISTENT
SERIES MOSAIC • DEM

2 New Bands

DEEP BLUE • RED EDGE

9 Band

COMBINATIONS

3.5m CE90

ACCURACY

3 Radiometric Processings

BASIC • REFLECTANCE • DISPLAY

3 Geometric Processings

PRIMARY • PROJECTED • ORTHO

Highest
Resolution
Imagery
available on
the market

Continuous
ramp-up of the
commercial
service and
release new
product options
all along the way



DMC Constellation
22m
RESOLUTION



SPOT 6/7
1.5m
RESOLUTION



Vision-1
0.9m
RESOLUTION



Radar Constellation
0.25m - 40m
RESOLUTION



Pléiades
0.5m
RESOLUTION



Pléiades Neo
0.3m
RESOLUTION

Access via our Digital Platform, OneAtlas – Unique in the world

IMAGERY

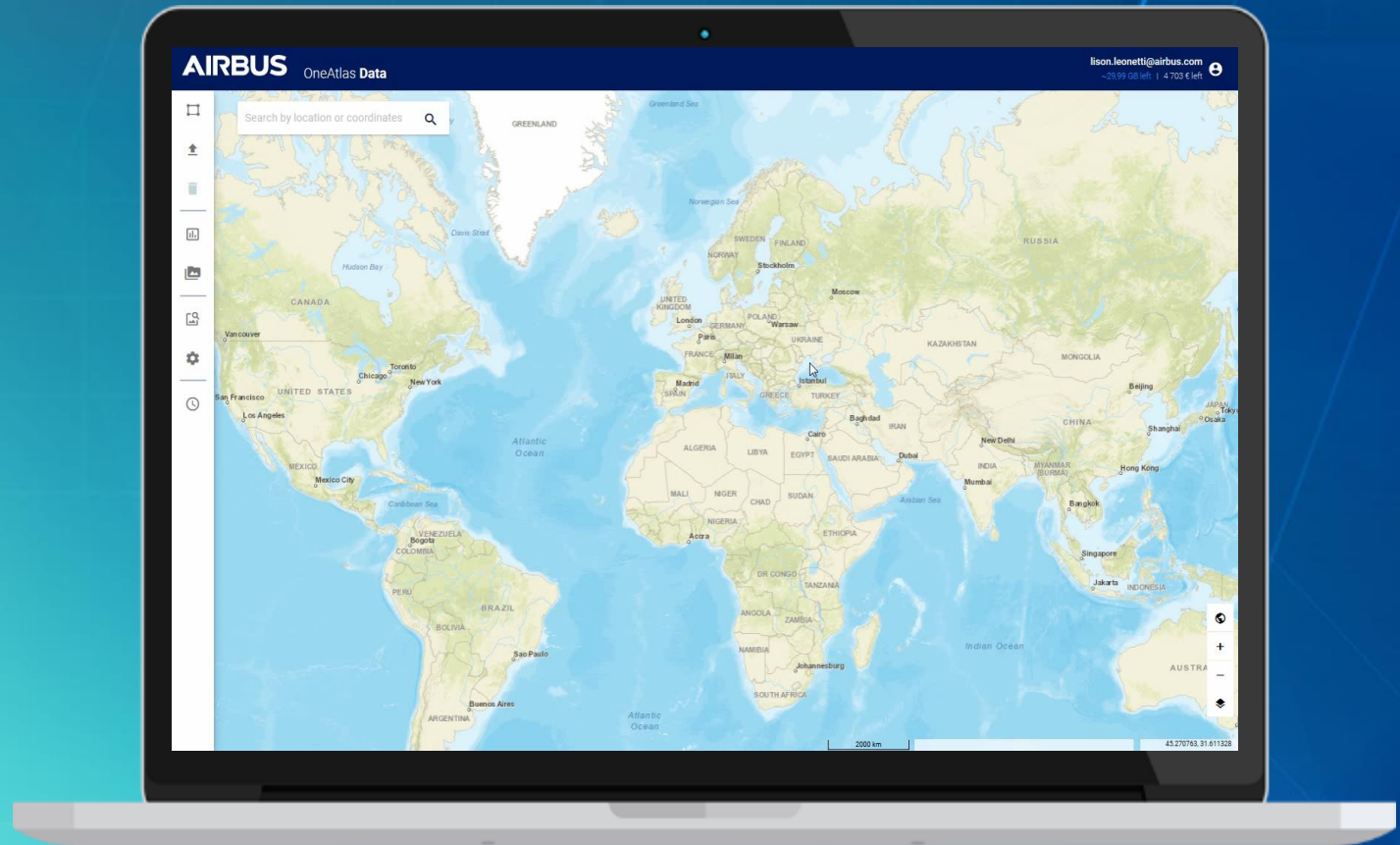
Living Library and Tasking
Multi-resolution and sensors

LAYERS

Basemap, reliable context
Digital Elevation Model

ANALYTICS

Objects identification
Change detection



Nos capacités de traitement image pour extraire des analytics robustes sur la végétation quel que soit le capteur



Modélisation de la réflectance pour calculer un grand nombre de **paramètres biophysiques** décrivant physiquement les conditions de la plante

Repose sur une chaîne de modèles:

