



## The **SIGPAC**: a base for the management of CAP aids

Santiago de Compostela  
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### Summary

- I. Introduction.
- II. The creation of SIGPAC.
- III. SIGPAC software applications.
- IV. Strategy to bring SIGPAC up to date.
- V. The CONSUPAC application: on-the-spot checks in Galicia.



## I - Introduction



### The FOGGA, responsible for the SIGPAC in Galicia

- ◆ The Galician Fund for Agricultural Guarantee (**FOGGA**) has two main functions:
  1. **Paying Agency** of agricultural aids related to the European funds EAGF and EAFRD.
  2. **Manager** of those aids of the CAP related to EAGF: this includes the maintenance of the SIGPAC in Galicia.



## What is the SIGPAC?

- ◆ It is the **Geographical Identification System for Agricultural Parcels** existing in Spain since 2005 for the management of **agricultural aids** (it is a “LPIS”).
- ◆ Farmers are obliged to use it to apply for aids in which declaring the plots of the farm is necessary.
- ◆ It is a registry **similar to the cadastre but different**.



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## Objectives of the SIGPAC

1. **Making easier the farmers** in applying for agricultural aids (900.000 farmers in Spain).
2. **Improving the controls** of those aids by Public Administrations:
  - a. **Administrative** checks: e.g., the **automated cross-checks** between declared parcels and official **uses of land recorded** in the system.
  - b. **On-the-spot** checks.
3. **Being the GIS of reference for agricultural affairs.**



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## A complementary target: helping in different scopes

- ◆ It has been distributed to many agencies of Public Administrations.
- ◆ Particularly, **it is demanded as a base to built different GIS.**
- ◆ It is very consulted by state agents and the sector of tourism.



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## Importance of CAP aids (1)

### SINGLE PAYMENT SCHEME FARMERS AND DECLARED AREAS (Campaign 2008)

	SPAIN	GALICIA	% G/SP
Number of farmers (*)	865.099	44.208	5,11
Declared area (ha)	20.402.132,92	518.451,09	2,54
Declared area / farmer (ha)	23,58	11,73	49,74
Total area in SIGPAC (ha)	50.569.219,71	2.955.169,70	5,84
Declared area / Total area (%)	40,34	17,54	43,58

(\*) Farmers with payment entitlements.



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## Importance of CAP aids (2)

**PAYMENTS IN BUDGETARY EXERCISE 2008**  
(Million of euros)

		TOTAL PAYMENTS		AREA-RELATED PAYMENTS	
		SPAIN	GALICIA	SPAIN	GALICIA
EFAG	Single payment scheme	3,276,45	97,36	3,168,00	82,53
	Other direct payments	1,382,51	47,27	759,17	4,37
	. Coupled payments	910,83	33,50	358,49	4,37
	. Specific payments	371,18	0	371,18	0
	. Additional payments	100,50	13,77	29,50	0
EFDR	<b>AXIS 2: IMPROVING THE ENVIRONMENT AND THE COUNTRYSIDE (*)</b> (Natural handicap areas, agri-environment and forestry payments)	530,59	32,4	530,59	32,4
	<b>TOTAL</b>	<b>5,189,55</b>	<b>177,03</b>	<b>4,457,76</b>	<b>119,30</b>

(\*) Total public payment (EFDR + Member State)



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## II - The creation of SIGPAC



Previously to SIGPAC, the cadastre was the main LPIS in CAP aids

- ◆ **At that time**, that situation meant **limitations in the LPIS** of most of area-related aids schemes:
  1. The computerised data base was, normally, **only alphanumerical** (or not well connected to maps).
  2. Official **uses of the land** were just determined in order **to land taxes necessities**.
  3. The **quality** of information was **not uniform** in all the territory.
  4. **Authorities responsible for CAP aids had not sufficient control of the system.**



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July 2000: new regulation of the Integrated Control System (ICS)

- ◆ A modification of Council R.(EEC)3508/92, obliged all the Member States to have **operative on 1.01.2005** a LPIS using **“computerised GIS technology**, including preferably aerial or spatial **orthoimagery**, with a homogeneous standard guaranteeing accuracy at least equivalent to cartography at a scale of 1/10.000”. In addition, a document of the Commission recommended **renewing** those images **at least every 5 years**.
- ◆ **The SIGPAC was created in order to fulfil this obligation.**



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## Chronology of the first SIGPAC

- ◆ **2001**: it is decided its creation and main characteristics (e.g., its connection to the cadastre).
- ◆ **2002**: financial agreements between General and Regional Governments (in Galicia: FOGGA and Reg. Min. of Environmental Affairs).
- ◆ **2003**: orthophotographies in Internet.
- ◆ October **2004**: approval of Royal Decree 2128.
- ◆ January **2005**: data in Internet.



