SM GEODIM
MODELOS DE INFORMACIÓN DE LA TIERRA

verde
smart co.

"SMART" AGRICULTURE

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SM GEODIM
MODELOS DE INFORMACIÓN DE LA TIERRA

About us | Agriculture | Civil works | Environment | Geology | Legal aspects | Water resources

Company Profile

Our Experience

Location and contact

Company Profile

SM GEODIM is a Spanish private company (SME) of RTD and innovation, specialized in the development of operational Remote Sensing and GIS (Geographical Information System) applications.

Founded in 1994, under the original denomination of SM Consultores, the company has developed its activity as second trademark of Geosys SL.

In 2013, as part of an internalization plan of its activities, the company name was changed to current one, SM GEODIM.

Company's background and know-how is backed by more than 27 years of experience of its founder and current CEO Dr. Salomón Montesinos, together with a highly specialized and multidisciplinary technical team.

A broad network of partners and contacts throughout by Europe complements our capacities. Among the Spanish stand out: Civil Engineering School of University of Castilla-La Mancha; Research Institute of Agricultural and Food Development of Murcia Region (IMIDA) and GeoSpatiumLab (a spin-off of the University of Zaragoza).

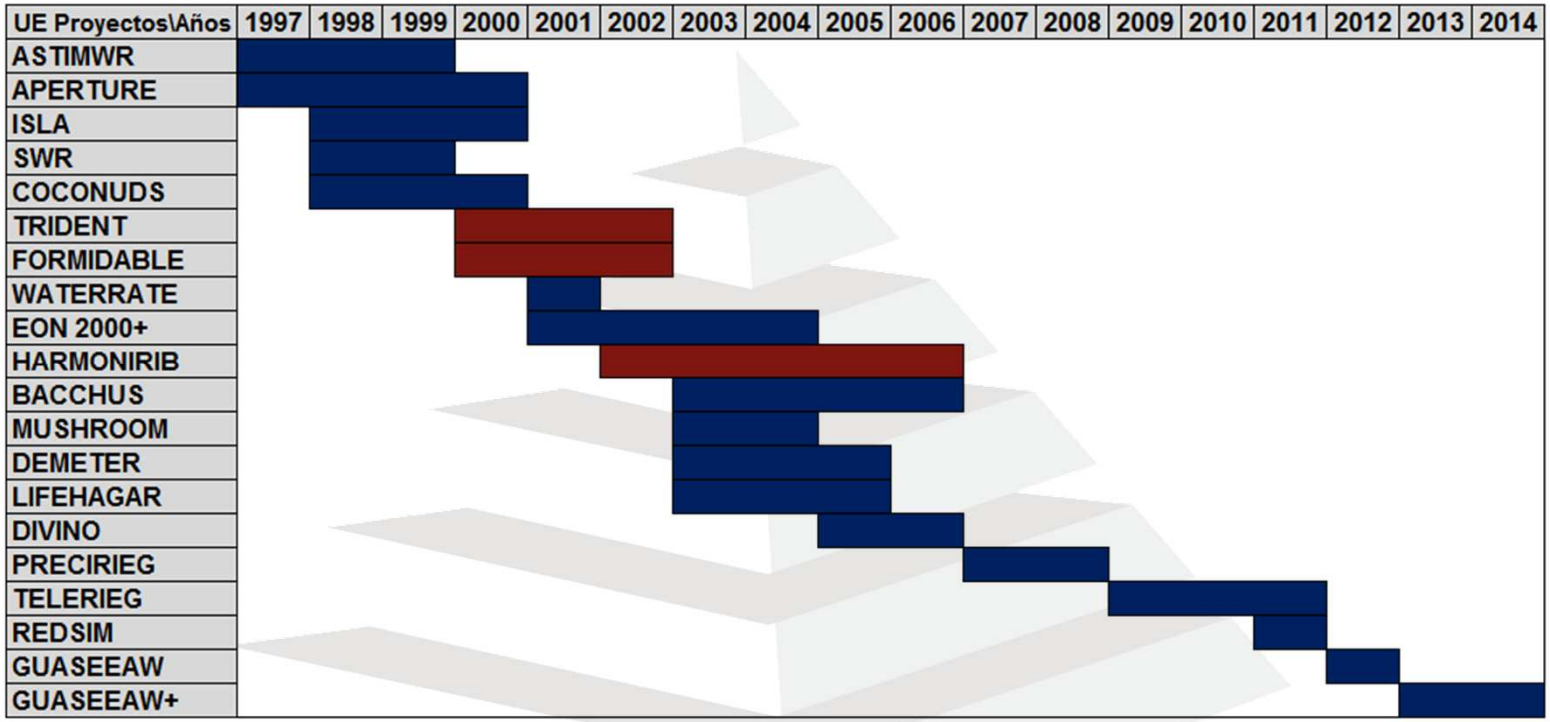
In 2009, we organized the XIII Congress of the Spanish Remote Sensing Association in Calatayud (Zaragoza, Spain), under the slogan: "*Water & Sustainable Development*".

SM GEODIM is founding member of FADOT (*Foundation for Development of Earth Observation of Aragon*), which is a non-profit organization established in 2010 together with Government of Aragon, to promote the development of research, use and awareness of Earth Observation Techniques and data.

Read more

- Who is SM GEODIM? (2013)
- International experience (2013)

RTD European Projects



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Precision Agriculture

Current agriculture must be competitive, efficient and environmentally friendly

Precision Agriculture

Precision agriculture is differentiated crop management using technological tools (Global Positioning Systems, plant-climate-soil sensors and multispectral remote sensing images) that detect the existing variability on an agriculture farm.

Data collected by these sensors are digitally stored in tables and maps, from which information, facilitating decision-making process in the field (fetirrigation, pruning, thinning...) is generated.

The ultimate goal of precision farming is to obtain higher yields (economic, environmental, social...).

Operational Applications

Operational applications are those that solve a real problem at a reasonable cost.

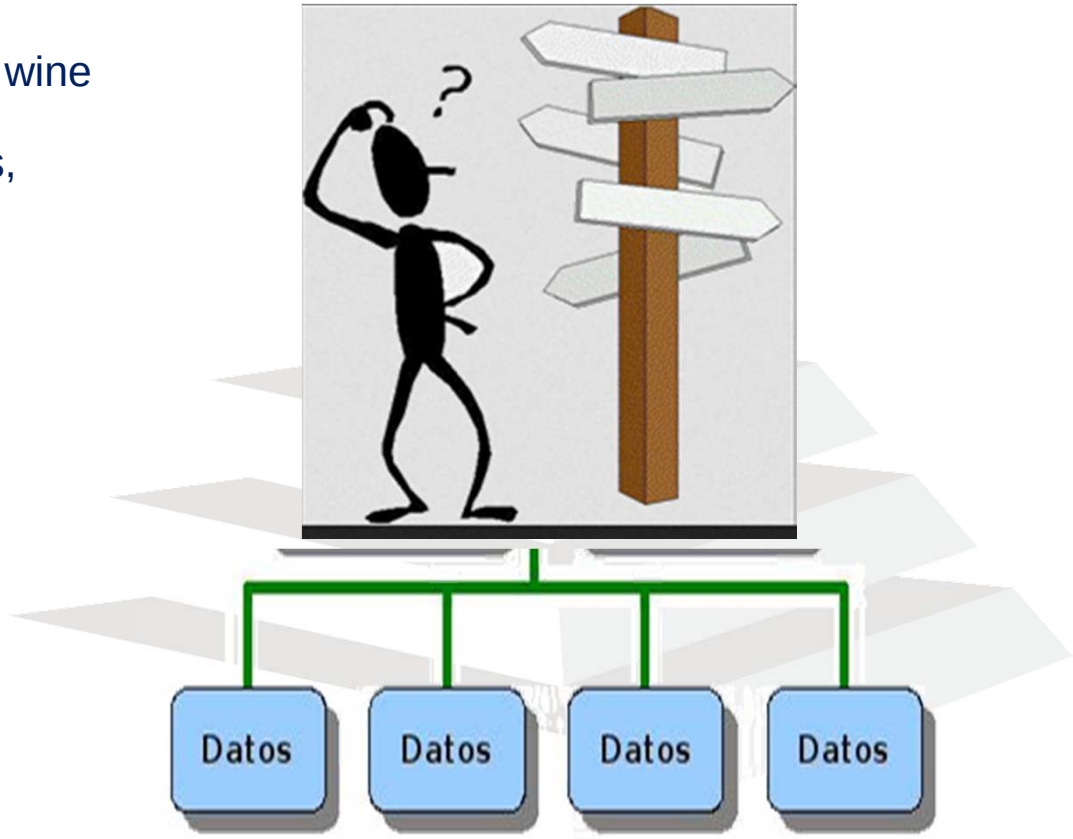
Operational applications in precision agriculture depend on:

1. The added value of the crop. In Spain, vineyards and olives are the crops in which these techniques are more applied.
2. The variability influences in the final production/quality of the product.
3. The variability can be characterized (soil / lithology, morphology and vegetative growth).
4. Obtained information allows improving crop management and its productivity.

Current Situation

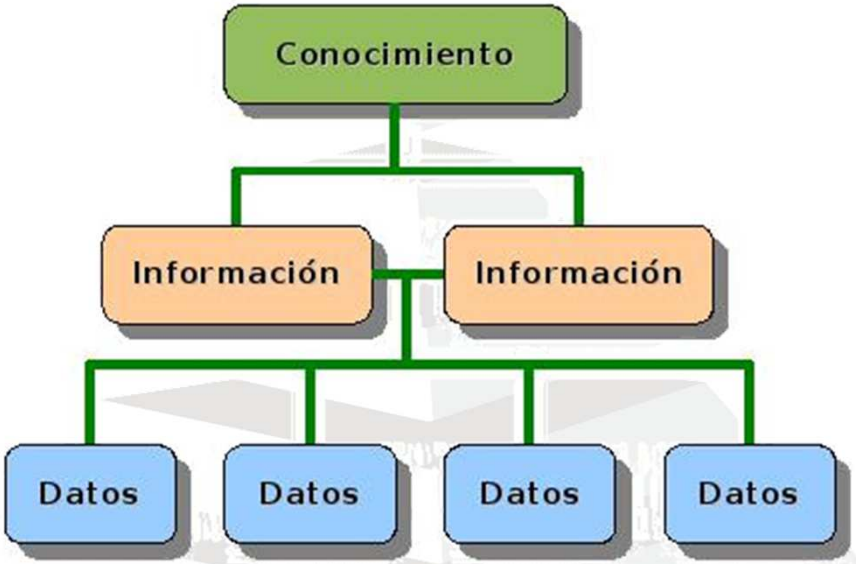
The winery sells wine

Not sold pictures,
or plant stress,
or soil water,
or nitrates, etc.