- Topographie : pente et angle d'illumination
- Sol : propriétés optiques
- Végétation : architecture de la canopée, feuillage
- Atmosphère : conditions atmosphériques, propriétés des composants
- Capteur : réponse spectrale, calibration radiométrique

Nos capacités de traitement

Paramètres biophysiques

Chlorophyll

fcover

LAI

FAPAR

fNPV

1

**Paramètre
quantitatif**
(N et biomasse
accès)

2

Robuste
(capteurs / angles)

3

Comparable
(temps, large
échelle géo)

4

**Agro-meteo
modèle
intégration**

The right
Eye

UAV / Drone

To get optical images even in cloudy conditions; for early / late growth or for experimental fields

MODIS / Sentinel 3

For national / continental phenomena (free)

Vision1

For increased revisit over small parcels, orchard or field trials

SPOT

For intra-field surveillance

Pléiades

For orchards, vineyards and field trials

DMC Constellation

For large parcels and national phenomena

Pléiades Neo

For orchards, vineyards and field trials

for every
need

Landsat 8/9

For increased revisit from public capacities

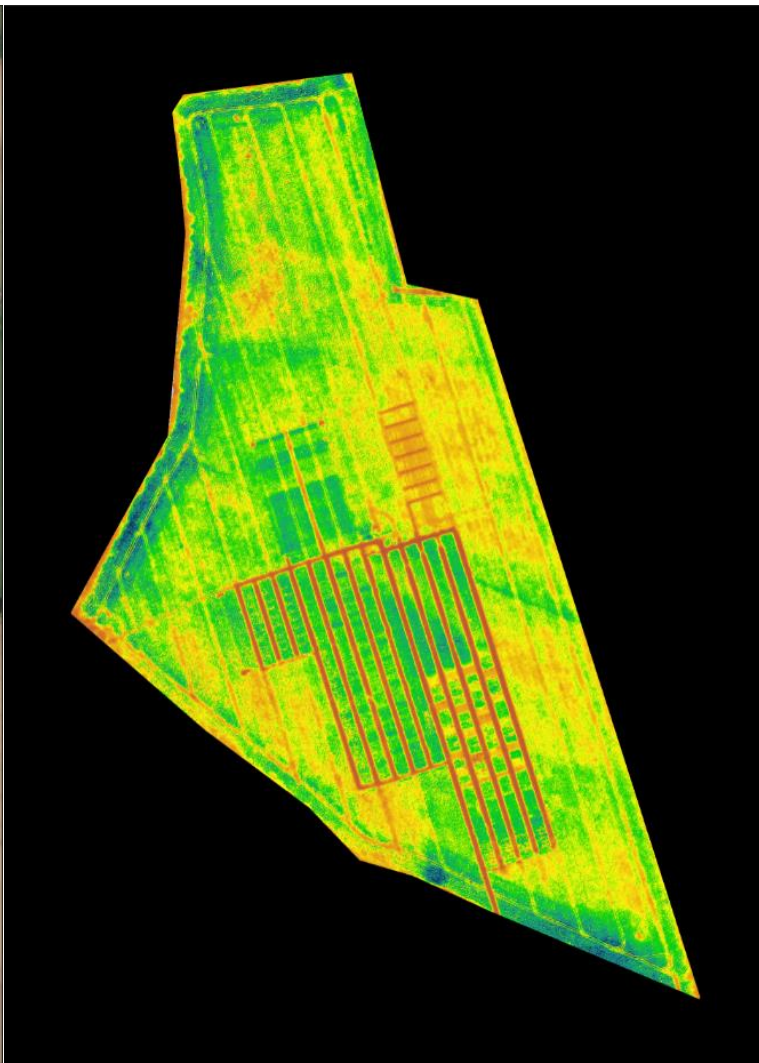
Sentinel 2

For accurate measurements of chlorophyll and high biomass values