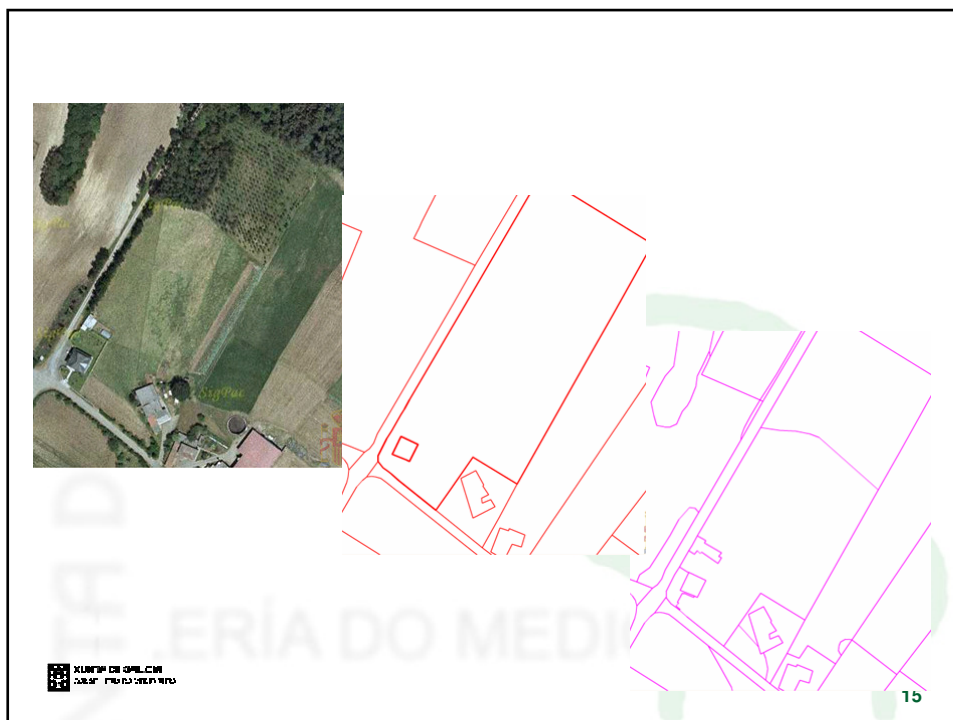
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## Basic content of SIGPAC (1): a data base of images

- ◆ **Ortophotographies** of the territory.
- ◆ Vectorial layer with boundaries of property of land: normally, the cadastral **parcels**.
- ◆ Vectorial layer with divisions of the parcels into parts with different stable uses: “**precints**”.



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## Basic content of SIGPAC (2):an alphanumeric data base

- ◆ **Numeric references of identification**: usually, the cadastral ones plus the number of precinct.
- ◆ **Official areas** of every parcel and precinct.
- ◆ Many **other information relevant for aids**: olive trees, slope of every parcel, etc. There is **no information about the owners** in cadastre (it is a protected datum).



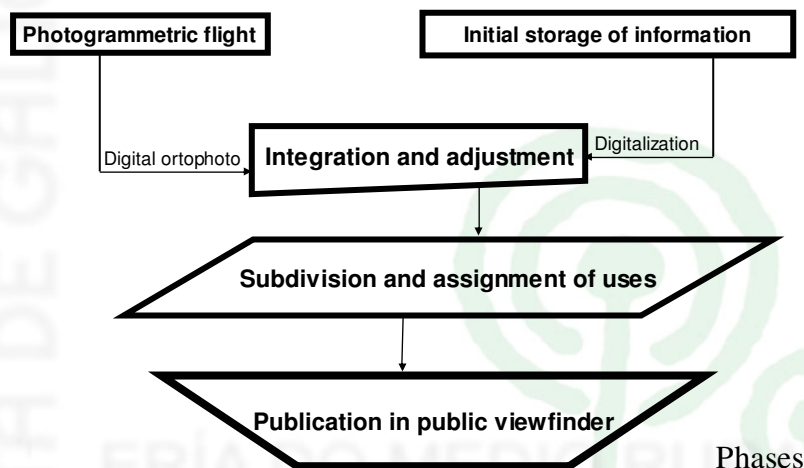
## Elements with numerical references: cadastral parcels instead of “blocks”

- ◆ We consider it is a strength of our system. Some **advantages**:
  1. For the **farmer**: it is easier his or her declaration.
  2. For **managers of aids**: less duplicities, less measures carrying on the on-the-spot checks.
  3. For **society** in general: coherence with other scopes (notaries, electrical companies...)
- ◆ An advantage of “blocks” of stable uses of land:
  - Graphical vectorials fit better with ortophotos.



