Serving Agriculture

Innovative digital solutions for a sustainable and productive Agriculture

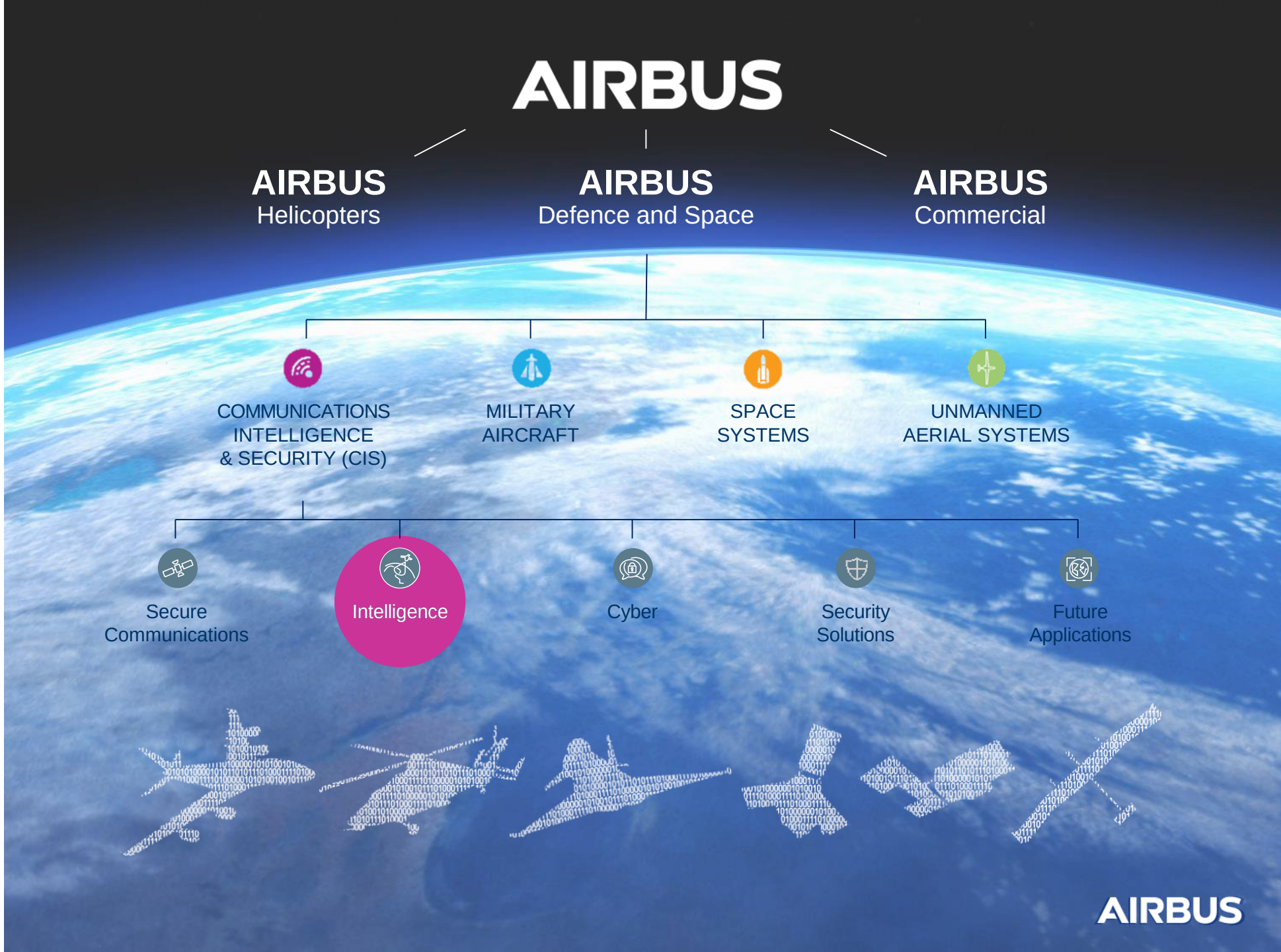
DEFENCE AND SPACE

Joe Cotti

May 2019

AIRBUS

The **Power** of **AIRBUS**



DEFENCE AND SPACE

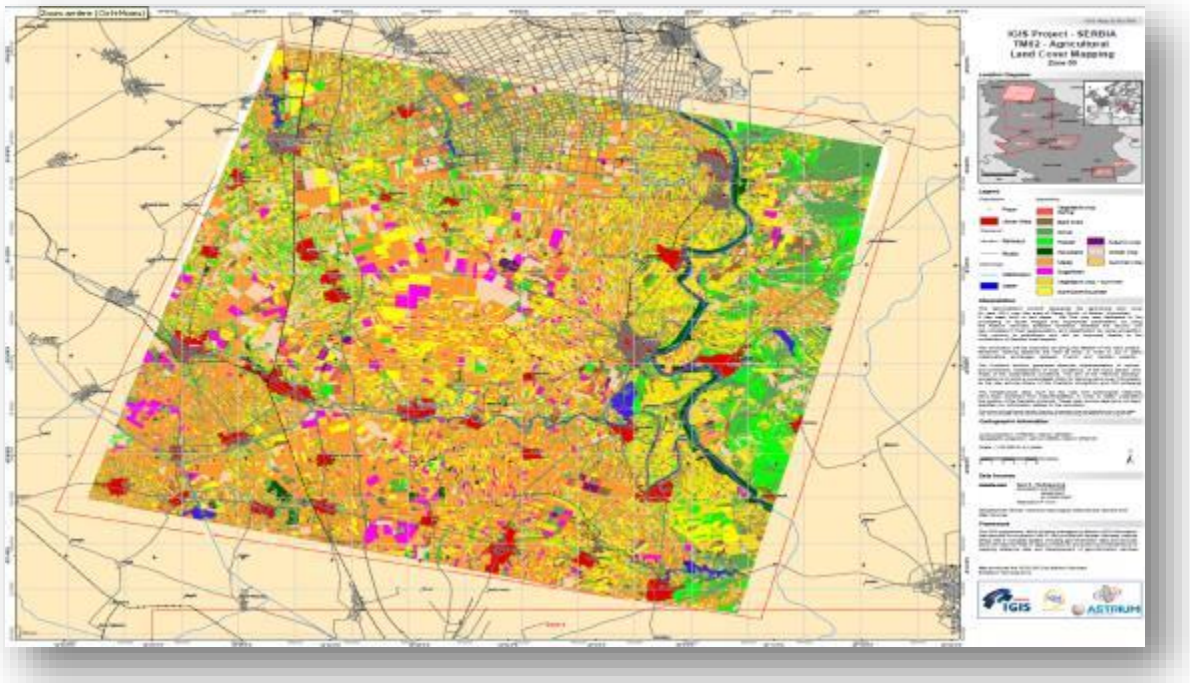
AIRBUS

Intelligence Satellite & HAPS Constellation

Agriculture needs data

Increase of Earth’s population

Requires increase in agricultural productivity



Monitoring from space has become a truly cost-effective solution for **monitoring crop growth & production**

- Timeliness
- Accuracy
- Geospatial vision
- Independence & comparability

Airbus DS Intelligence portfolio in the Ag. market

Analytics is the Tool!

Index-based insurance	Precision farming	No Deforestation verification tool
Grassland	**Verde + soCAP**	**Starling**
Main crops	*New crops*	*New commodities*

AIRBUS

Verde

Physical description of the crop