Illustrations Pléiades Neo sur des essais en micro-parcelle

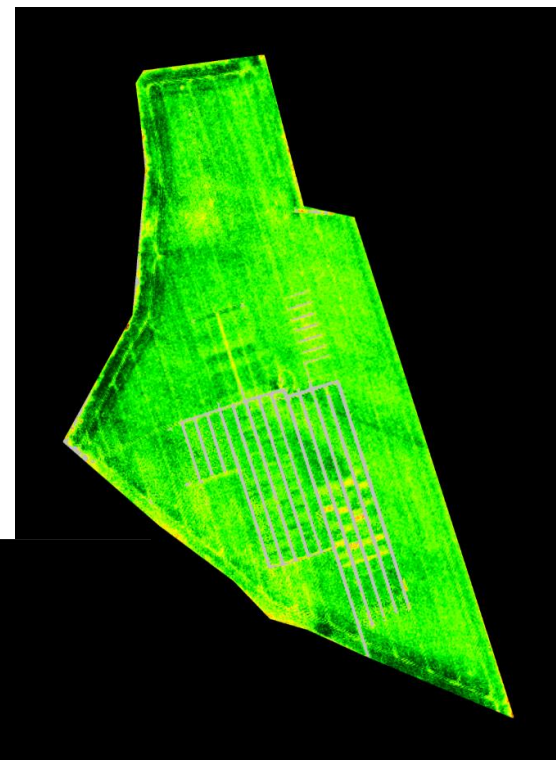


RGB

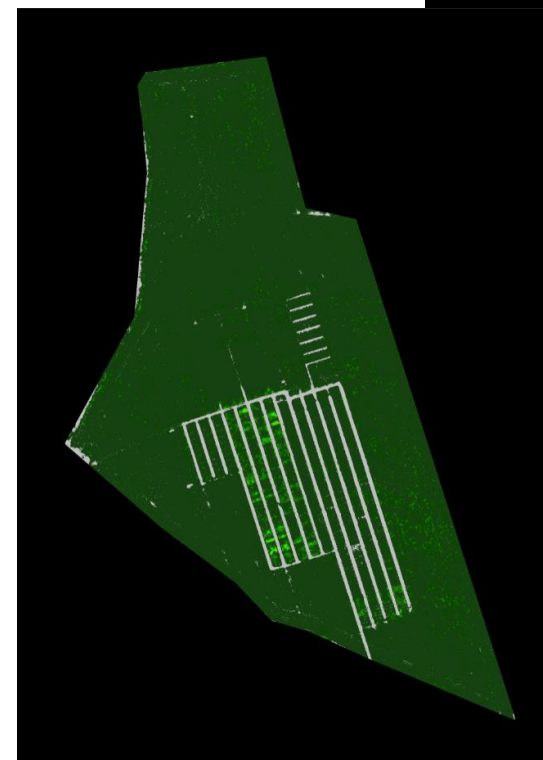


LAI

FAI



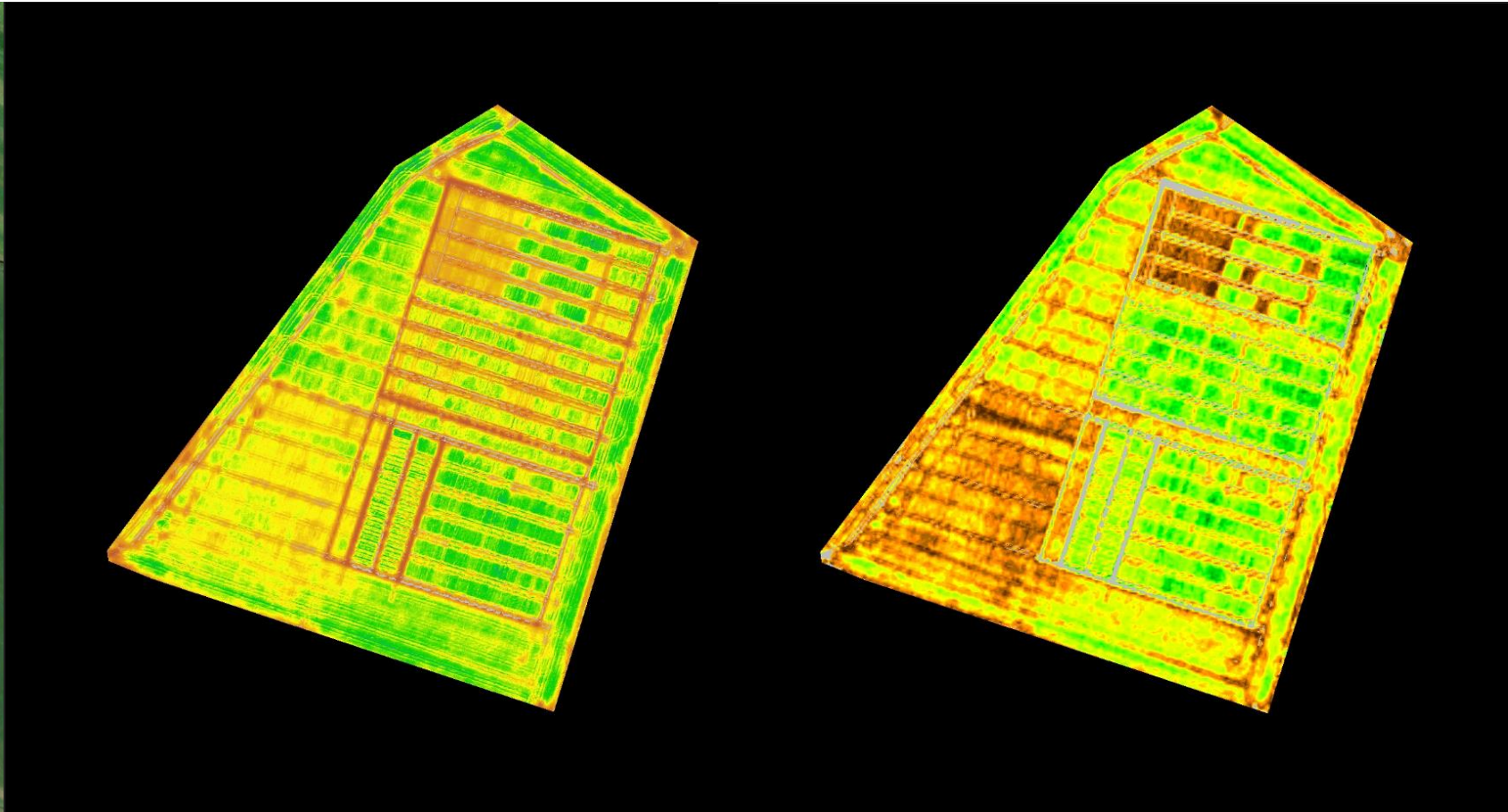
CHL



Illustrations Pléiades Neo sur des essais en micro-parcelle



RGB



LAI

CHL



Observer la culture

Solution Industrielle

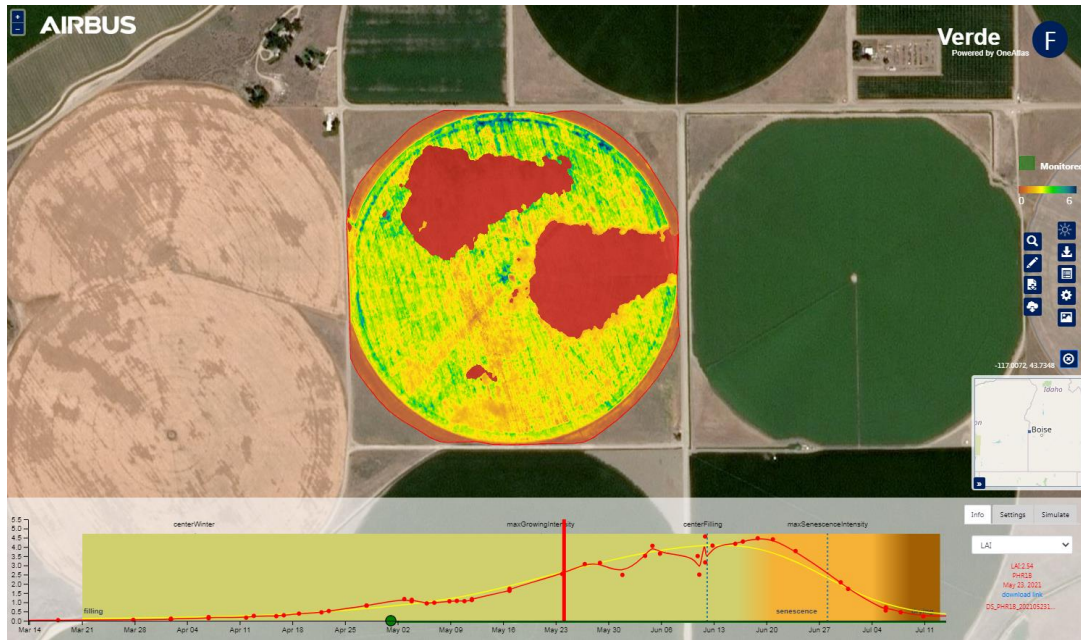
API accès

Avec CropAnalytics, nous livrons aux fournisseurs de services en agriculture les indicateurs de végétation directement dans leur flux de données

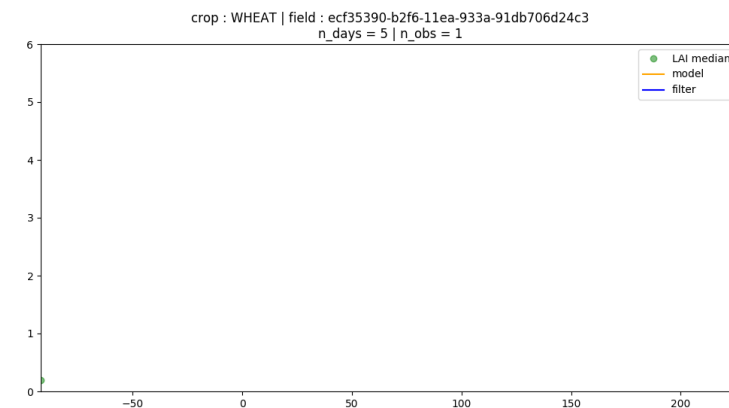
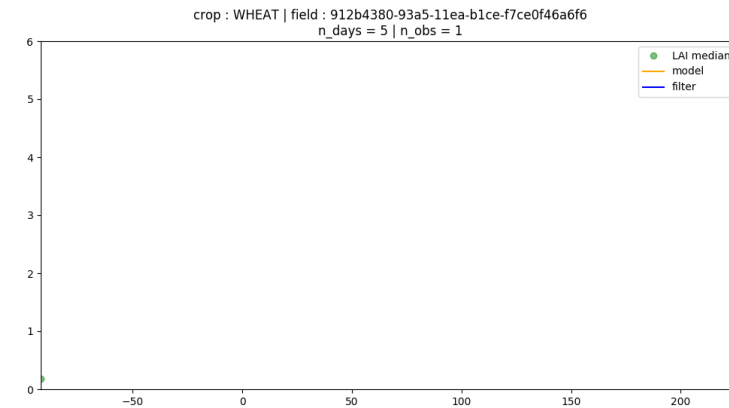
AIRBUS