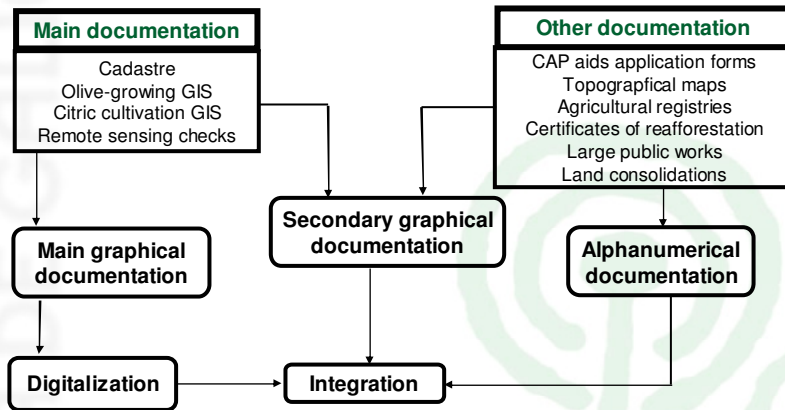
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## Phases in elaboration



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## Initial storage of information



Initial storage of information



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## Layer of stable uses ("precincts")

- ◆ **It is the main objective of the system.**
- ◆ **22 stable uses** were defined: e.g. "arable land" (TA), "vineyard" (VI), "road" (CA).
- ◆ Obtained by **photointerpretation**, with the help of other fountains: cadastral uses, previous CAP declarations.
- ◆ **Criteria for** attribution of uses are in accordance with **CAP necessities**. So, be careful using the layer with other purposes!



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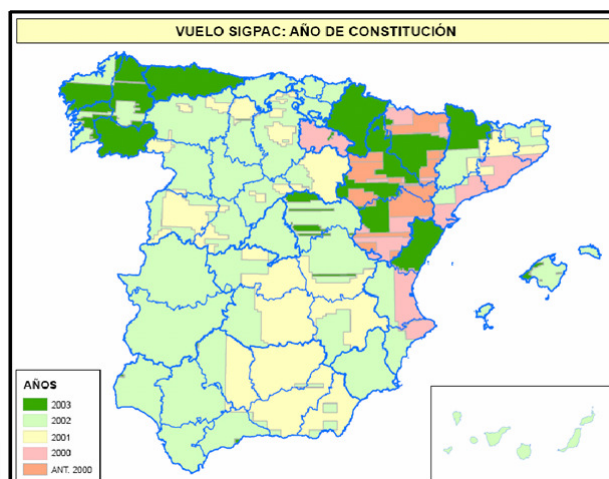
## Ortophotographies in the beginning

- ◆ In many regions, they were obtained mainly in order to elaborate the SIGPAC.
- ◆ It was the **first experience of coordination** among different Public Administrations all over Spain to obtain ortophotographies of high resolution.
- ◆ **Accuracy:**
  - Galicia and rest of north of Spain (mainly small property): **0,25 cm/pixel** <> cartography of scale 1/2.000
  - Rest of Spain: **0,50 cm/pixel** <> 1/5.000
- ◆ Dates of flights were **recent**: in Galicia, mostly 2003.



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## Dates of flight of first ortophotographies



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## The appearance of SIGPAC meant a great success

- ◆ It was the first time it was offered a **complete cover of Spain** of recent orthophotographies of high resolution.
- ◆ Everybody could see them in **Internet** (simple curiosity, organizing spare time activities...).
- ◆ There was an enormous demand of the system **to create specific GIS**.
- ◆ **This success made evident that, until then, there was a lack of something important.**



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## The Royal Decree 2128/2004

- ◆ It was approved on 29th October (published on 13th November).
- ◆ The SIGPAC is a **“public registry of administrative nature”** (article 3.1).
- ◆ Making decisions through the **“Table for Coordination of SIGPAC”**, with representatives of Ministry of Agriculture, Regional Governments (CCAA) and Cadastre (art. 7).
- ◆ **Obliges to coordination with Cadastre** (article 8.2).



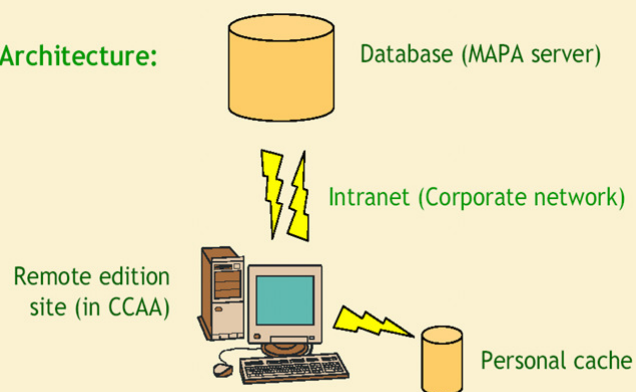
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## Location of the system

- ◆ **Nowadays, the central data base is in the Ministry of Agriculture** (MAPA) in Madrid, and the CCAA (Regional Governments) have copies.
- ◆ **CCAA edit the central data base directly** through a corporate network.