Consistent regardless of the sensor

API delivery for easy data fusion

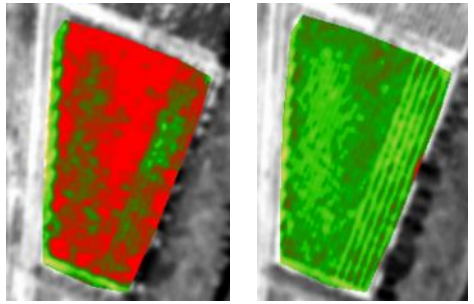
With **Verde**, we deliver precision agriculture portal providers with analytics for advanced agronomic services

Airbus biophysical parameters

NDVI

Relative evaluation of the differences in vegetation development

Sensitive to the light conditions, the viewing angle, the sensor

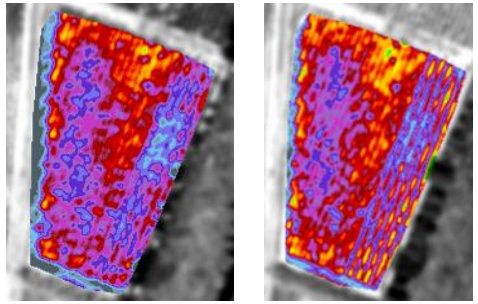


Requires ground measurements calibration to access biomass
(synchronized with the images)

Biophysical parameters

Absolute quantification
of the biomass and the nitrogen

Independent from the viewing angle, the sensor, and the light conditions conducted through our reflectance modelling



Unnecessary ground measurements

AIRBUS

Crop profiles API

Analytics per field

- LAI
- Chlorophyl
- fCover

Deliverables

- Analytics 2.5m (GeoTIFF float 32)
- Display 2.5m (PNG)
- Stats (JSON)