Traitement des séries temporelles

- Comment tirer profit de l'information temporelle

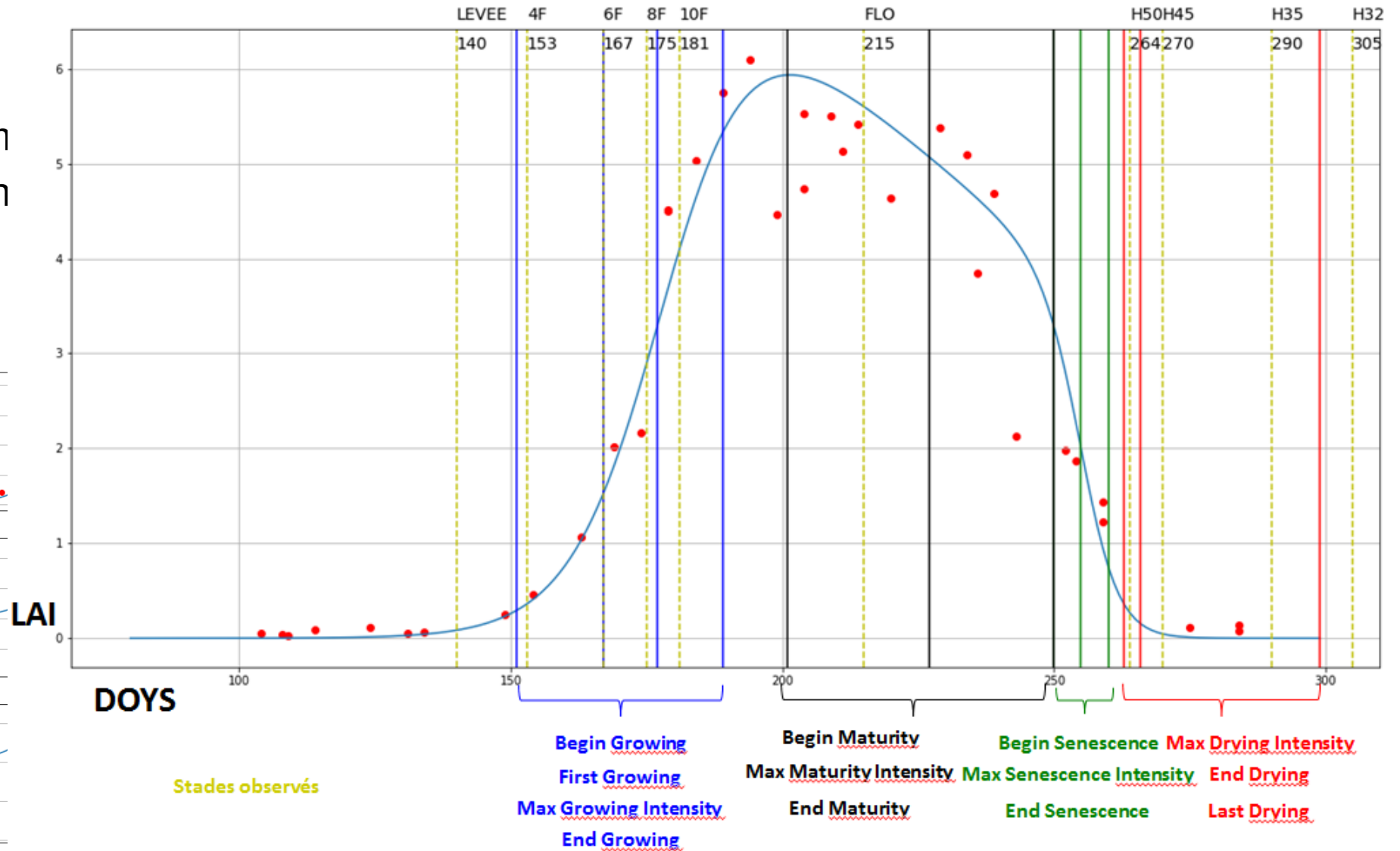
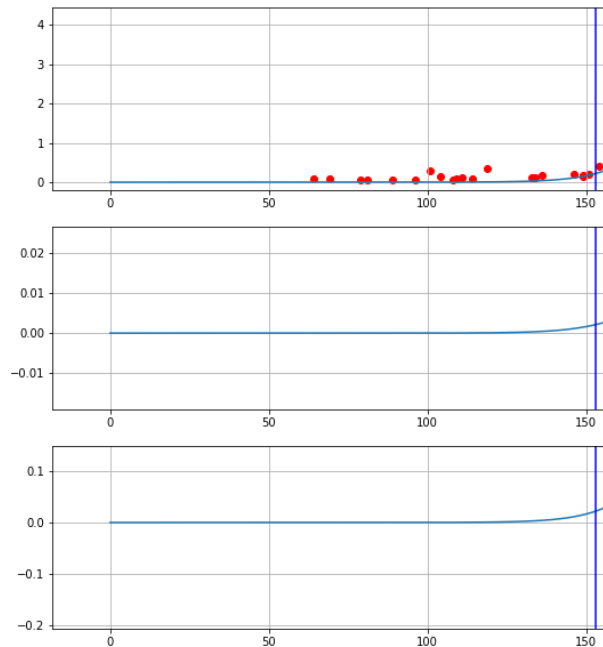