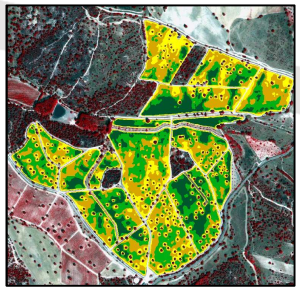


So far a lot of data are available but farmers do not give them value

Our methodology

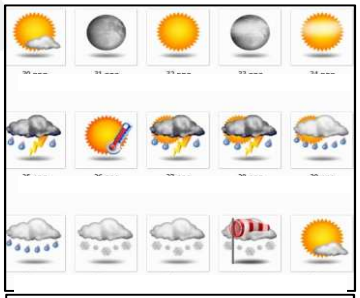


Plant-Soil-Weather Sensors



Remote Sensing

Field Sampling



Weather Forecast

Temporal variability

Nitrates

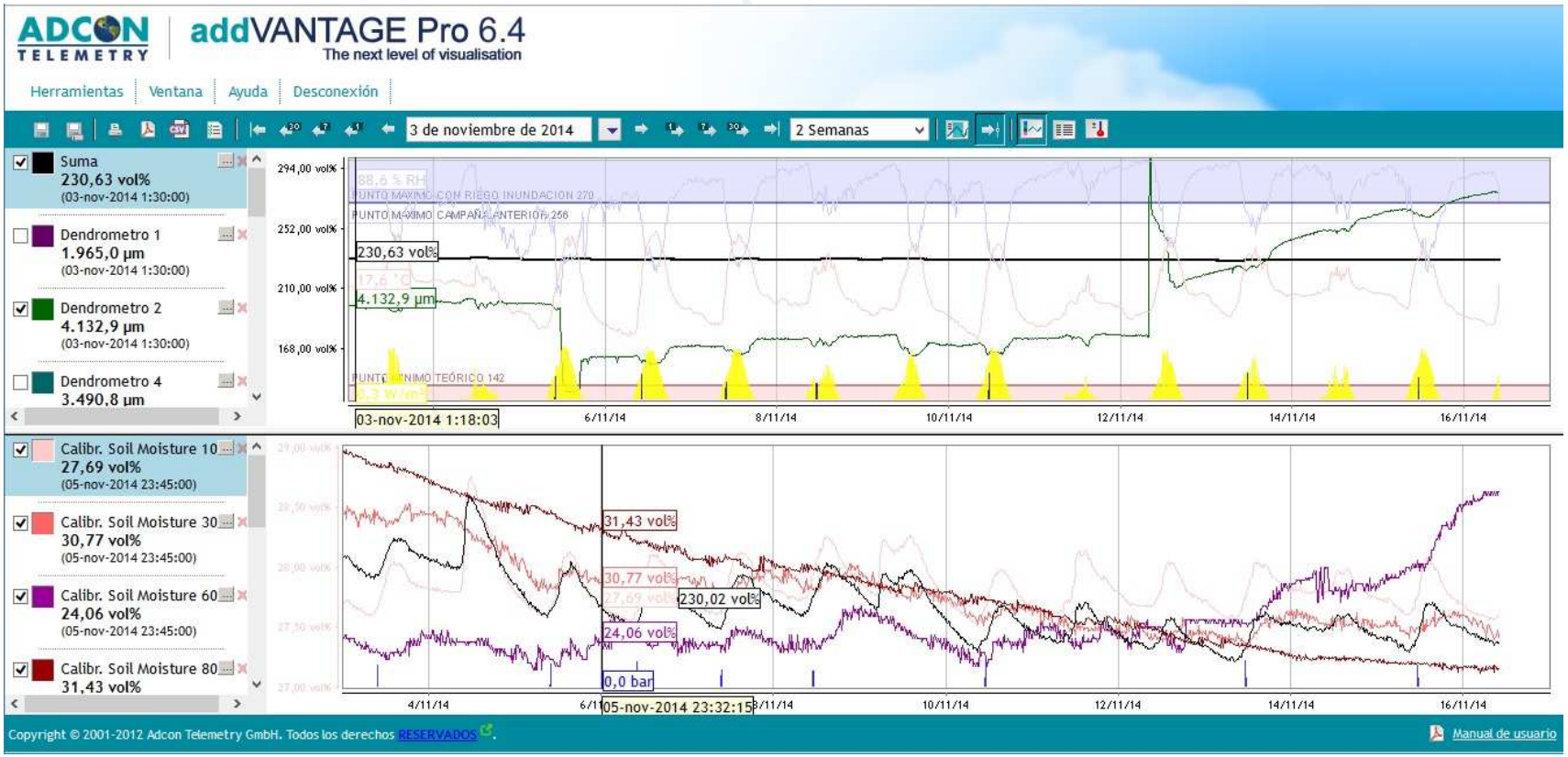
Dendrometer

Soil humidity

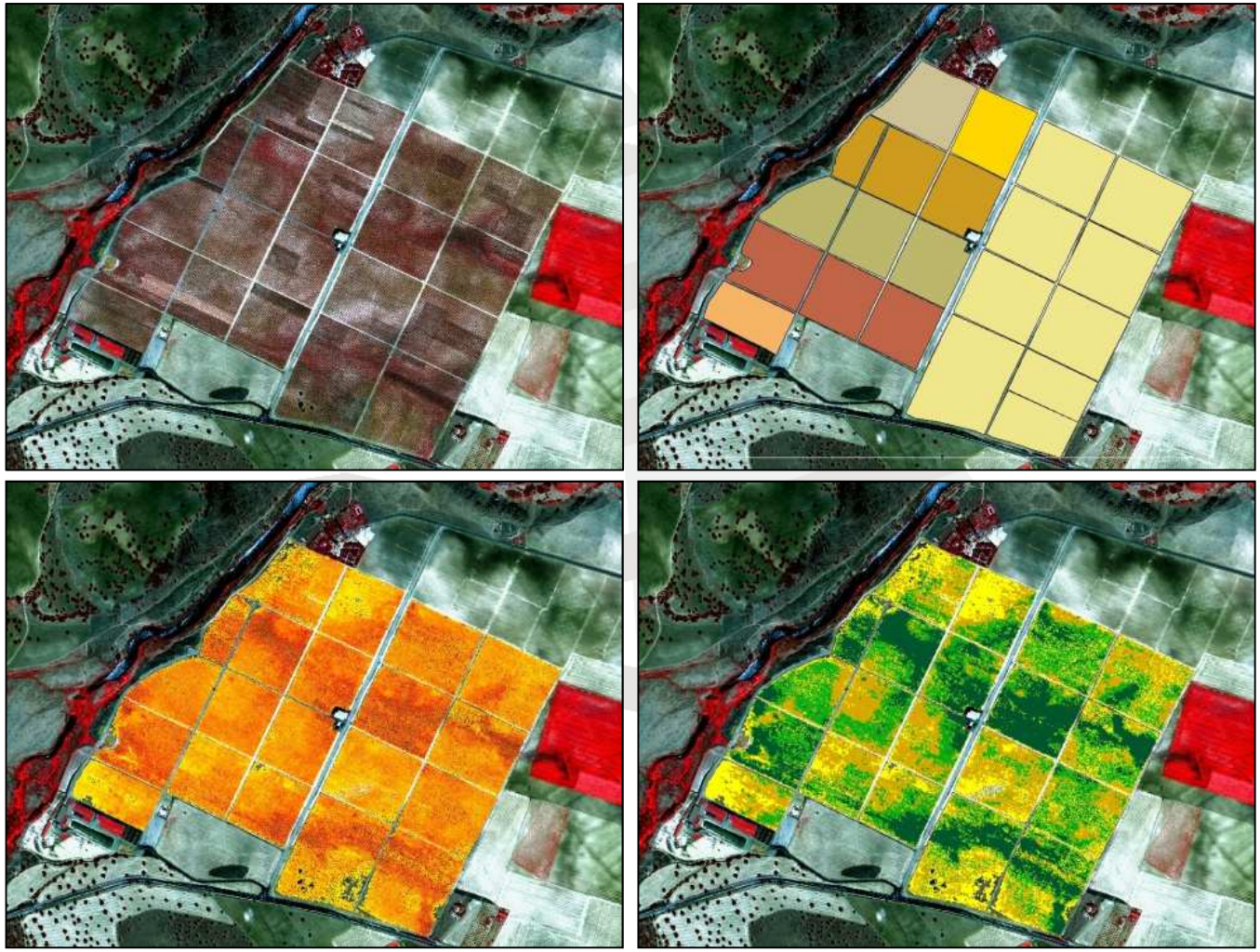
Climate

RADIO- GPRS: ON-LINE DATA: PREVENTION

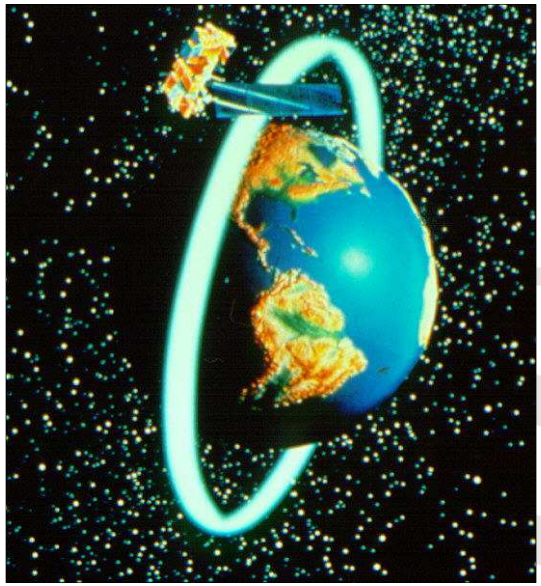
On-line Integration