Spatial Source

- Sentinel 2
- Landsat 8
- SPOT 6/7
- Pléiades

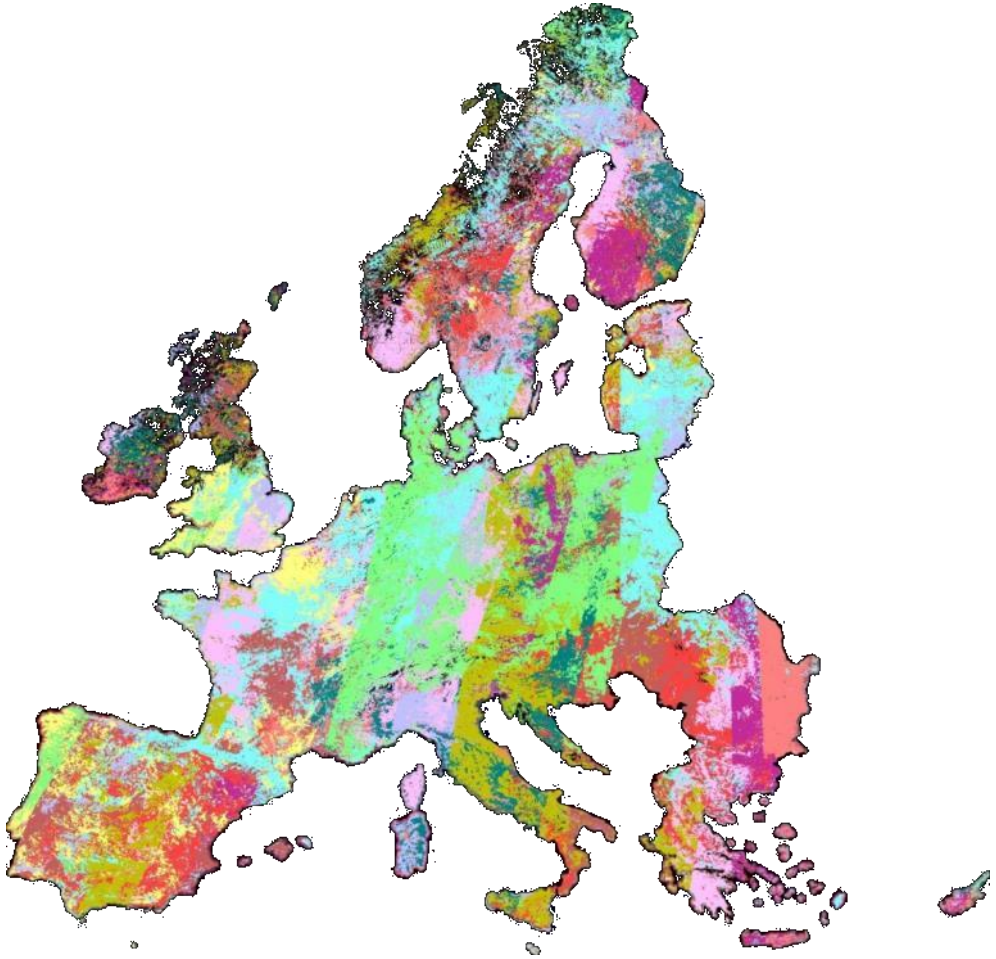
All you can get

Automatic cloud masking

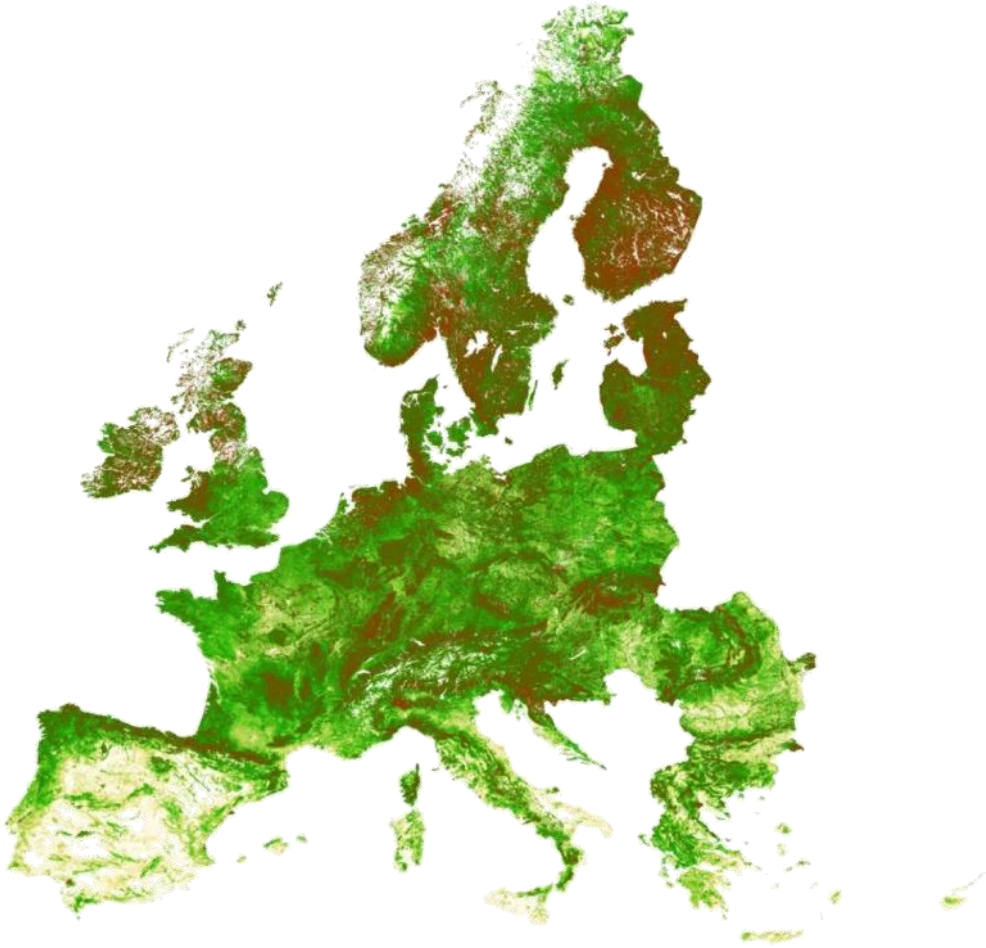
Licenses

- Commercial: business use
- R&D: prototype new services, communicate around it
- **Free demo**

Biophysical Parameters



Composite image performed over 13 days
(1 different colour per day)



Green cover fraction map

0 *1*

AIRBUS


Streamline
control costs
Expand to 100%
European fields
Monitor fields all
along the crop season
With **soCAP** API, we can plug reliable crop analytics to
any tool to support Member States in transitioning
from acreage control to fostering sustainable farming


Grass Land & Starling
AIRBUS


On-farm consumption
Low value crop
Continuous growth
With **Grassland** Production Index, we help insurance companies to protect livestock farmers against climate risks
AIRBUS


CRÉDIT AGRICOLE
ASSURANCES
Le bon sens a de l'avenir
PACIFICA - ASSURANCES DOMMAGES

+

AIRBUS

The rationale behind

- Grass is not considered as a commodity with high value.
- Grasslands are particularly susceptible to climate hazards, can threaten the economic equilibrium of livestock farms.
- In the event of a shortfall in grass production, the farmer must buy forage or even anticipate the sale of animals.
- Because it is mostly consumed on-farm, and because it is continuously growing with several growth cycles in a year, human assessment of a loss can be tricky