- Une solution qui s'adapte à chaque parcelle



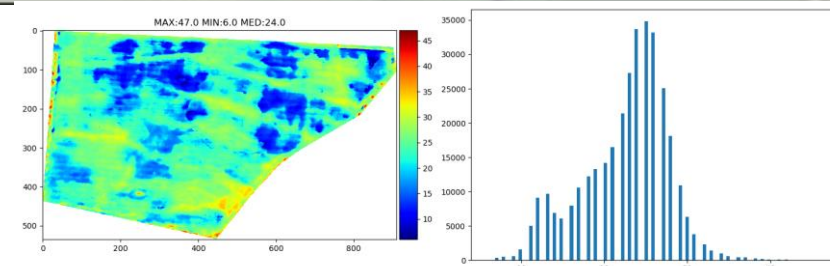
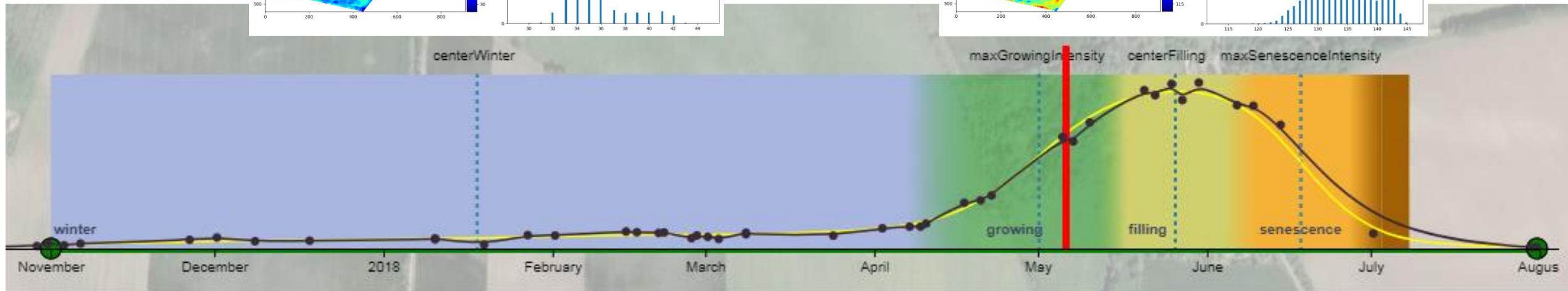
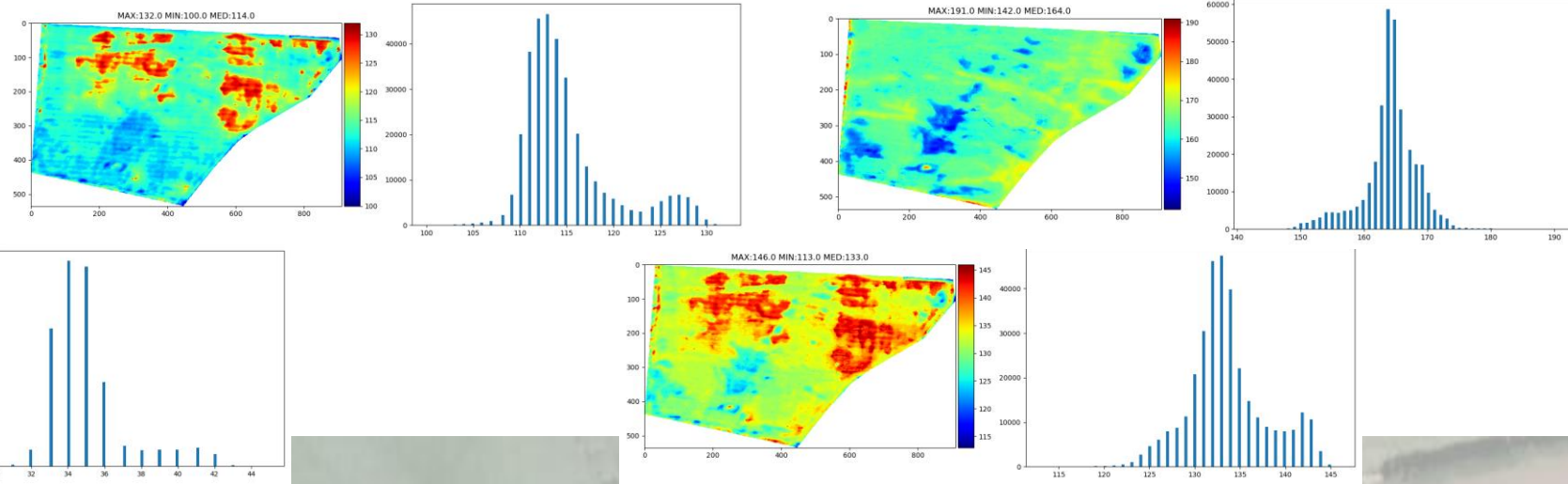
« Phenometrics »