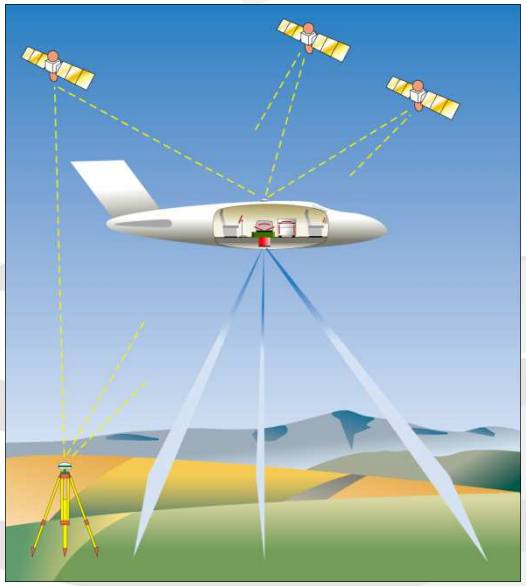
Spatial variability



Data sources



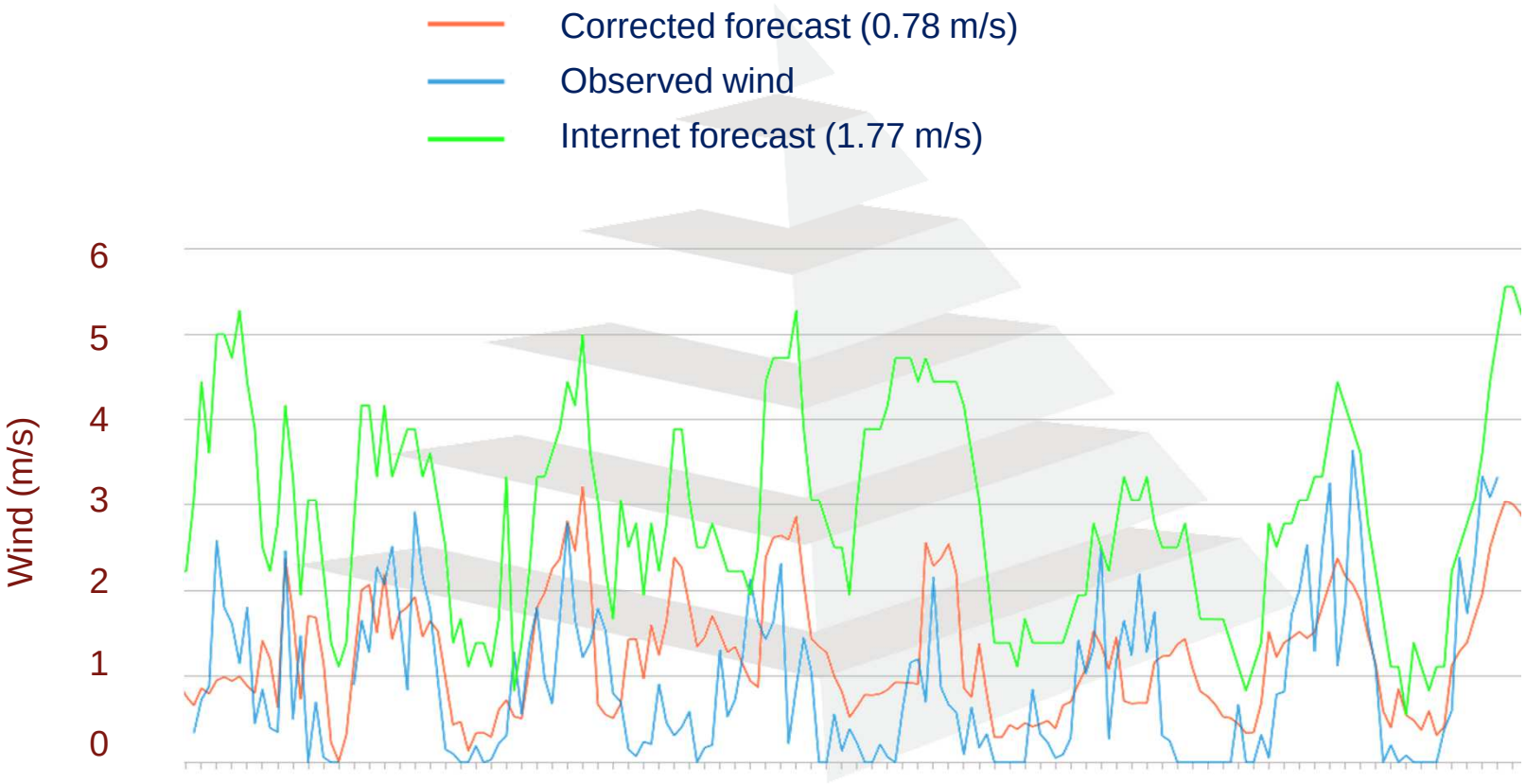
From satellite



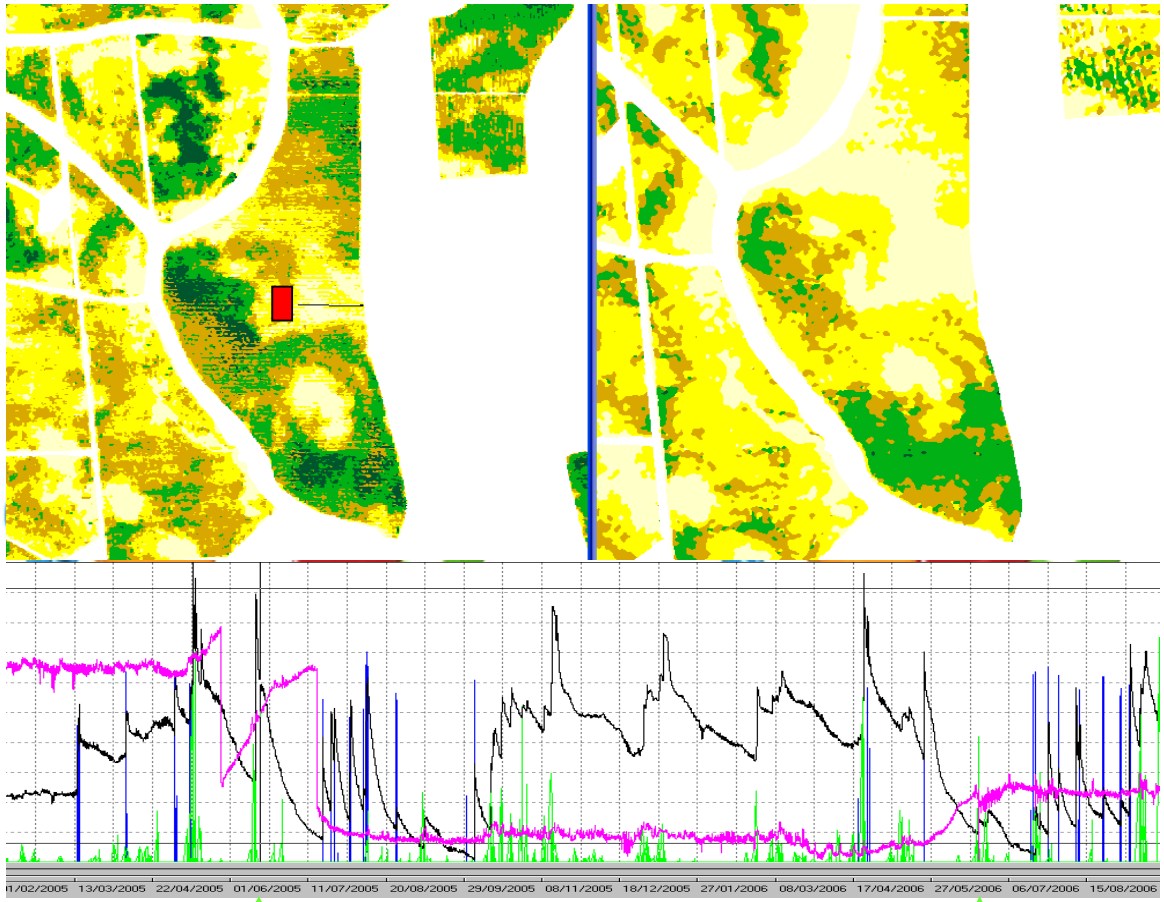
From aircraft

From UAVs

Microclimatic Forecast



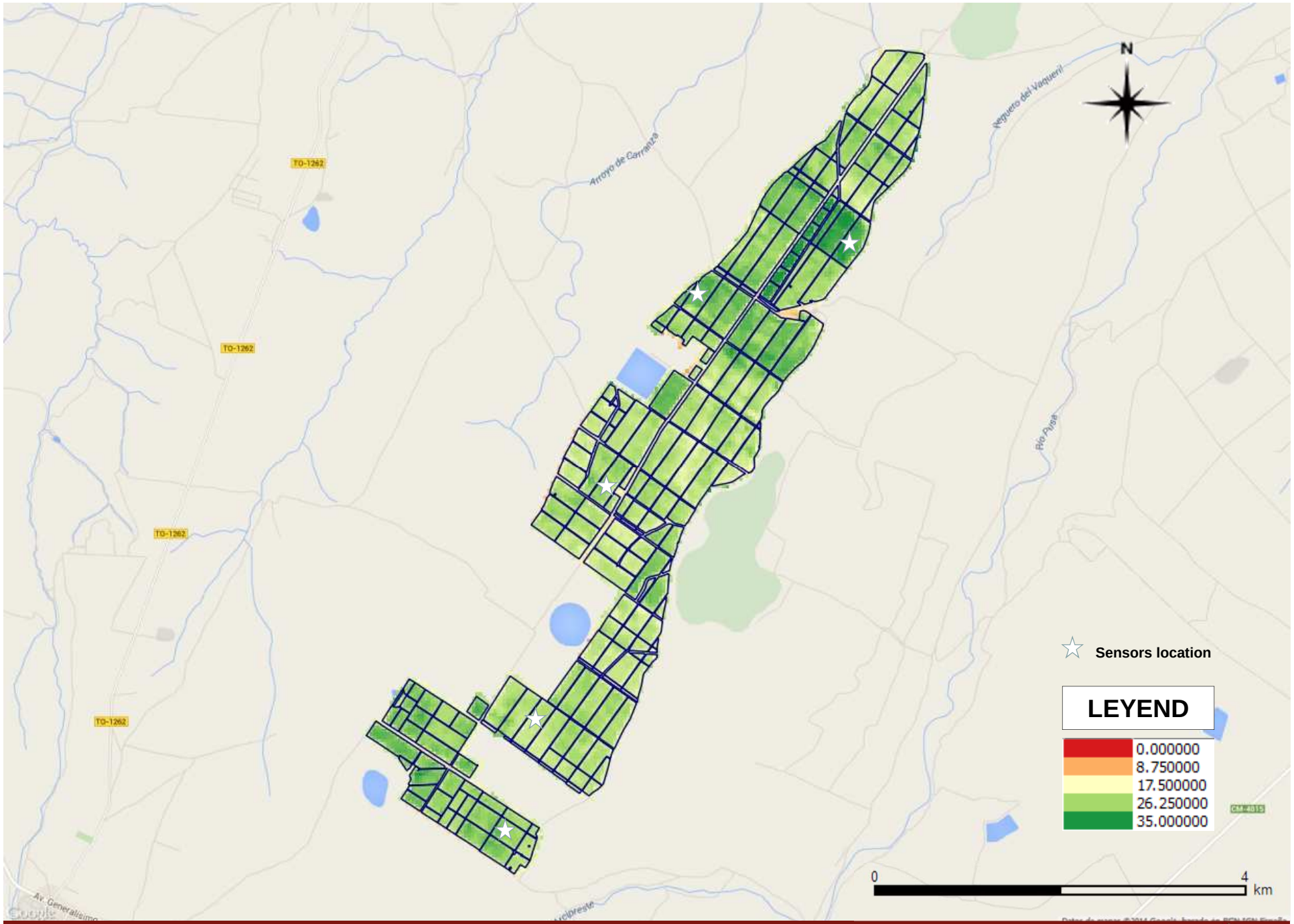
Data integration



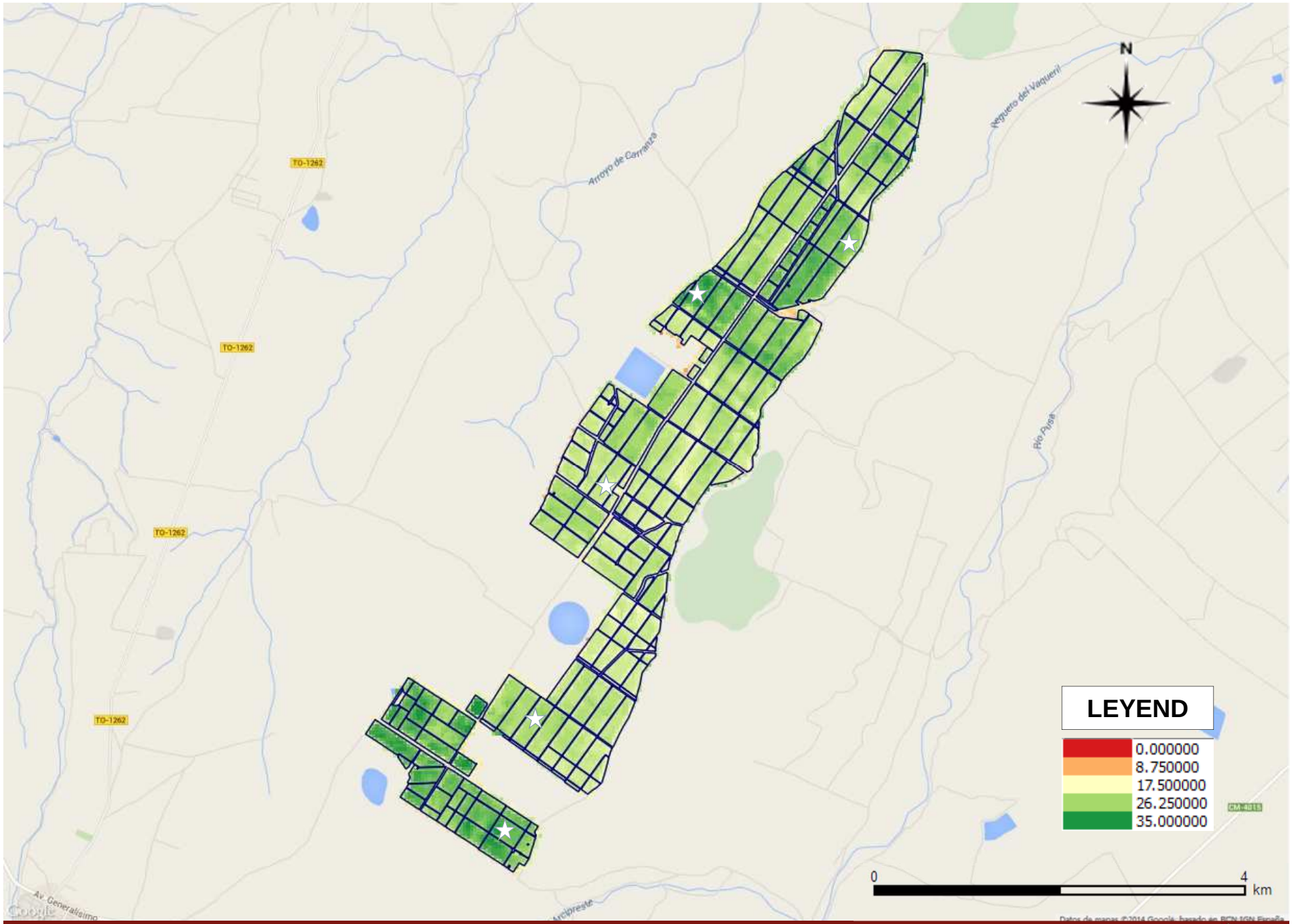
Location of sensors and integrated graphics of **precipitation (green), irrigation (blue), water reserves in the soil (black)** and **plant evolution (fuchsia)**.