Based on maps characterizing the biophysical properties of vegetation

1

Absolute
Quantification of plant parameters

2

Robust
When using different sensors / angles

3

Independent
Of light conditions

4

Free
Of ground calibration

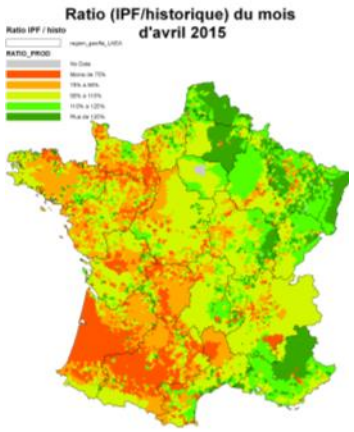
Easy and native comparison
along time and over extended AOIs

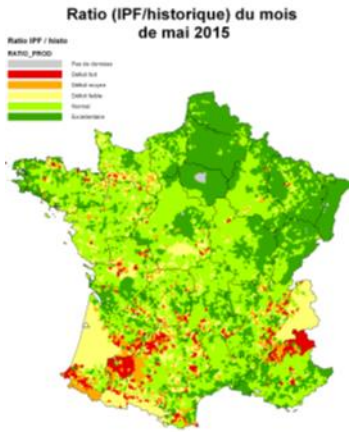
A regular update

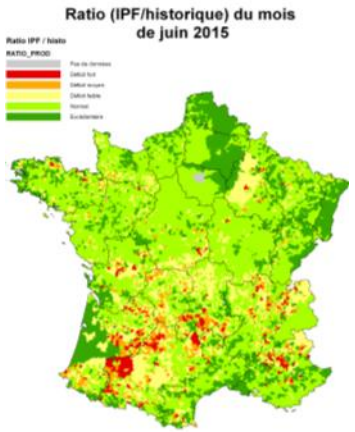
Every month

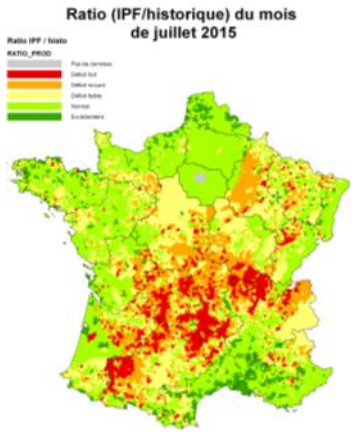
An historical reference

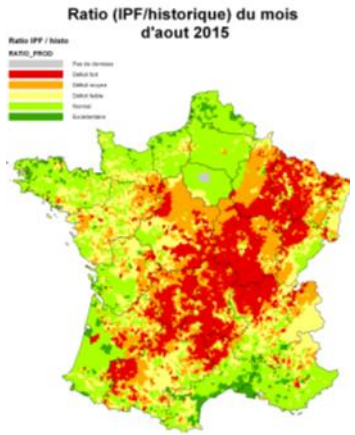
Rooting back to 2003

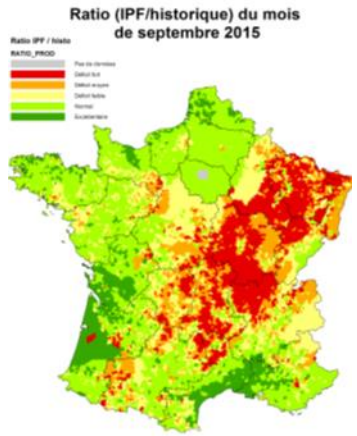








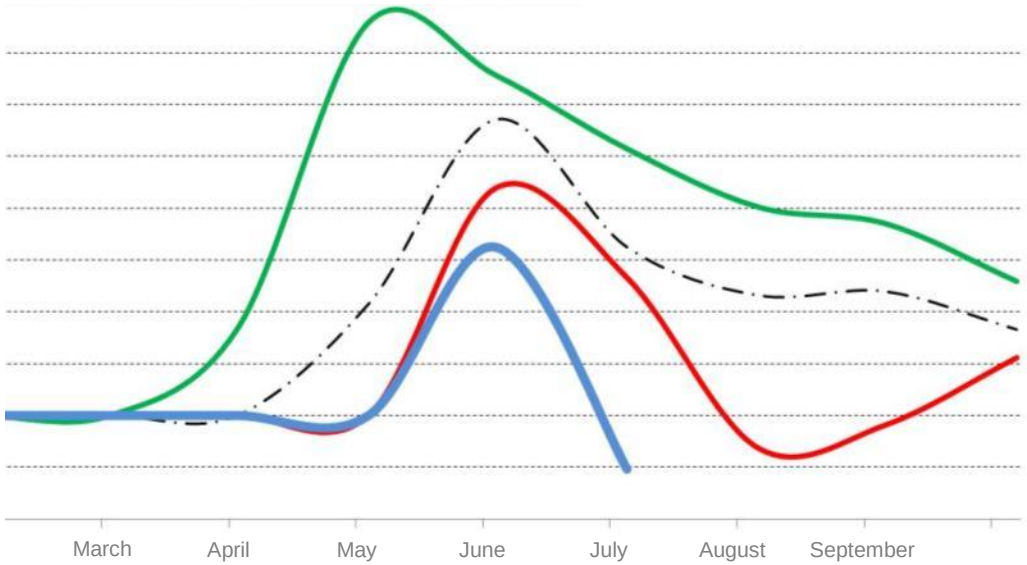




A monthly and annual production database constitutes the benchmark for determining shortfalls