- identifier des évènements
- caractériser ces évènements



« phenometrics » et spatialisation

- Série de 50 observations de LAI



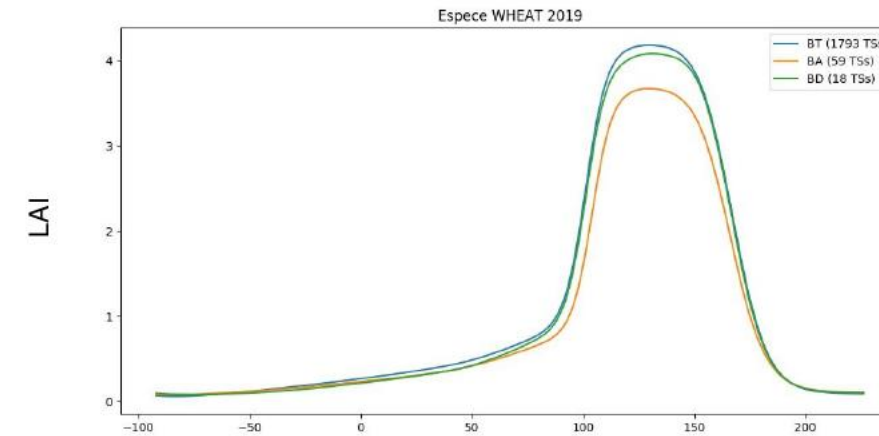
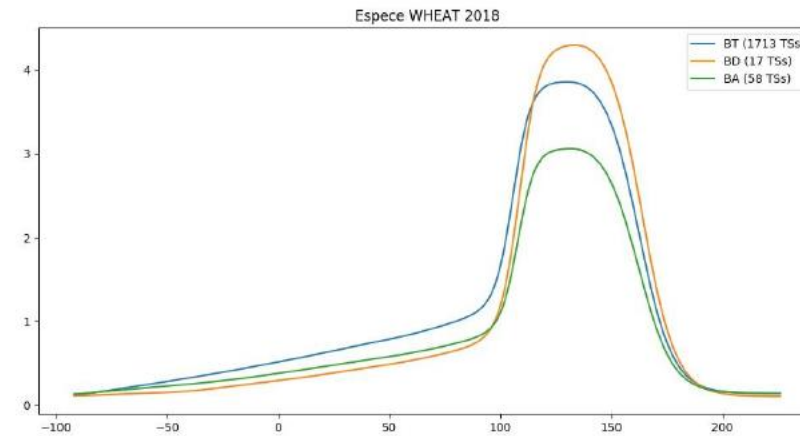
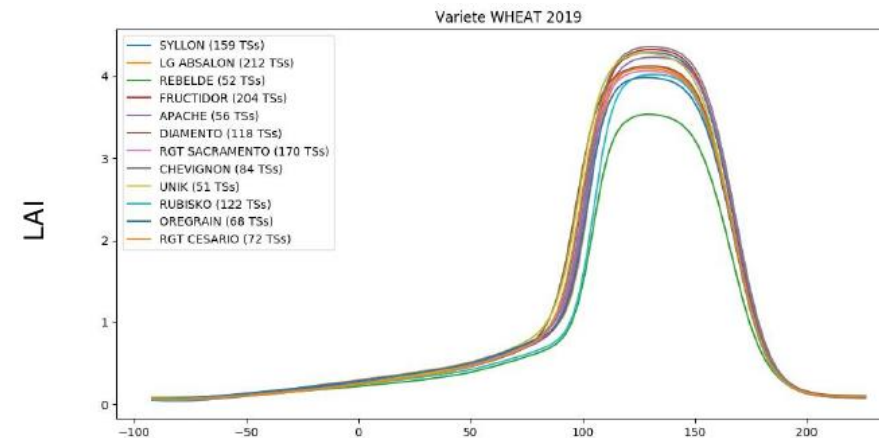
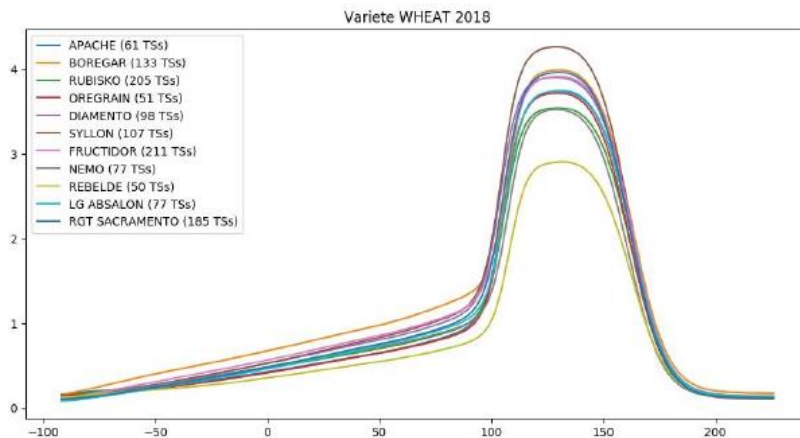
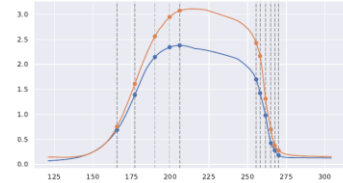
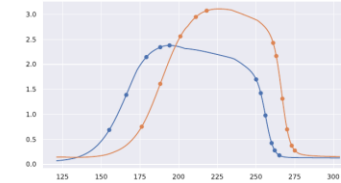
Profil de végétation de référence

- Besoin méthodologiques: « peer group analysis »