Vegetation Evolution

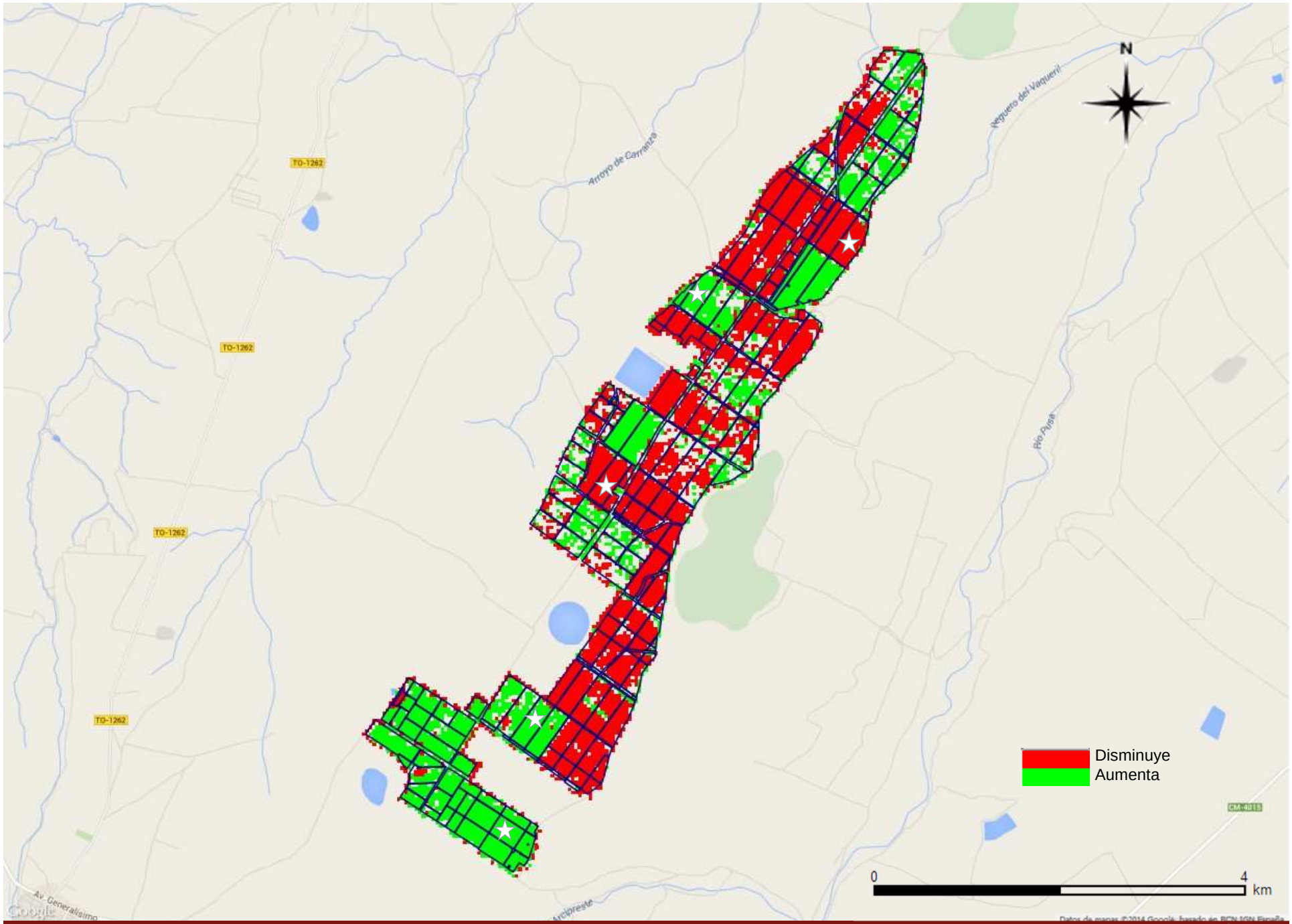
If you are planning the future for one year, plant a seed; for 10 years, plant a tree; for 100 years, educate children *(Confucio)*