## Edition by CCAA

Architecture:



## Distribution of SIGPAC uses

SUMMARY OF SIGPAC USES OF LAND  
(15-1-2007)

SIGPAC USE DESCRIPTION	SIGPAC USE	SPAIN		GALICIA	
		N. Precints	Area (ha)	N. Precints	Area (ha)
1 ARABLE LAND	TA	15.388.916	14.574.226,45	2.591.186	348.203,15
2 SHRUB PASTURE	PR	17.362.730	11.585.251,41	3.954.037	917.740,50
3 FOREST	FO	9.024.032	8.108.287,53	5.173.779	965.390,85
4 OPEN FOREST PASTURE	PA	1.847.309	4.932.381,70	247.992	63.927,16
5 DROUGHT GRASSLAND	PS	5.331.722	2.563.455,17	1.655.637	342.444,72
6 OLIVE CULTIVATION	OV	4.418.718	2.333.890,00	0	0,00
7 VINEYARD	VI	1.904.192	1.052.298,45	542.044	22.779,11
8 URBAN ZONE	ZU	886.470	1.030.701,89	413.409	66.879,51
9 FRUIT TREES	FY	2.886.586	1.009.578,17	204.136	27.224,75
10 ROADS	CA	2.453.156	1.002.803,40	462.001	89.173,40
11 OTHER USES		8.586.893	2.376.658,40	746.620	111.401,59
TOTAL		70.090.724	50.569.532,57	15.990.841	2.955.164,74



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## People involved in works

- ◆ Photointerpretation: **960**
- ◆ Rectification of photographs: **77**
- ◆ Computer specialists: **52**
- ◆ Coordination, analysis, management: **48**

**Total: 1.137 people**



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### III - SIGPAC software applications



#### Main SIGPAC software applications

- ◆ Diffusion of data:
  - [Viewfinder in Internet](#)
  - [WMS server](#)
  - [Dataexport](#) (translation into standard formats: shape...)
- ◆ To help farmers in their declarations in collaborating agencies:
  - [Sketcher web](#)
- ◆ Maintenance and bringing up to date:
  - [DNEditor](#) (allows the access and modification to all graphic and alphanumeric data in all layers of SIGPAC central data base).
- ◆ Analysis of changes:
  - [Comparator of geometries.](#)

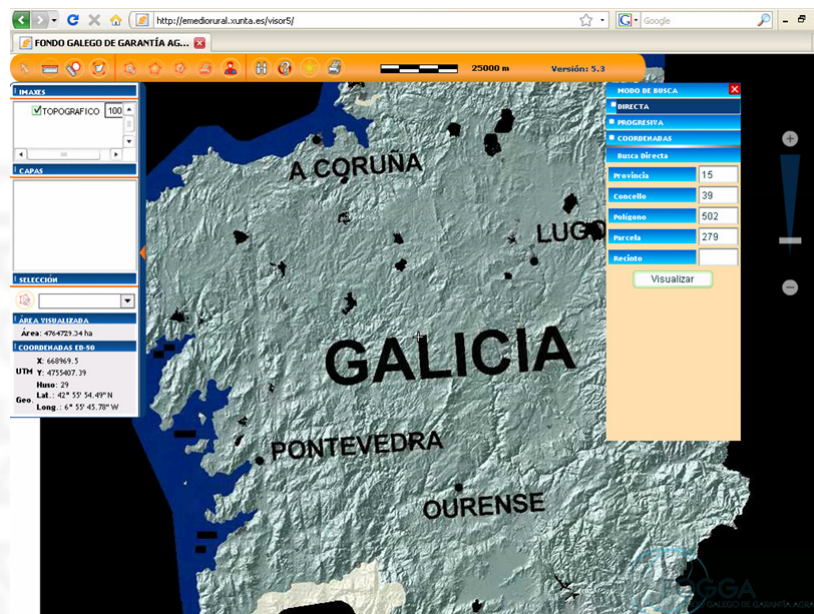


## The viewfinder in Internet

- ◆ It is **easy-to-use** (the target was that any person could use it).
- ◆ It permits to see data in the screen, taking measures, printing a report of any parcel or precinct and obtaining sketchers in "pdf" format.
- ◆ Apart from the central server in Madrid, Galicia has its own server:
  - <http://sigpac.mapa.es/tega/visor/>
  - <http://emediorural.xunta.es/visor5/>