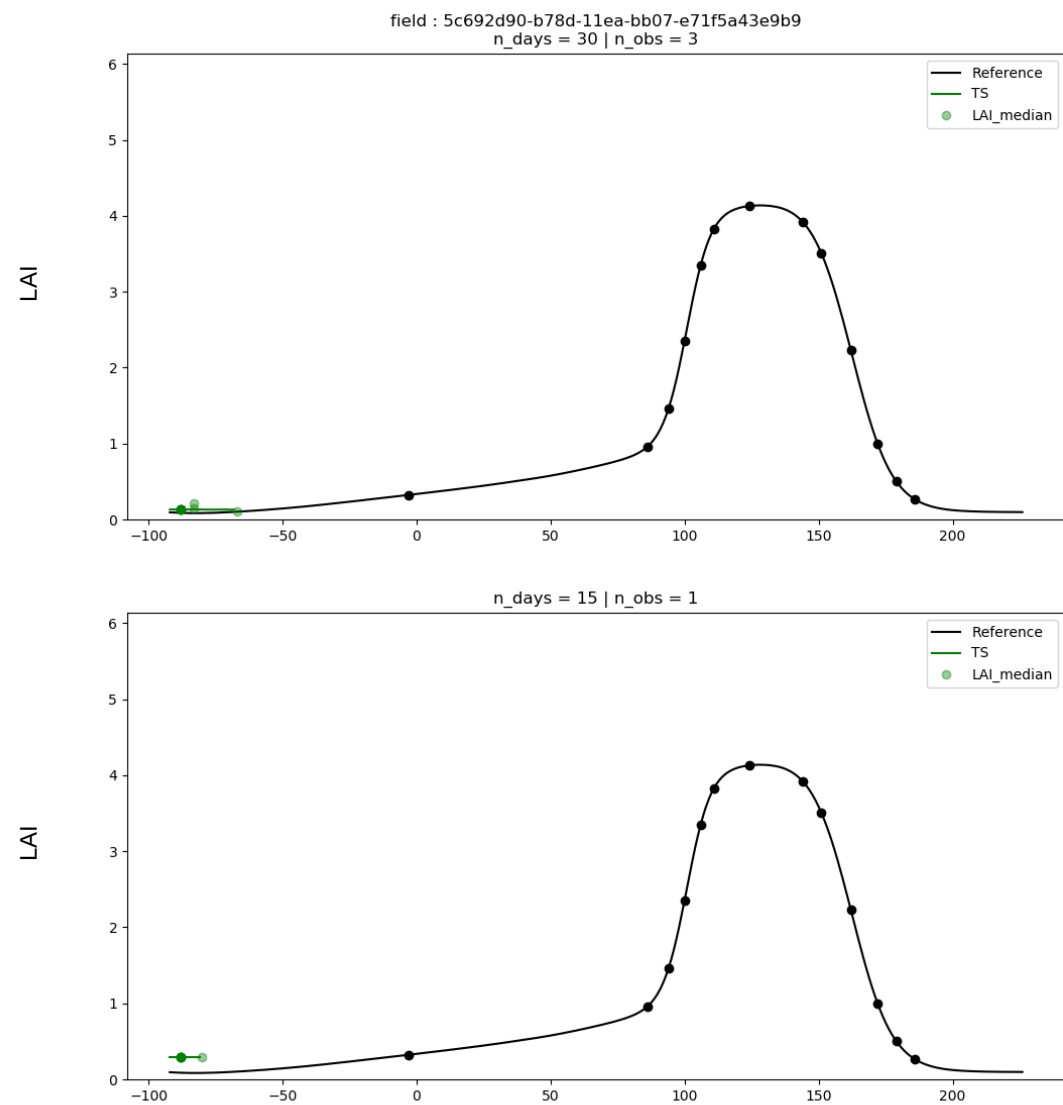
Synthétiser l'information temporelle phénologique d'un ensemble de parcelles agricole

=> profil de référence

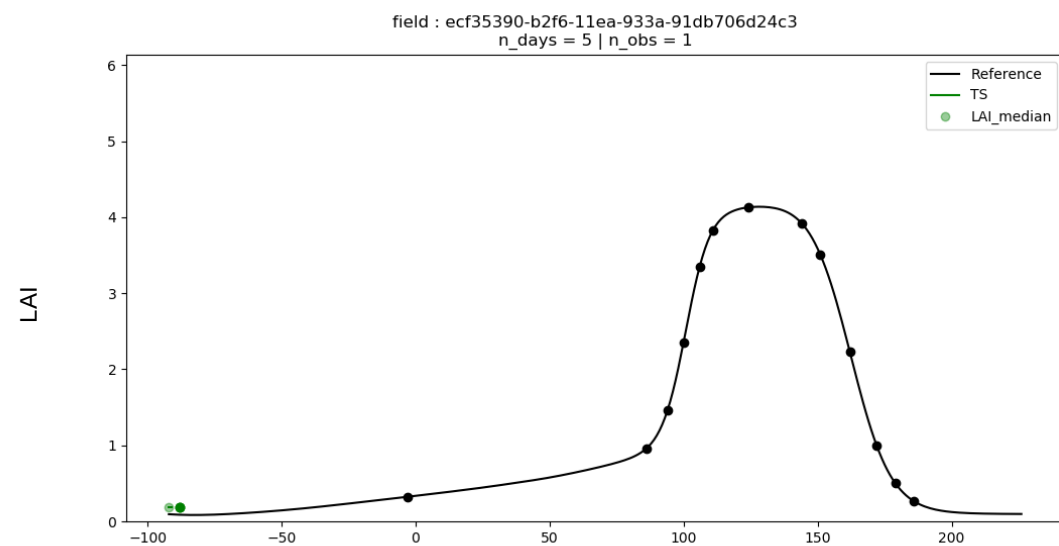
Caractériser les profils temporels vis-à-vis d'une référence => métriques de distance



profil de référence et détection d'anomalies



Alerte en quasi temps réel (calcul tous els 5 jours)



-
- Merci