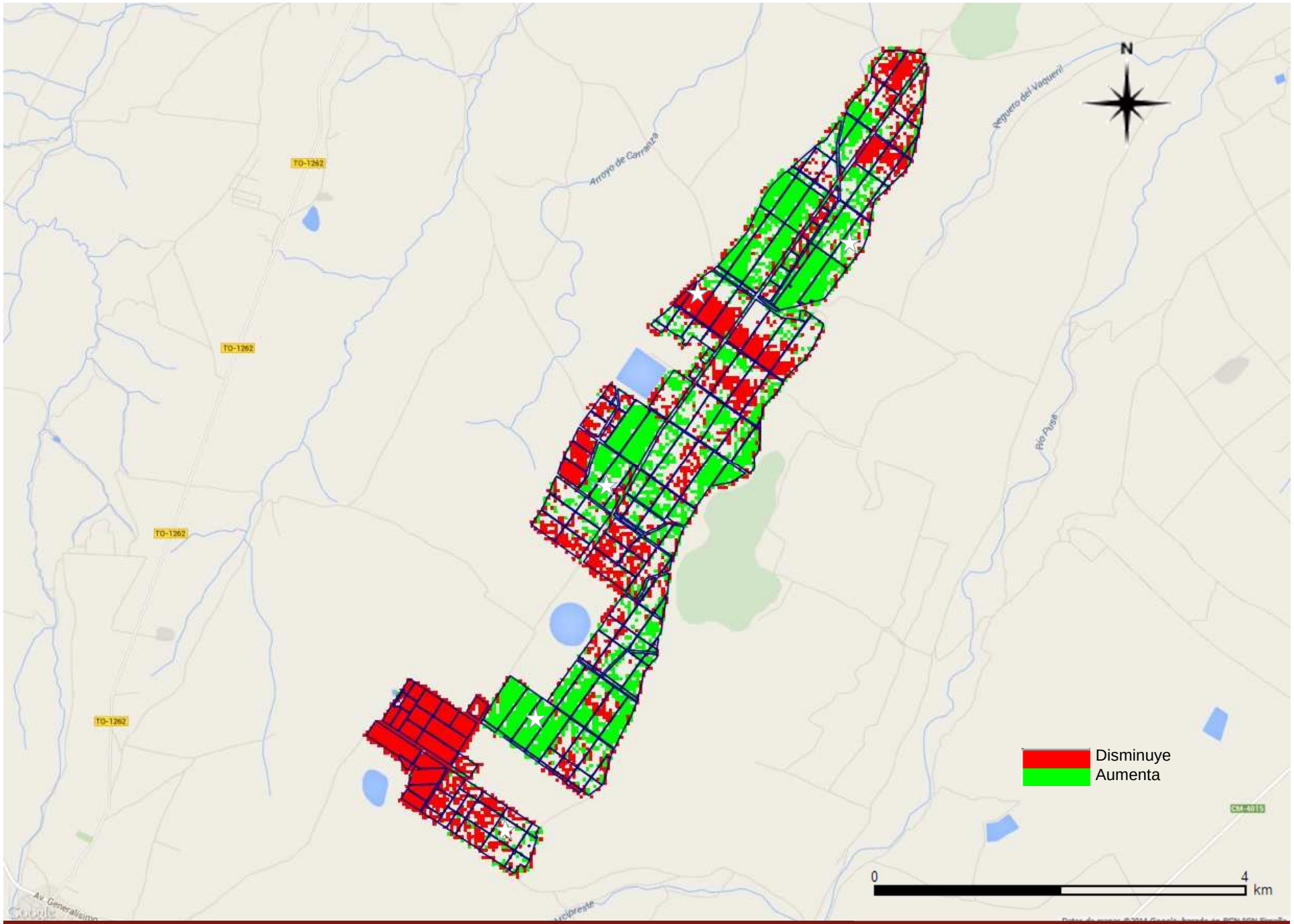
Vegetation Index in may 17, 2014



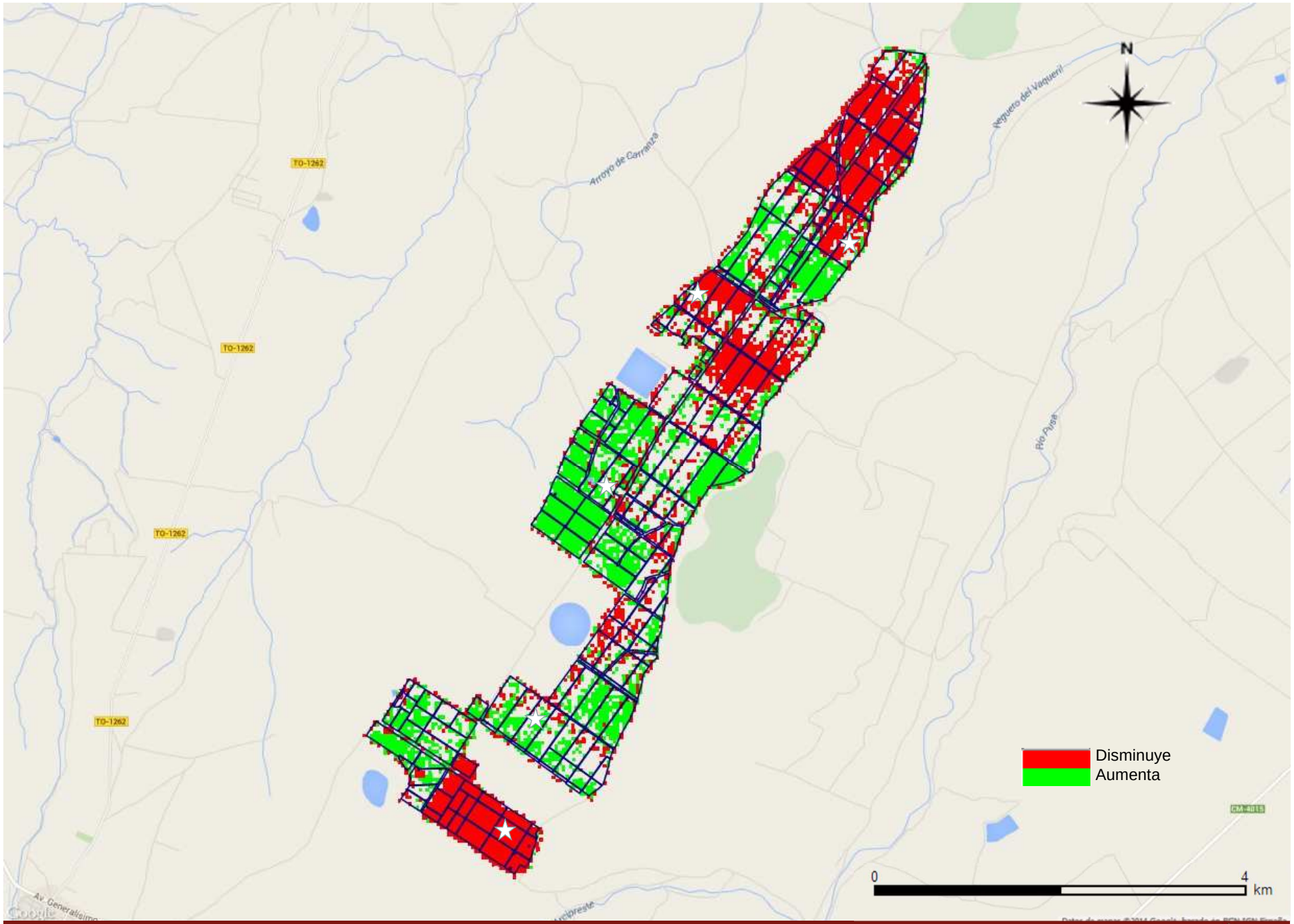
Vegetation Index in june 2, 2014



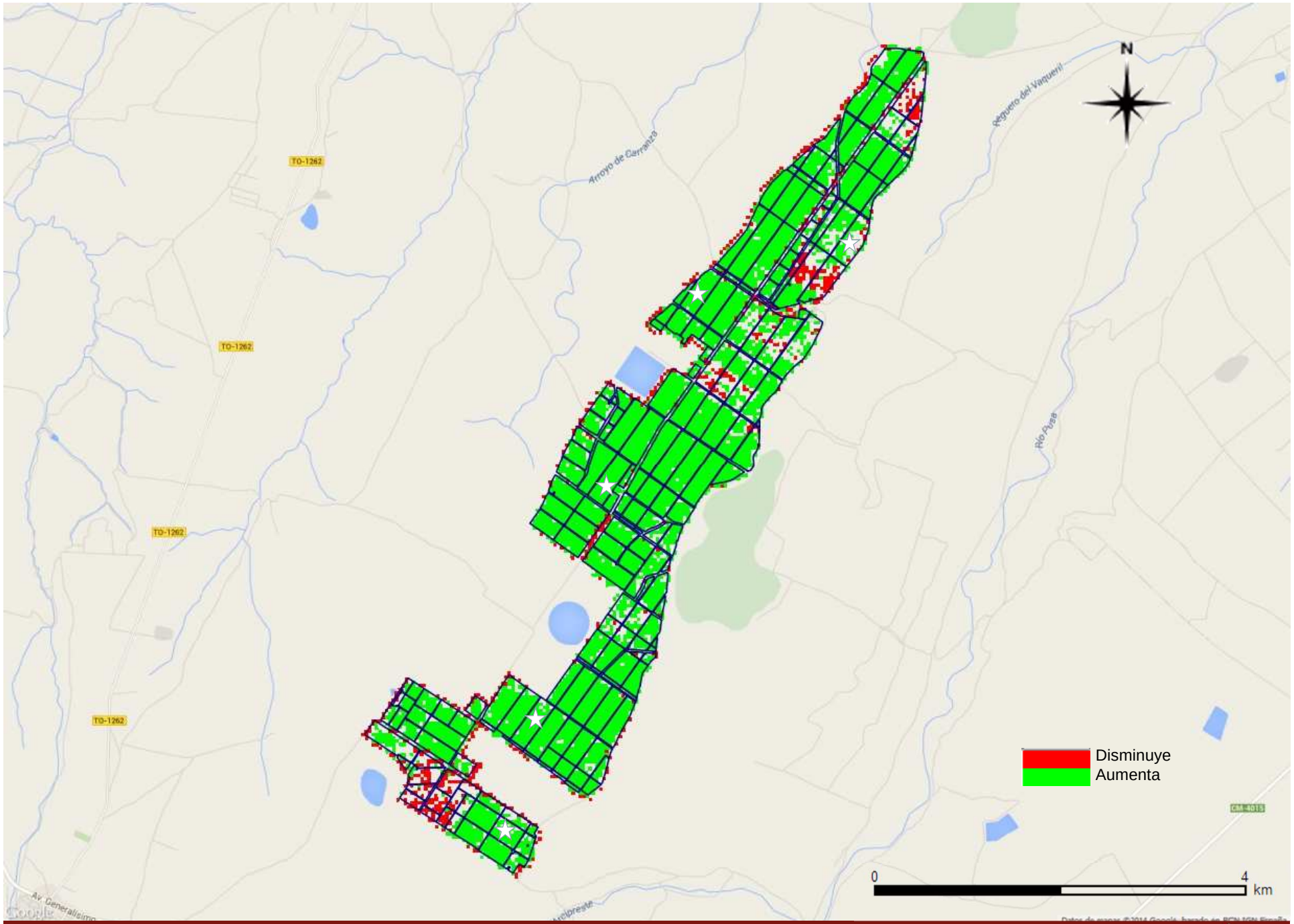
Differences of Vegetation Index between june 2 and reference harvest



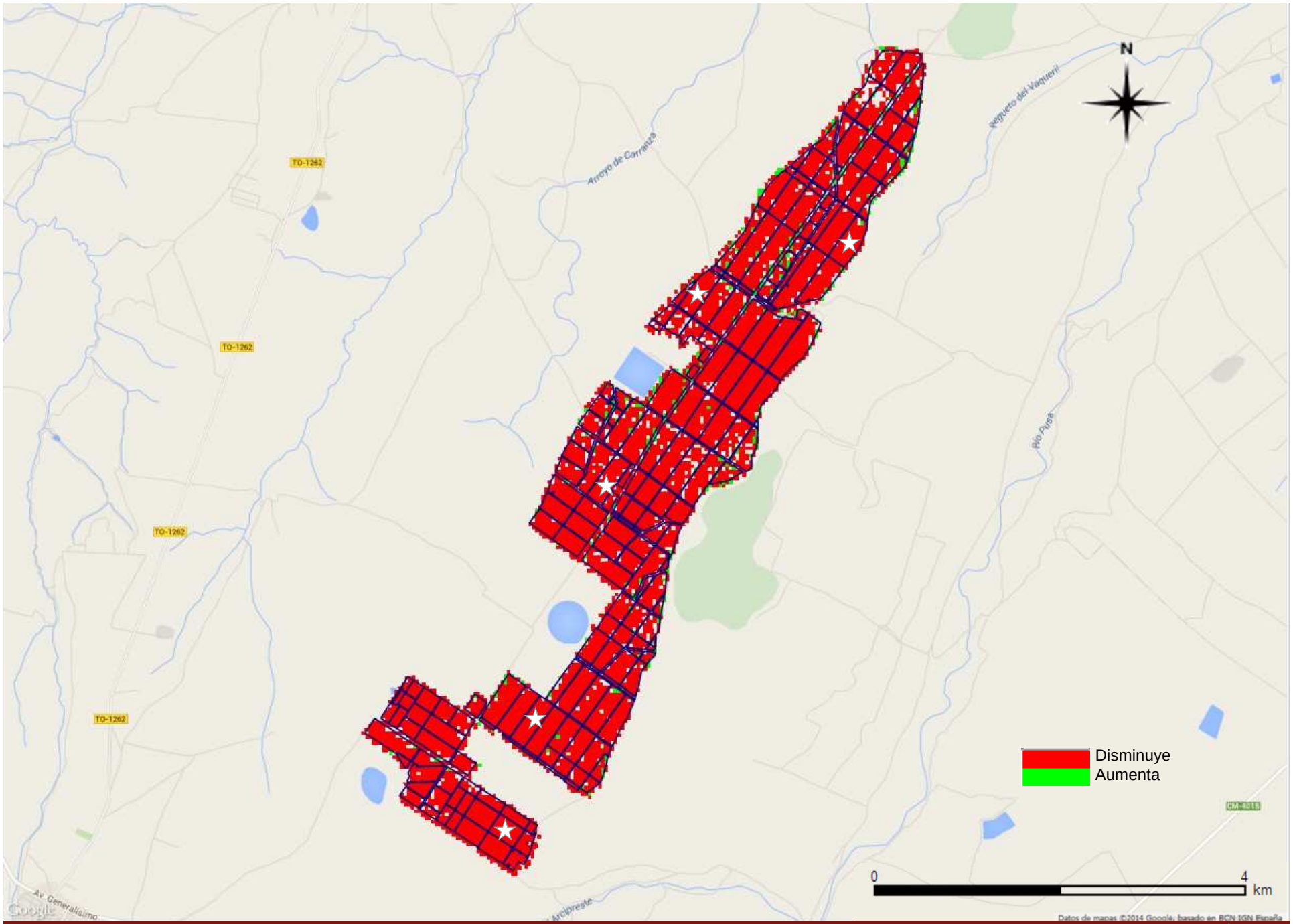
Differences of Vegetation Index between june 9 and reference harvest



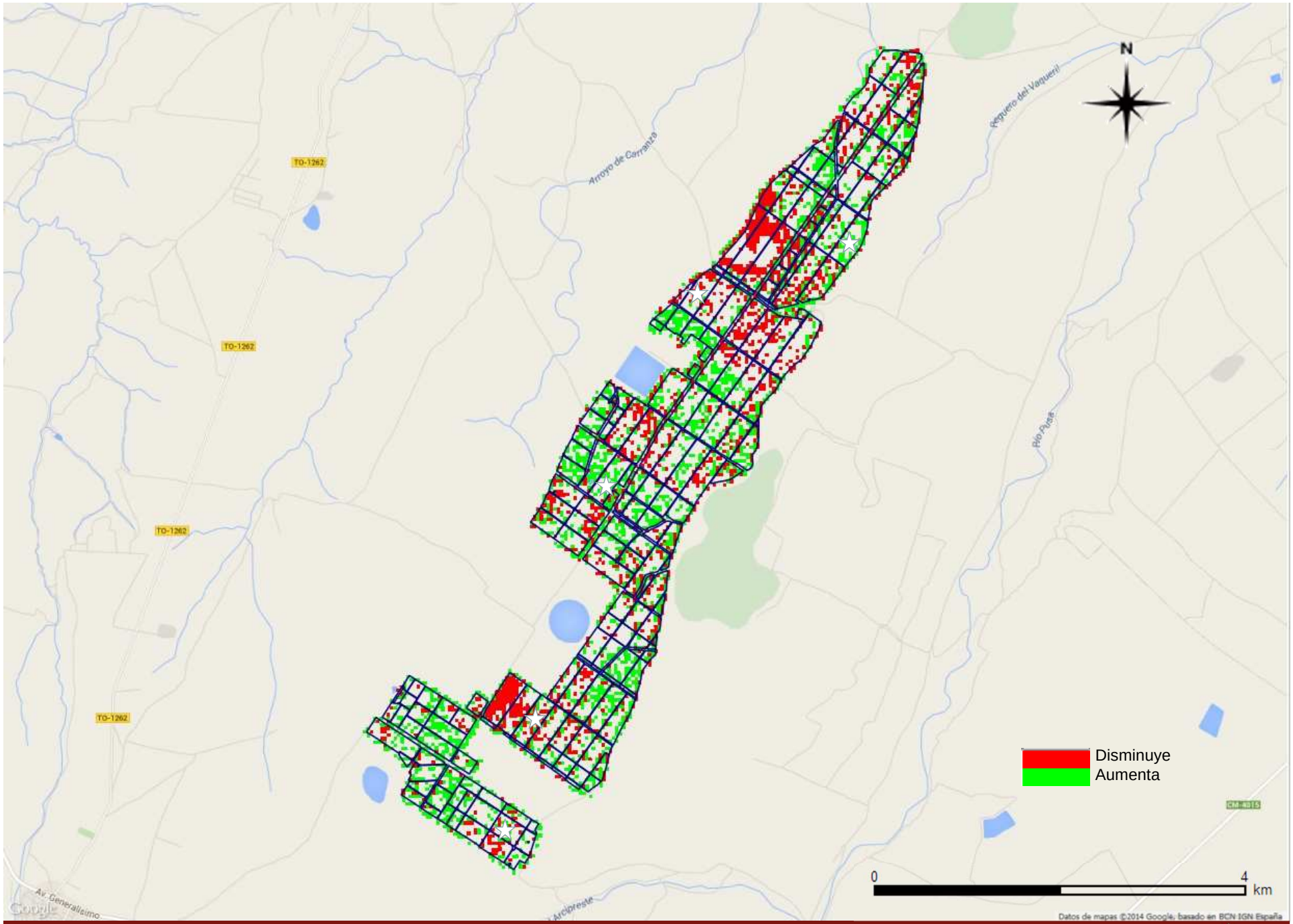
Differences of Vegetation Index between june 18 and reference harvest