XUNTA DE GALICIA  
GOBERNAMENTO DA XUNTA DE GALICIA

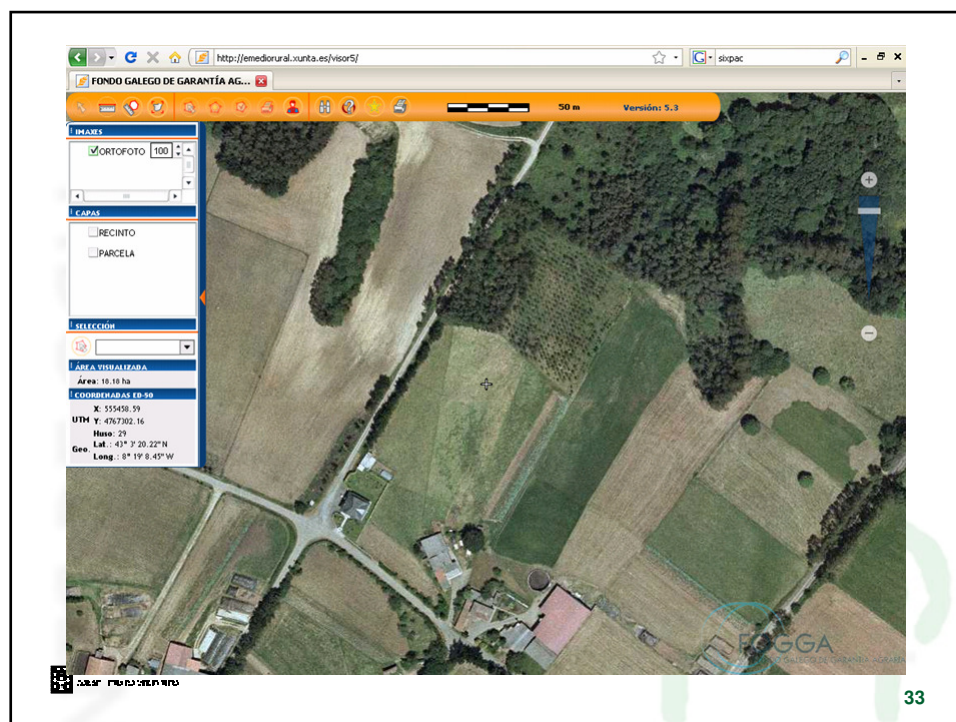
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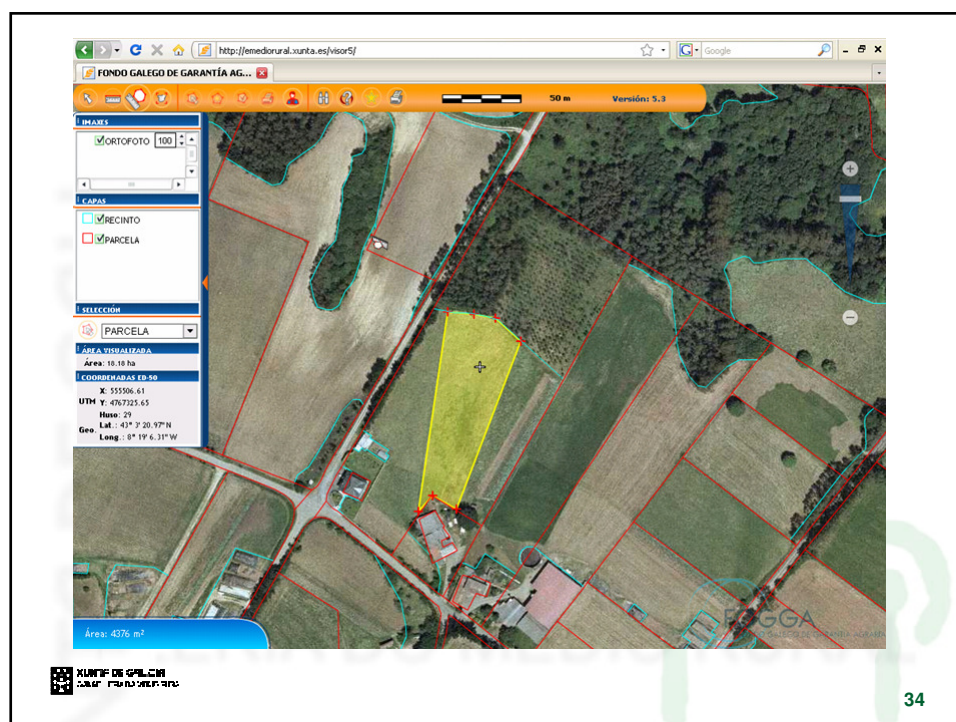
XUNTA DE GALICIA  
GOBERNAMENTO DA XUNTA DE GALICIA