AIRBUS

Monthly local production



- Average production (2003 – 2014)
- Minimum production (2005)
- Maximum production (2007)
- Ongoing production

AIRBUS


Mitigate reputational risk
Verify No-Def commitment
Engage & transform the supply chain
With **Starling**, we provide palm oil stakeholders with unbiased information for a more sustainable procurement
AIRBUS

Starling Components

A basemap

- The reference layer locating forest classes

Monitoring reports

- Updates featuring the evolution of forest cover over time

Summary dashboards

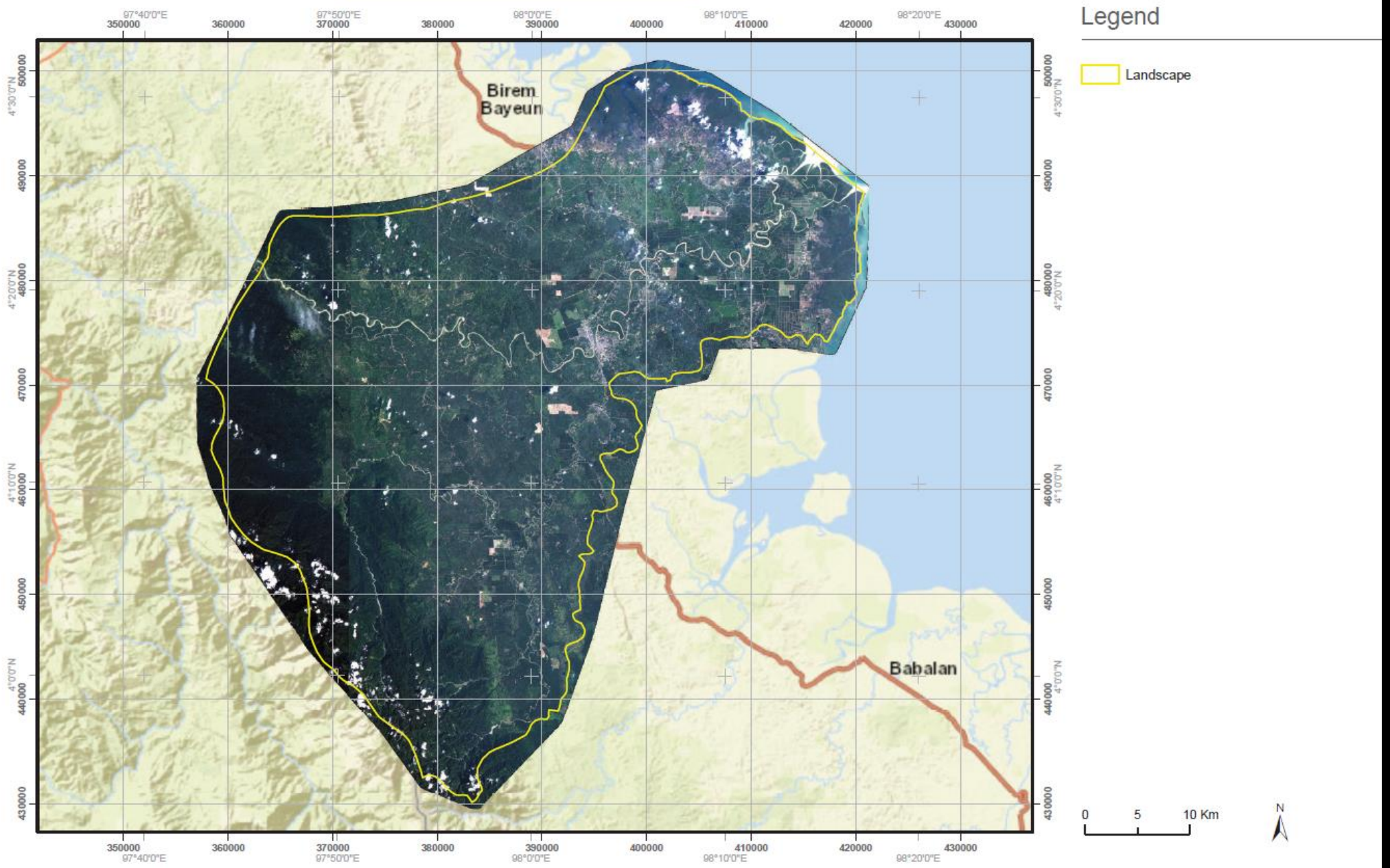
- Regular overviews of all areas monitored by a given customer