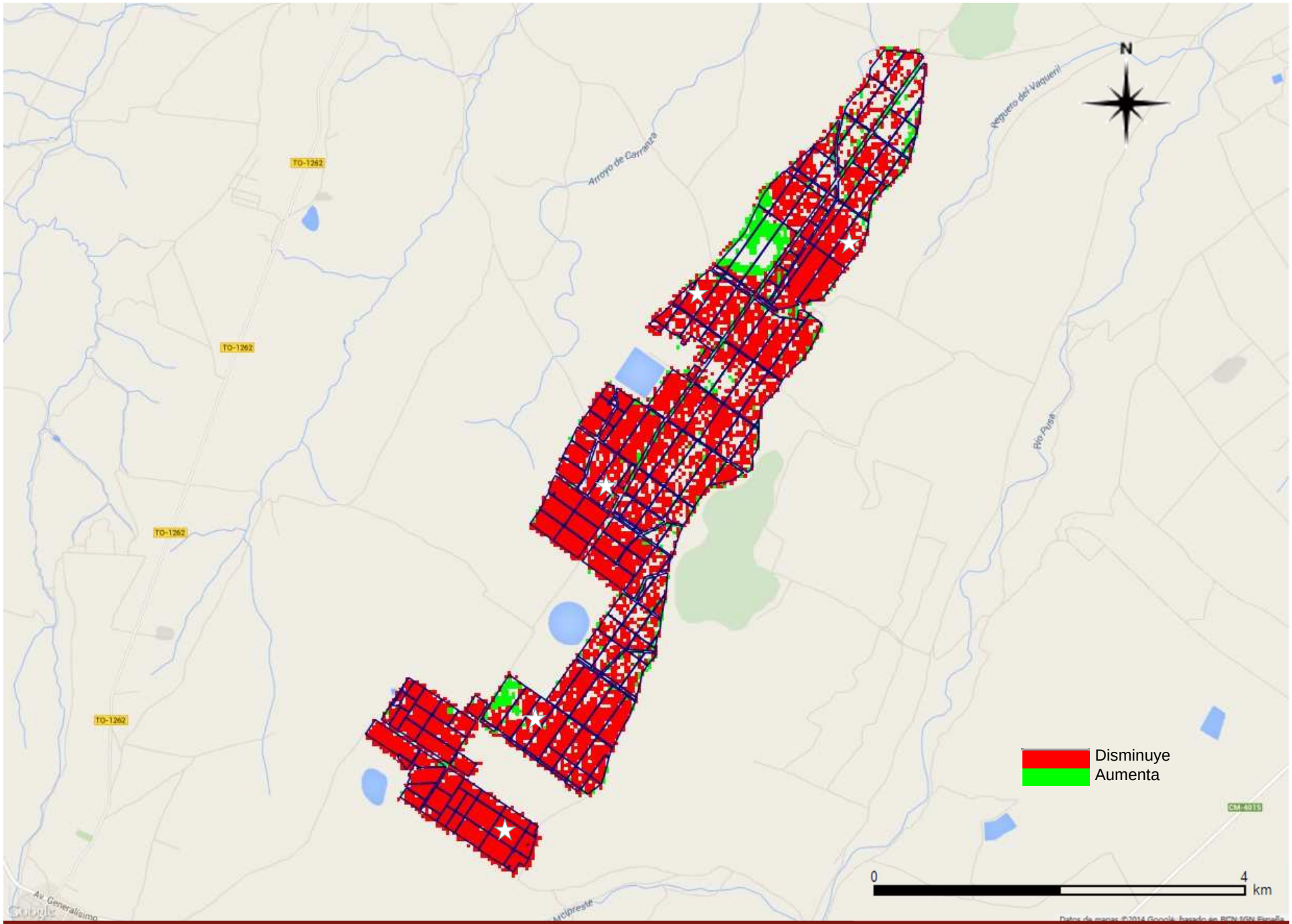
Differences of Vegetation Index between july 4 and reference harvest



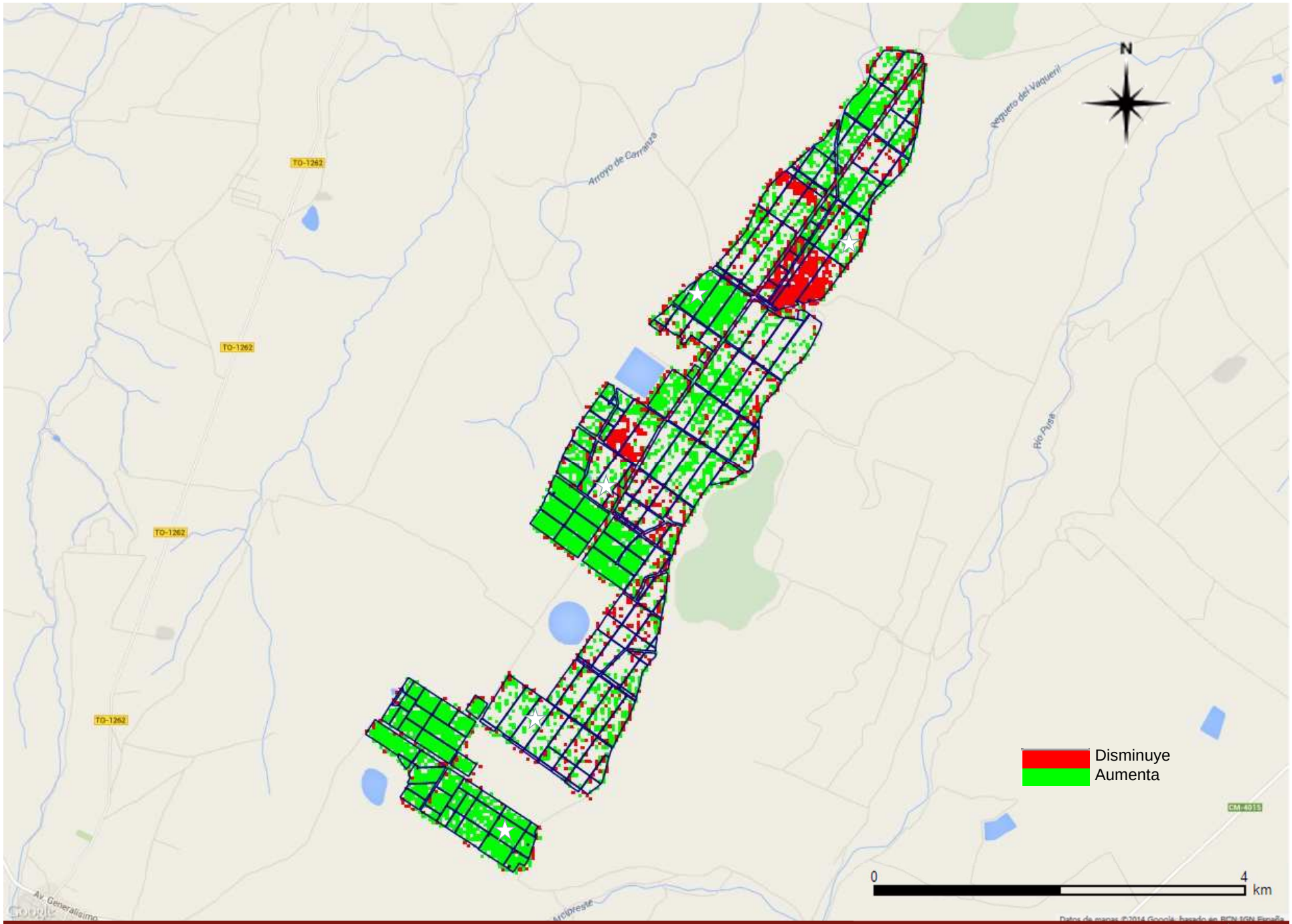
Differences of Vegetation Index between july 11 and reference harvest



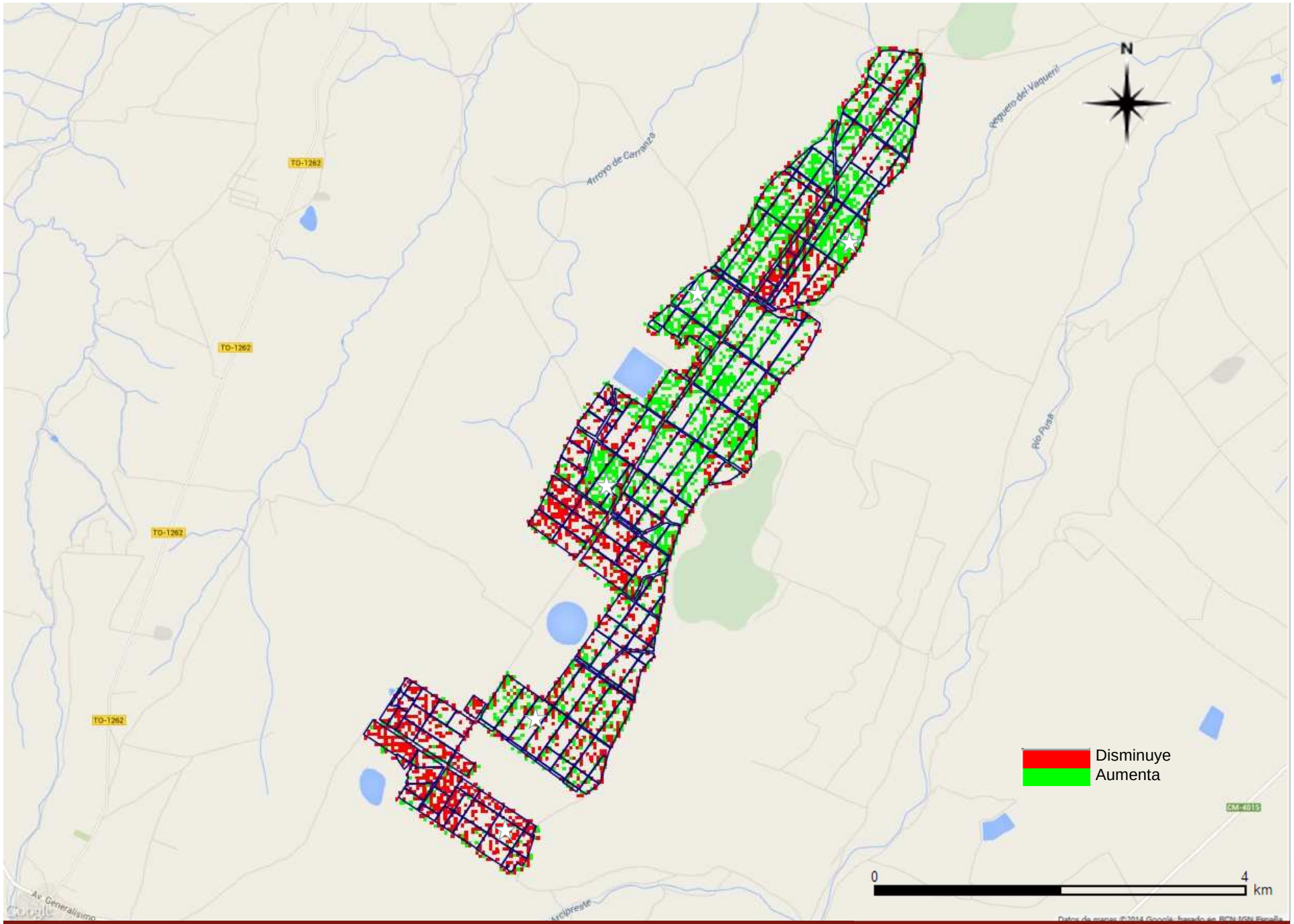
Differences of Vegetation Index between july 20 and reference harvest