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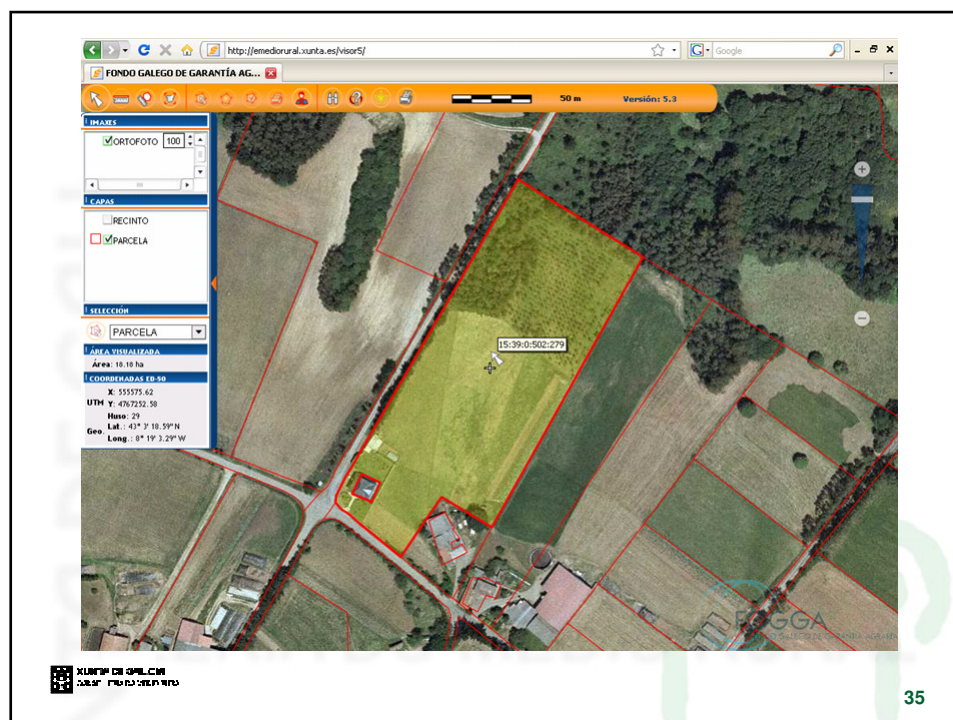







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SISTEMA DE INFORMACIÓN GEOGRÁFICA DE PARCELAS AGRÍCOLAS

Data de uso: 06/2003      Año de renovación catastral: 2003

PROVINCIA	CONCELLO	ZONA	POLIGONO	PARCELA	SUPERFICIE (ha)
15 - A CORUÑA	39 - FRADES	0	502	279	2,0354

RECINTO	SUPERFICIE (ha)	PTE. MEDIA (%)	ELIXIBLE (%) <sup>a</sup>	USO	COEF. REGADIO	INCIDENCIAS
1	1,2088	10,4	100	TA	0	11
2	0,7836	16,0	0	FO		
3	0,0186	8,5	0	IM		
4	0,0243	8,5	0	IM		

<sup>a</sup>- Se a efectos de Cultivos Herbáceos

USO	Superficie del recinto (ha)	Superficie Oleícola (ha)
FO	0,7836	
IM	0,0429	
TA	1,2088	

OPCIONES DE IMPRESIÓN


☐ Etiquetas

☐ Recintos

☐ Árbores


IMPRIMIR





**INFORMACIÓN SIXPAC DE PARCELAS AGRICOLAS**

Provincia: 15 - A CORUÑA      Concello: 39 - FRADES  
Zona: 0      Polígono: 502      Parcela: 279



**XUNTA DE GALICIA**  
CONSELLERÍA DO MEDIO RURAL

Coordenadas UTM do centro	Data de voo do centroide da parcela: 09/2003
	Ano de renovación Catastral: 2003
X: 555574.48 Y: 4767242.71 HUSO: 29	Data de impresión: 04/02/2009
	Escala aproximada de impresión: 0


Información SIXPAC asociada relativa aos recintos:

Recinto	Uso	Superficie (ha)	Incidencias (t)	Coef. Regado	Pendente (%)	Elasible (%) *
1	TIERRAS ARABLES	1,2088	11	0	10,4	100
2	FORESTAL	0,7836			16,0	0
3	IMPRODUCTIVOS	0,0196			8,5	0
4	IMPRODUCTIVOS	0,0243			8,5	0