In three formats

- PDF
- Digital Copy
- Streaming

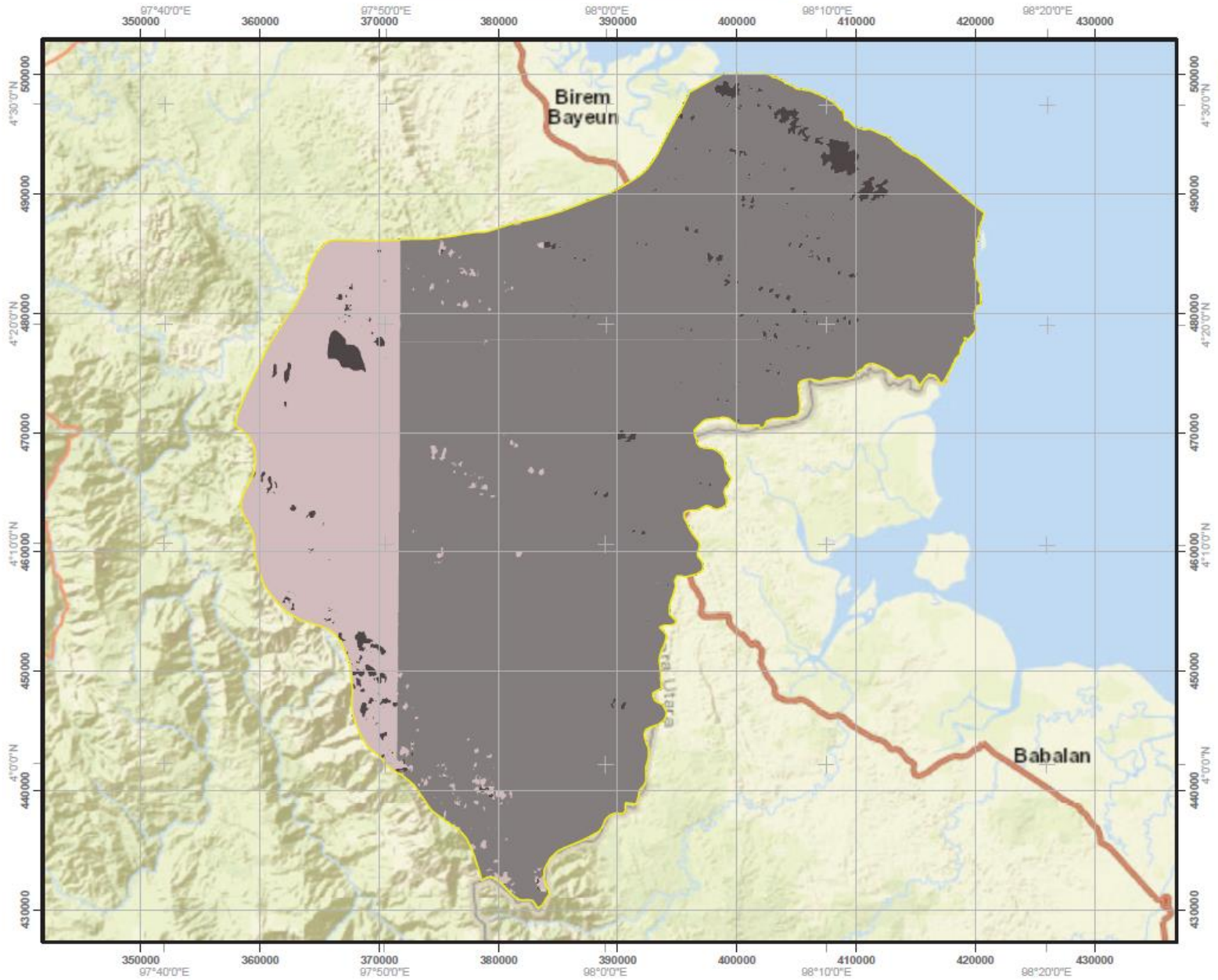
STARLING

Imagery layer



STARLING

Imagery footprint



Legend

- Landscape
- SPOT 7 - 201601210335172
- SPOT 7 - 201601210333436
- LANDSAT 8 - 20160311129057

Key Figures

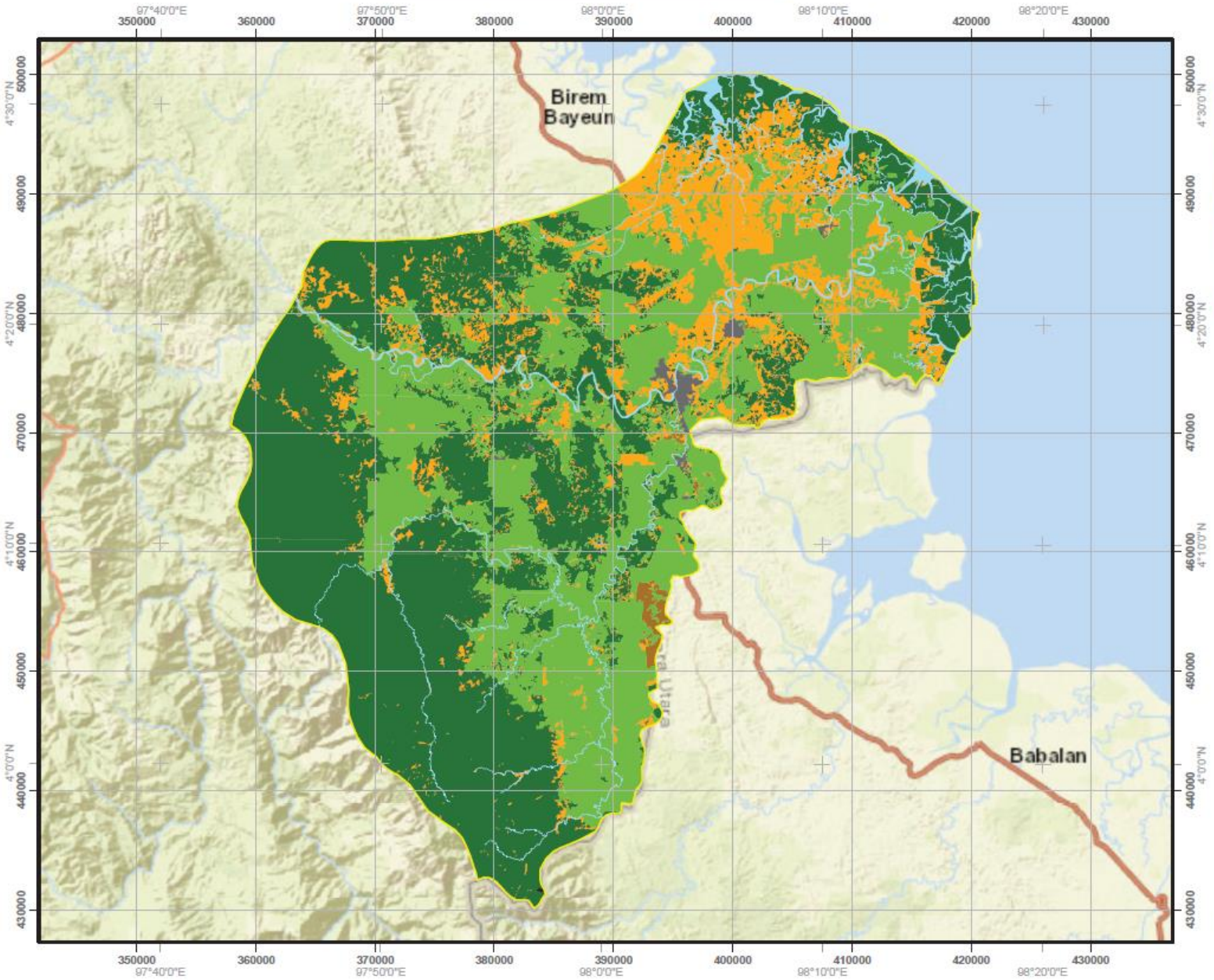
	%
SPOT 7 - 201601210335172	79.85
SPOT 7 - 201601210333436	17.95
LANDSAT 8 - 20160311129057	2.20