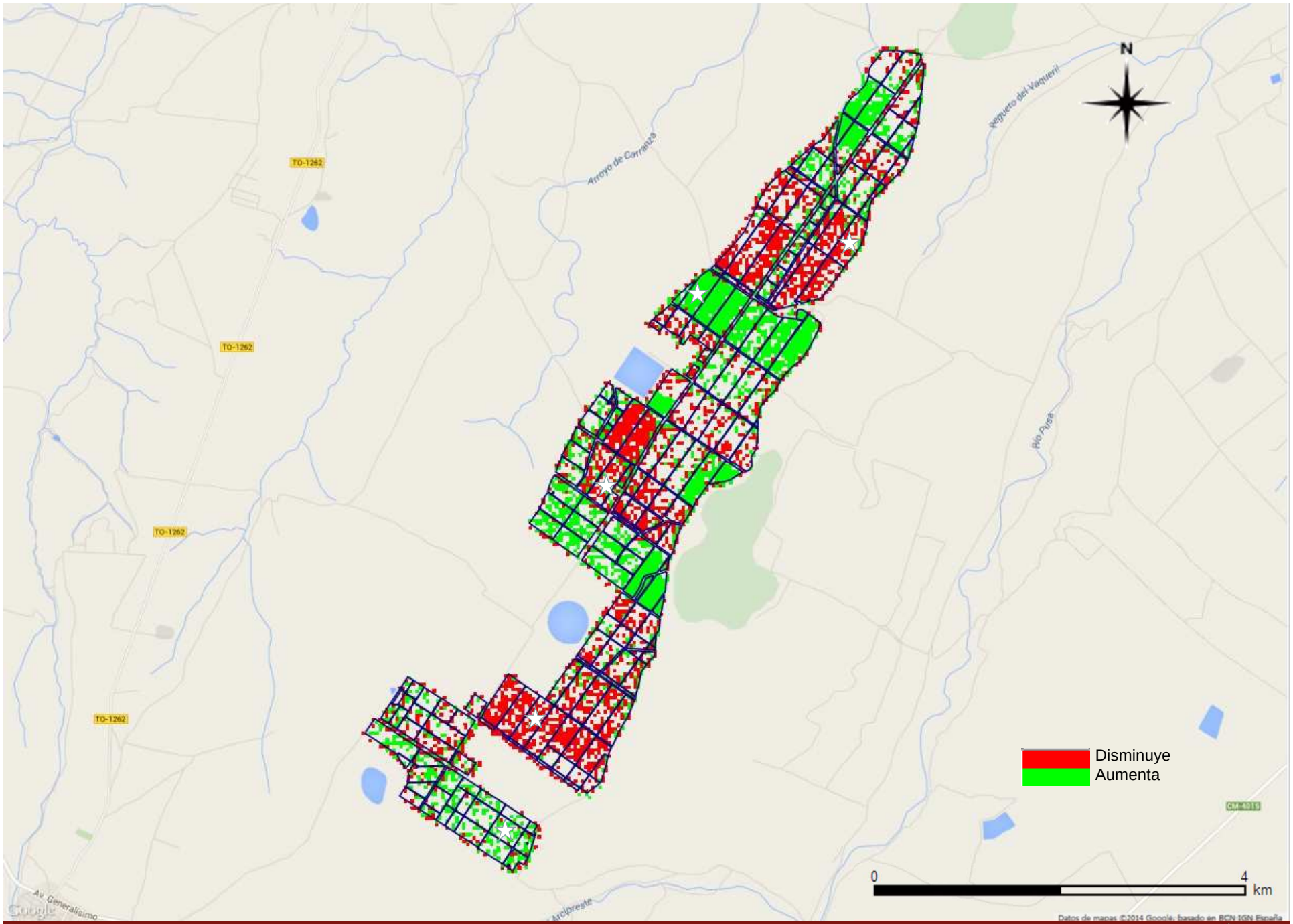
Differences of Vegetation Index between july 27 and reference harvest



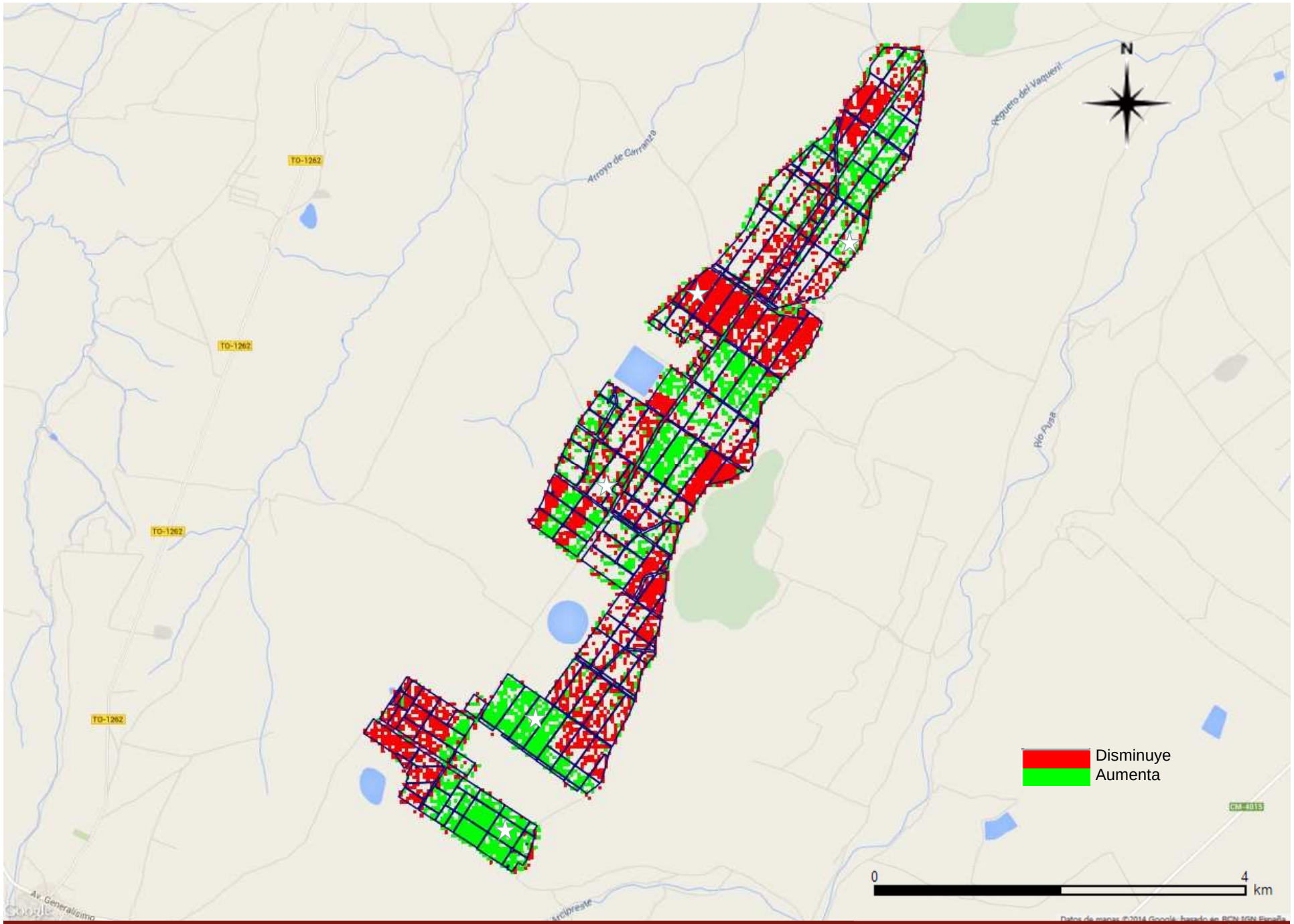
Differences of Vegetation Index between august 5 and reference harvest



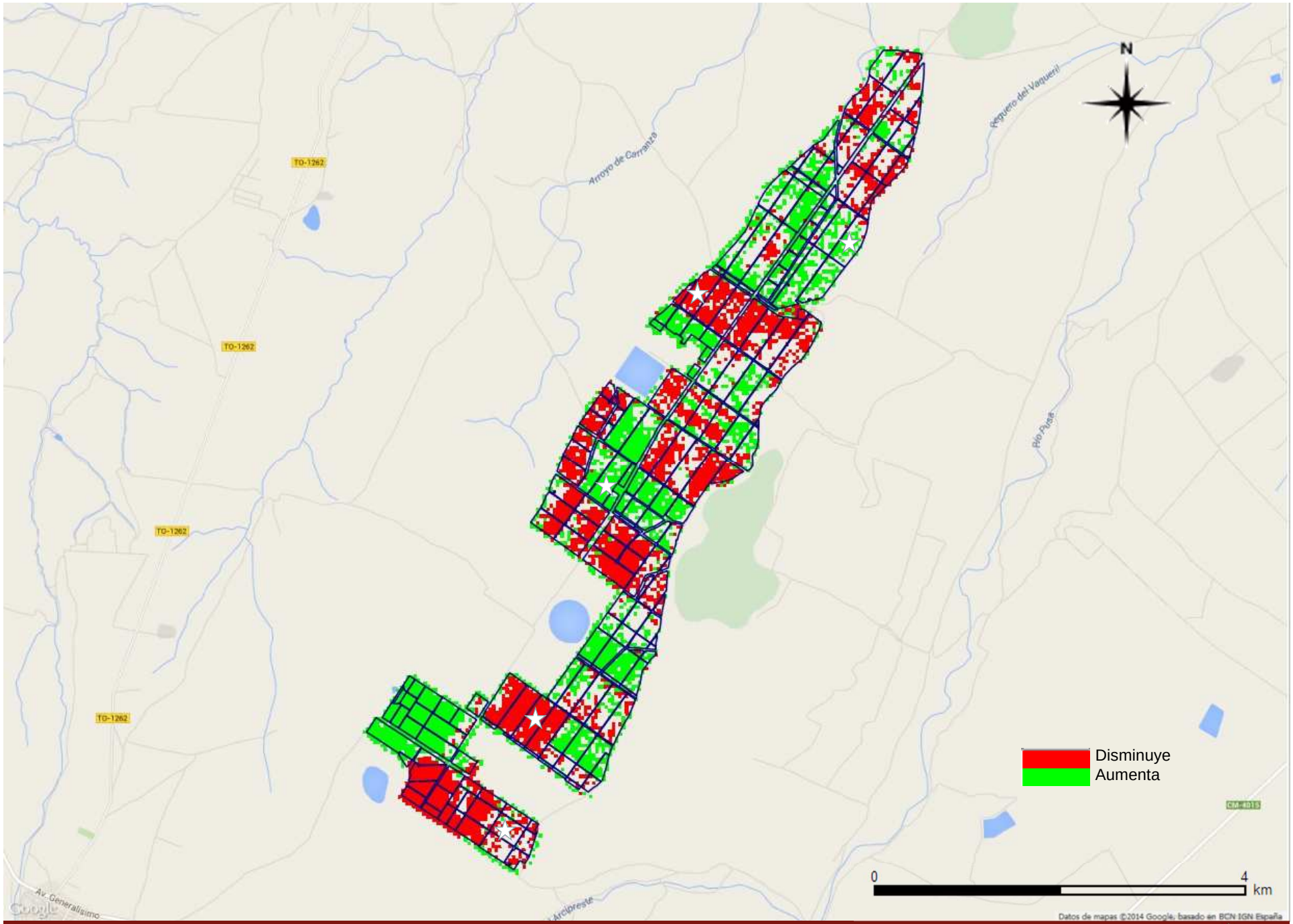
Differences of Vegetation Index between august 12 and reference harvest