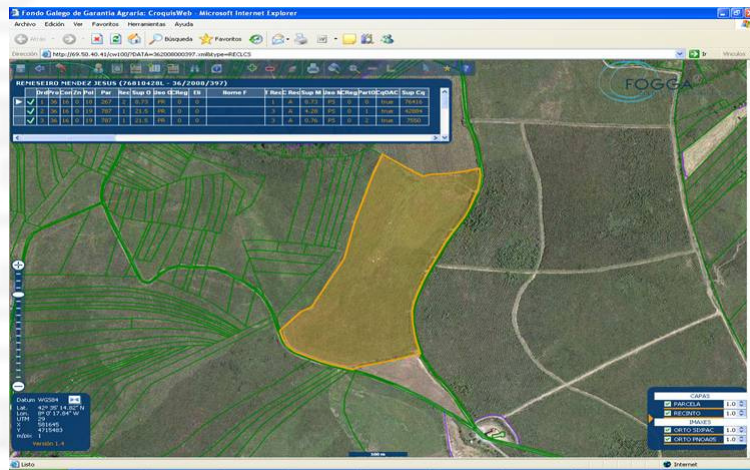
Uso	Superficie (ha)
FORESTAL	0,7836
IMPRODUCTIVOS	0,0429
TIERRAS ARABLES	1,2088
<b>Superficie Total Parcela</b>	<b>2,0354</b>

(t) A descrición das incidencias SIXPAC aparece no menú de Axuda do Visor SIXPAC  
\* - 50 a efectos de Cultivos Herbáceos.



## Sketcher web

- ◆ **It works together with the different alphanumerical aid applications** used by CCAA and their collaborating agencies. Both applications interchange information using a XML file.
  
- ◆ It permits **seeing quickly a group of parcels and attaching graphical data** to the aid application (as an alphanumeric field with the chain of coordinates of the vertexes).



MUNICIPIO DE QUITO  
 GOBIERNO AUTÓNOMO DE QUITO

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## IV - Strategy to bring SIGPAC up to date

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## Change and stability

- ◆ Obviously, to accomplish the objectives of its creation, the system must receive new information constantly.
- ◆ However, at the same time, for a certain year it is necessary to fix which are the data of reference for that period. At the beginning of **every year**, it is published the “**official photo**” of **SIGPAC** for that campaign.



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## Fountains of change

1. **Cadastre.**
2. **Aerial ortophotographies.**
3. **Declarations of the farmers** (CCAA).
4. **On-the-spot checks in CAP aids** (CCAA).
5. **Large public works** (new roads...): Galicia 2008, using satellite images SPOT5 (2,5 m/pixel).
6. **Other specific actions:** e.g. the renewal of the use “vineyard”.



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## Cadastre: “renewal” and “convergence”

- ◆ Every time there are **massive changes** in the net of cadastral parcels **in some council (“renewal”)**, that information is brought up to date in SIGPAC. This process will end in 2009.
- ◆ Independently of “renewals”, it is being developed a **“Plan of convergence”** between cadastre and SIGPAC, **to eliminate their differences** with respect to the parcels **and to synchronize** both data bases. This process will end in 2011.



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## Renewal of ortophotographies

- ◆ **At least every 5 years**, according to the European Commission. It is something essential to renew the layer of uses.
- ◆ The change of ortophotos in SIGPAC **determines a new photointerpretation** of those declared parcels in CAP aids, and other changes because of new large public works detected.

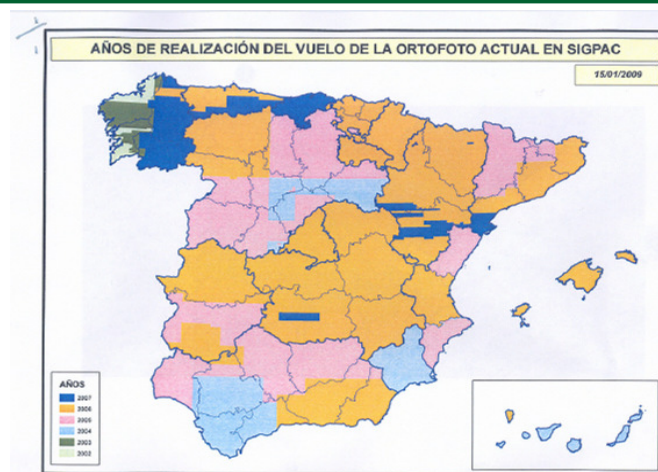


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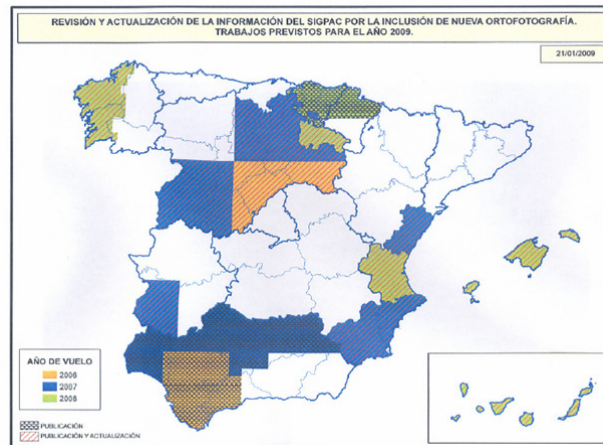
## Renewal of ortophotographies: its relationship with the PNOA

- ◆ The “**National Plan of Aerial Ortophotography**” (PNOA), existing since 2003 to coordinate the production of ortophotographies, is leaded by the National Geographic Institute (IGN) of Spain.
- ◆ Since its beginning (2006), this renewal in SIGPAC was linked to the PNOA. This was a logical decision but **is still problematical for SIGPAC**. In order to let them understand the necessities of the CAP, the IGN is already invited to the “Table for Coordination of SIGPAC” (TCS) sometimes.
- ◆ The intention of TCS is renewing the ortophotos completely **every 2 years**.