0 5 10 Km

N

STARLING

Digitalized map



Legend

- Landscape
- Bare soil, low vegetation and cropland
- Forest
- Other plantation
- Oil-palm plantation
- River
- Settlement
- Water body
- Missing information

Key Figures

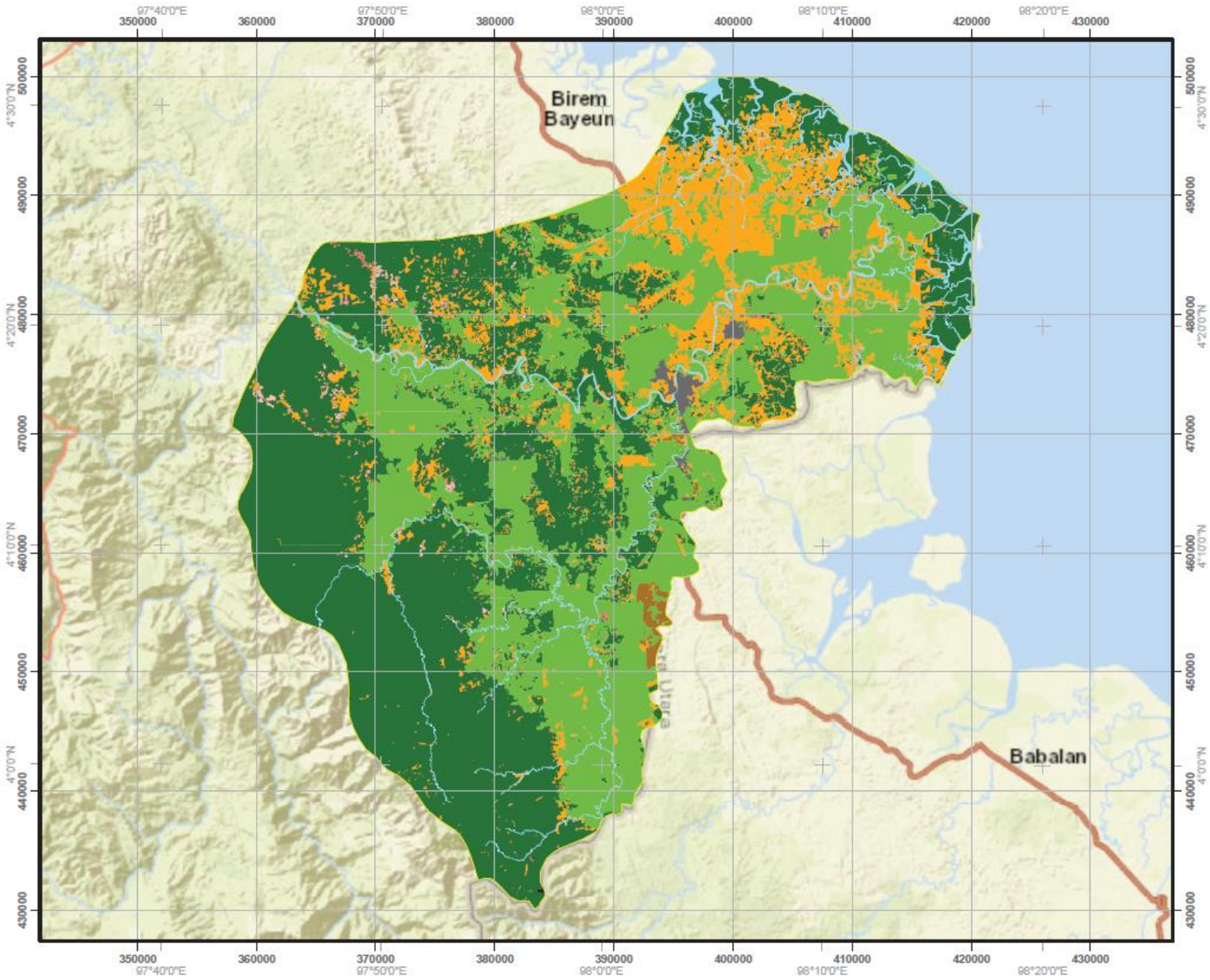
Classes	Ha	%
Bare soil, low vegetation and cropland	36,752	16.62
Forest	103,741	46.91
Other plantation	1,214	0.55
Oil-palm plantation	73,171	33.09
River	5,144	2.33
Settlement	1,092	0.49
Water body	0	0
Missing information	23	0.01
Total	221,137	