Diferencias del Índice de vegetación del 21 de agosto with reference harvest



Differences of Vegetation Index between august 28 and reference harvest



Differences of Vegetation Index between september 13 and reference harvest

e-verd integration

— 2014/11/02 — 2014/11/03 — 2014/11/04 — 2014/11/05 — 2014/11/06 — 2014/11/07 — 2014/11/08 — Riego

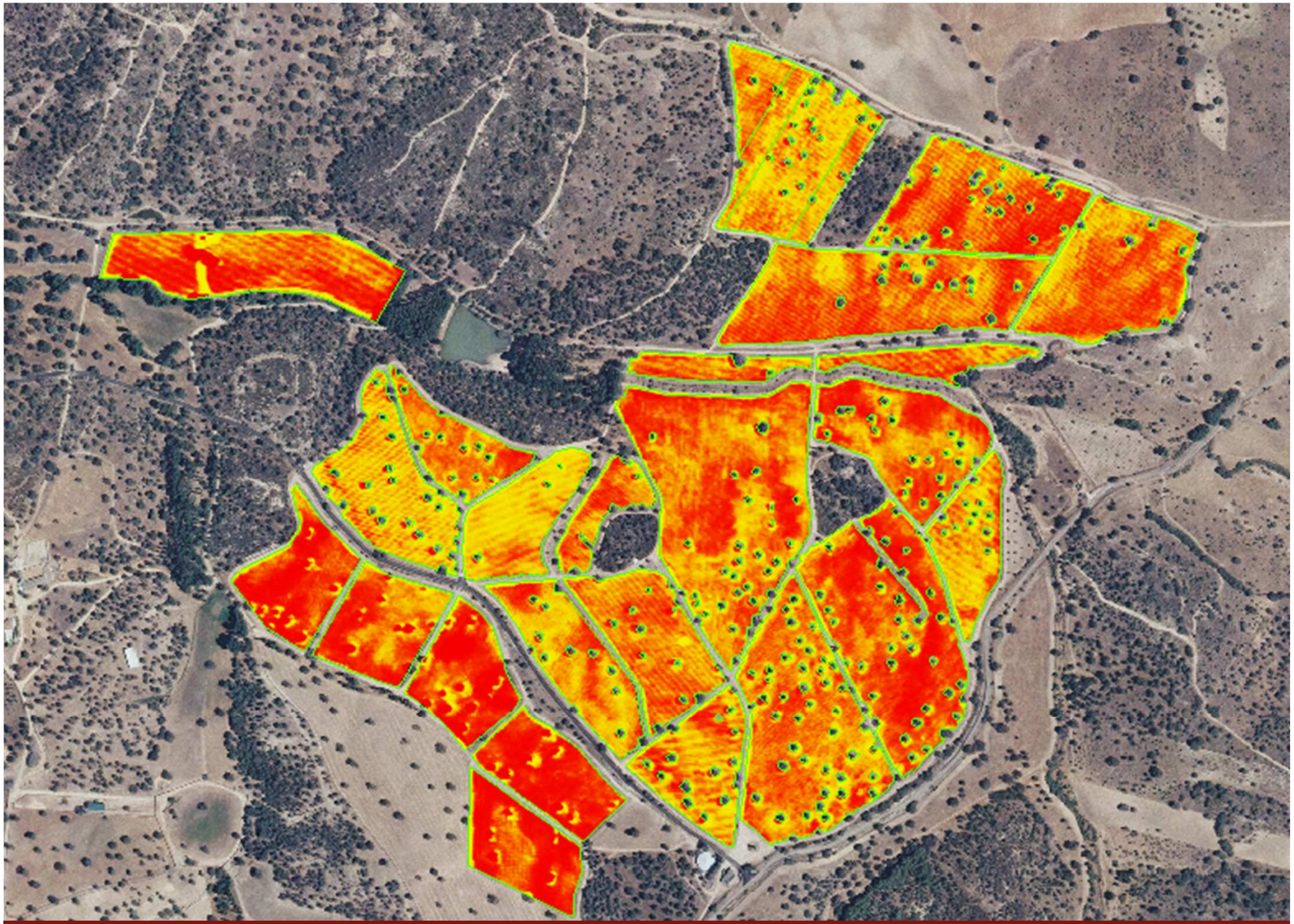
		02/11/2014	03/11/2014	04/11/2014	05/11/2014	06/11/2014	07/11/2014	08/11/2014		
		Valor	Valor	Valor	Valor	Valor	Valor	Valor	Tendencia	Gráficas
Planta	CD (mm2)	0,18	1,45	0,19	-1,02	0,31	1,55	2,01	↗	
	Días seguidos decreciendo	0	0	0	1	0	0	0	→	
	MCD (d-1) (mm2)	0,99	1,35	0,87	2,17	1,90	0,40	0,39	→	
	Crecimiento acumulado (mm2)									Gráfica
Suelo	Humedad suelo Horizonte Suma(%)	231,0	230,6	230,7	230,2	230,0	230,1	230,2	→	
	Humedad suelo Horizonte Media(%)	28,9	28,8	28,8	28,8	28,8	28,8	28,8	→	Gráfica
	Agua Útil Horizonte Suma(%)	100,0	100,0	100,0	100,0	100,0	100,0	100,0	→	
	Humedad suelo en drenaje (%)	31,6	31,6	31,5	31,5	31,4	31,4	31,3	→	
Clima	DPV (Kpa)	0,56	0,41	0,37	0,66	0,53	0,47	0,23	↘	
	ET0 (mm/día)									
	GDD diario(W&A)	10,0	9,6	7,3	5,6	5,7	7,1	6,8	→	Gráfica
	GDD acumulado(W&A)	2276,1	2285,6	2293,0	2298,5	2304,3	2311,4	2318,2	→	
	Lluvia (l/m2)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	→	
	Horas de temperatura < 7°C	0,0	0,0	0,0	0,0	0,0	0,0	0,0	→	
	Acumulado horas temperatura < 7°C	65,0	65,0	65,0	65,0	65,0	65,0	65,0	→	
	Horas de temperatura < 10°C	0	0	0	3	9	0	0	→	
	Horas de temperatura > 33°C	0	0	0	0	0	0	0	→	
	Horas de humedad relativa < 20%	0	0	0	0	0	0	0	→	
	Horas de humedad relativa > 90%	9	6	4	0	2	14	11	↘	
	Horas de viento > 7 Km/h									

We extrapolate sensors data to the whole farm using remote sensing images

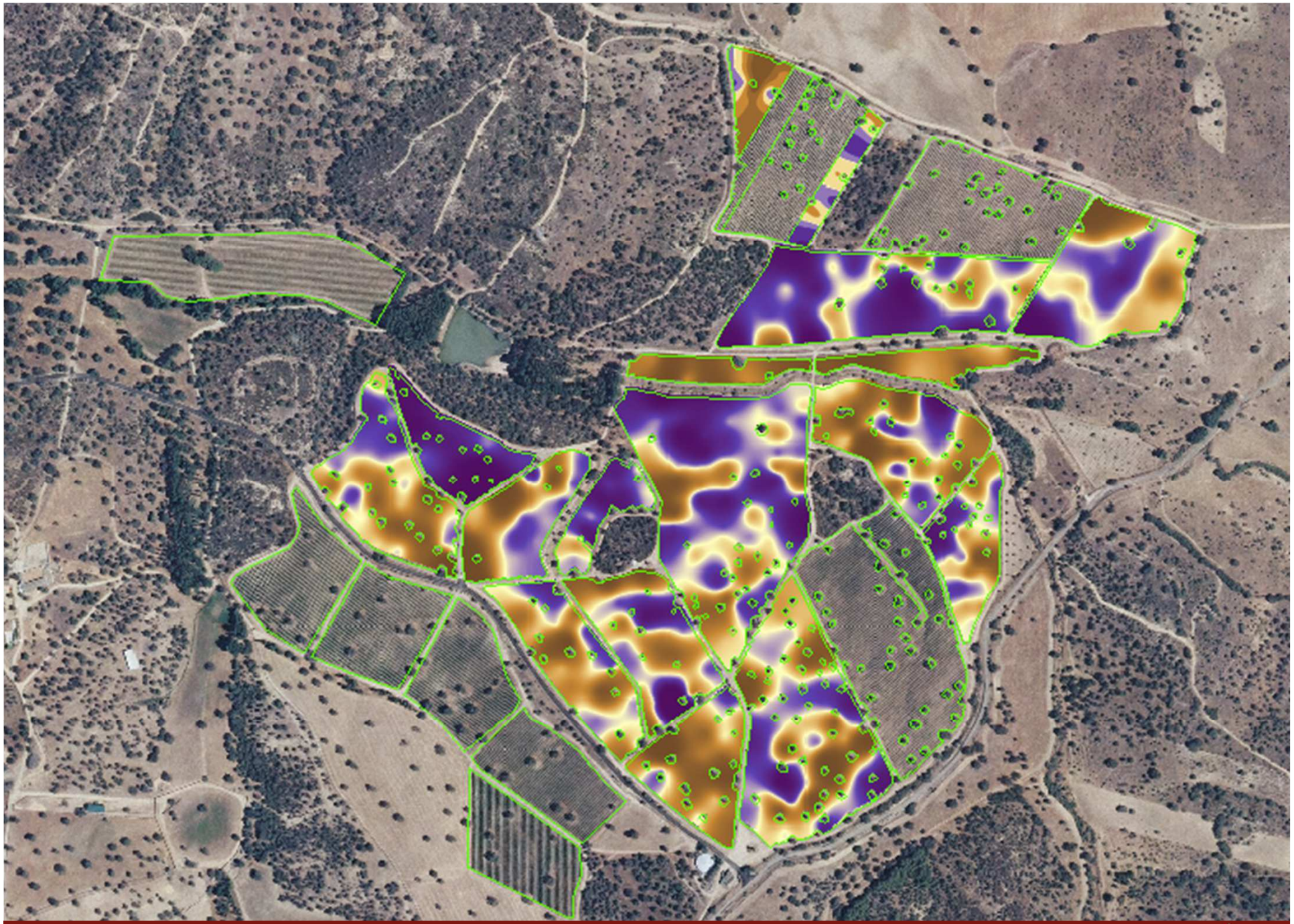
Maps of Balance

Things should be made as simple as possible, but no simpler *(Albert Einstein)*

Precision Agriculture : NIR satellite image



Precision Agriculture : NDVI



Precision Agriculture : Bunch of grapes

Precision Agriculture : Berry weight

Precision Agriculture : Map of balance related with quality of grapes

Some of our clients

BARON DE LEY

Luis Cañas
BODEGAS Y VIÑEDOS

Casa Pedro Domecq

PAGOS DE ARAIZ

SINCE 1647
Chivite

EMILIO MORO
BODEGAS

DEHESA DE VALQUEJIGOSO

PAGO DE CARRAOVEJAS
FINCA Y BODEGA

FAMILIA MARTINEZ BUJANDA

ABADIA RETUERTA
CRAFTED SPANISH WINES

PAGOS DE ESTIRPE
MARQUES DE GRIÑON

Finca VILLACRECES

OSBORNE

Príncipe de Viana

Faustino

Martín Códax
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Thank you for your attention!

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