## Ortophotographies published on 15/01/2009: dates of flight



## Scheduled works for 2009 to obtain ortophotos (starting from previous flights)



## Changes in SIGPAC declared by farmers in Galicia

### ◆ Number of changes approved in 2008:

- Affecting the whole precinct: **5.147**
- Affecting only part of the precinct: **850**



## Changes coming from on-the-spot checks of CAP aids in Galicia

- ◆ Every year, around 100.000 parcels (at least the 5 % of the total declared) are visited in the field. In some cases, the results of the control must be reported to the SIGPAC.
- ◆ Number of changes in 2008:
  - Affecting the whole precinct: **4.647**
  - Affecting only part of the precinct: **883**



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## V - The CONSUPAC application: on-the-spot checks in Galicia



## What is CONSUPAC?

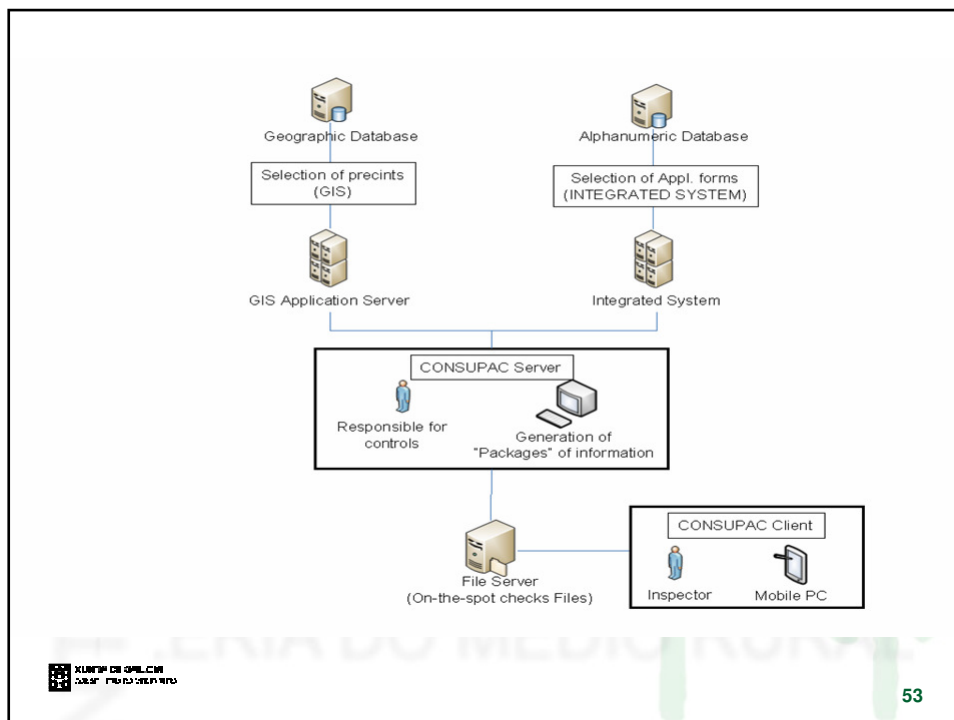
- ◆ It will permit (in 2009) to carry on the controls with **mobile PC in the field combined with a Global Navigation Satellite System (GNSS)**, as e.g. the American GPS.
- ◆ Really, two applications:
  - **CONSUPAC Server** Application
  - **CONSUPAC Client** Application (installed in the PC)



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## Advantages

- ◆ Controls are **easier and more reliable**.
- ◆ Some **mistakes are avoided** (the application “knows” the regulations of every aid scheme).
- ◆ It is possible to **make the most of the information obtained**.

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## Some Final Remarks



### Remarks

1. The SIGPAC was created as a necessary instrument for the **management of CAP aids based on agricultural areas**.
2. In its constitution, it was used **information** already existing or created at that time **by different Public Administrations**.
3. The SIGPAC has become a good **GIS for rural affairs**.
4. The efficiency of the system needs to bring its **information up to date in an agile and coordinated way**:
  1. Renewal of **ortophotographies every two years**.
  2. Convergence with cadastre.
  3. Reporting results from on-the-spot checks of CAP aids.
5. Developing **software applications using GIS technology** has an important role to bring the system up to date efficiently.