0 5 10 Km

N

STARLING

Q1 2017



Legend

- Estate
- Bare soil, low vegetation and cropland
- Forest
- Other plantation
- Oil-palm plantation
- River
- Settlement
- Water body
- Missing information

Forest cover change

- Q2 2016
- Q3 2016
- Q4 2016
- Q1 2017

Key Figures

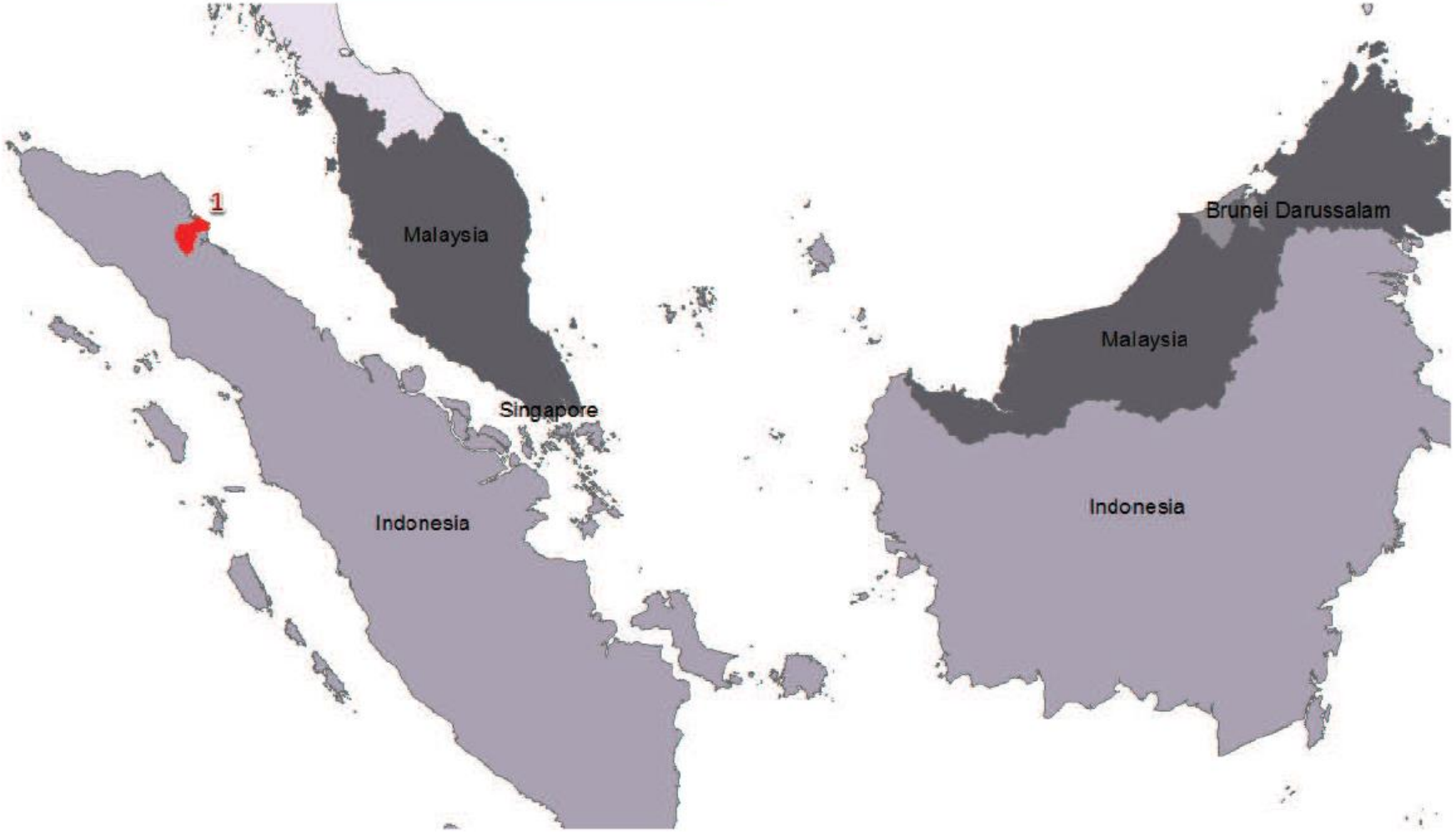
	Ha	Trend
Q2 2016	580	
Q3 2016	295	
Q4 2016	5	
Q1 2017	9	
Mean/Quarter	222	

0 5 10 Km

N

STARLING

Summary dashboard – Q1 2017



	State\Country	AOI reference name	Size (ha)	Forest area (ha)	% Forest area	Forest cover change area (ha)	% Forest cover change in forest area
1	Indonesia	Aceh Tamiang	221,137	103,741	46.91	9	0.008

Airbus supports a wide number of companies & public authorities in all segments of the industry, whether financial agriculture, institutional, precision agriculture or agro-industry

Thank you

Joe Cotti – Sales & Business Development Manager – Southern / Eastern Europe
Airbus Defence and Space | Intelligence
E. Joe.cotti@airbus.com
T. +49 7545 8 8397
M. +49 172 1528124

AIRBUS