Fast Track Service Land
Technical Team Kick-Off
AgriEnv Session Partner
Paolo Prosperi (JRC-agri)

- **Concise product description**
  - Indicator displaying the areal extent, trend and relative degree of extensification

- **State of the art / overview of the methodology**
  - Characterization of intensity and spatial patterns/variation of land cover, related to permanent vegetation and field cover, for paired analysis in view of determining the observable impact of the extensification on the land cover condition

  - Spatio-temporal characterisation of habitats and indicators for biodiversity impact assessment/modelling

  - Remote sensing analysis aims at complementing the spatial aspects of impact assessment and that these approaches will need to be integrated with results from other coordinated studies.*

* Source: Michael Cherlet and Eva Ivits, 2007. Data Model and Analysis for Spatial Assessment of Environmental Impact and Targeting of Agri-Environmental Schemes at regional scales . JRC-IES

- ■ **Related projects**
  - ■ GMES LADAMER

- ■ **Test sites on which the product will be produced**
  - ■ EU10 – Guadalquivir (58,000 km2)

- ■ **Needs of CMS products**
  - ■ SATChMo (Seasonal and Annual Change Monitoring)
    - ▪ Medium resolution continental coverage of seasonal and annual vegetation parameters to produce Land Cover and agricultural Land Use
  - ■ BioPar
    - ▪ Near real-time and off-line series of biogeophysical parameters describing the continental vegetation state, the radiation budget at the surface and the water cycle

- ■ **Needs of in situ data**
  - ■ Field data measurements will be needed for validation of the results

- **Concise product description**
    - State and trend of riparian vegetation
    - Maps showing the zones where the application of the 'extensification' Agri-Environmental Measure produced a measurable effect on selected environmental parameters

- **State of the art / overview of the methodology**
    - Analysis of multi year phenological characteristics calculated from NDVI based vegetation abundance: changes in magnitude and phase, time curves and their cyclic patterns (after 'AEM effectiveness' methodology)*

- **Related projects**
    - GMES LADAMER

* Source: Eva Ivits, Michael Cherlet, Wolfgang Mehl, Stefan Sommer, 2008. Estimating the ecological status and change of riparian zones in Andalusia assessed by multi-temporal AVHHR datasets. In press

- **Test sites on which the product will be produced**
  - High risk areas inside EU10 – Guadalquivir (5,000 km2)

- **Needs of CMS products**
  - SATChMo (Seasonal and Annual Change Monitoring)
    - SATChMo to provide a complete medium resolution continental coverage of seasonal and annual vegetation parameters to produce Land Cover and agricultural Land Use
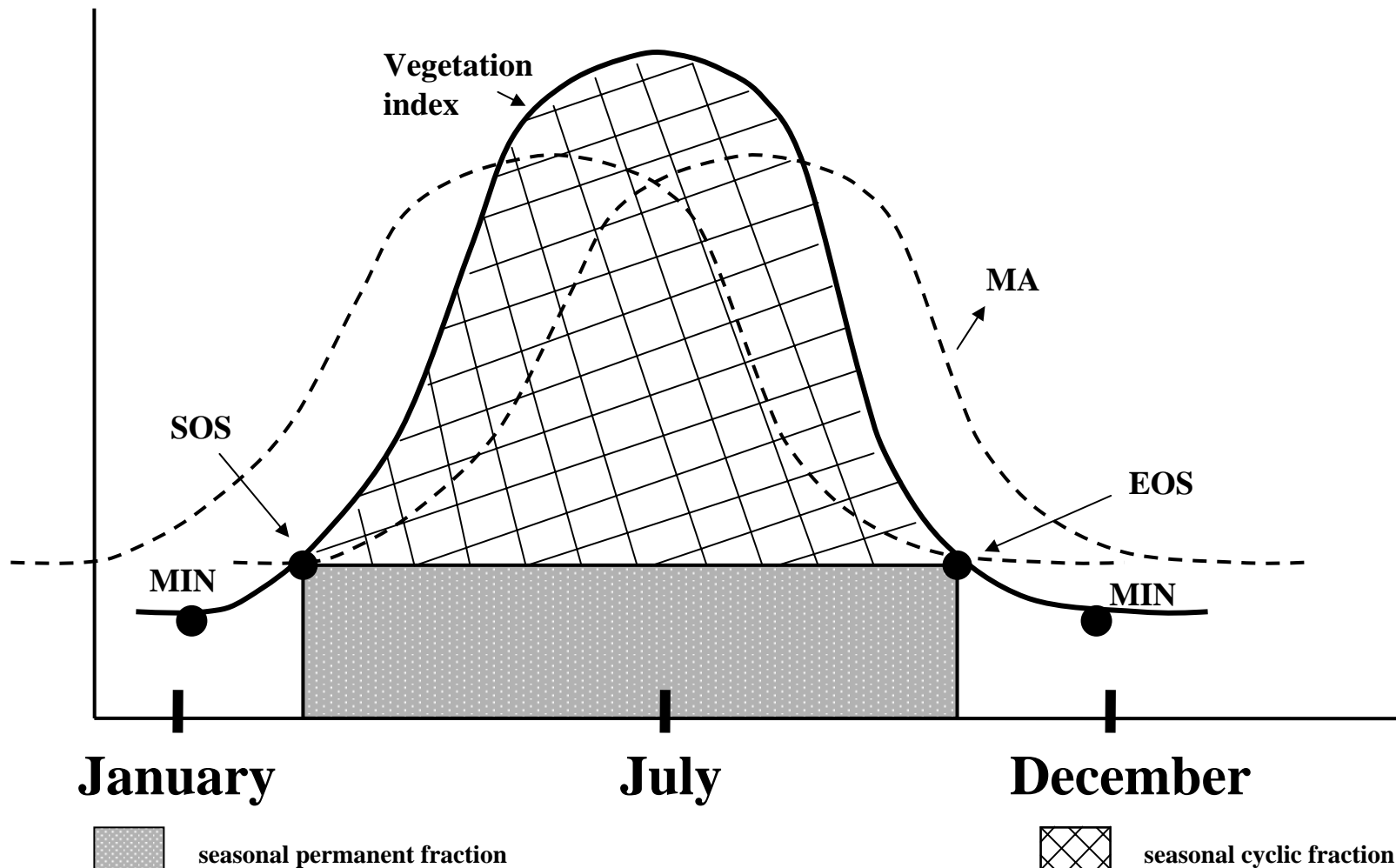
  - Euroland
    - Of minor relevance: Very high resolution Urban Atlas inventory and change
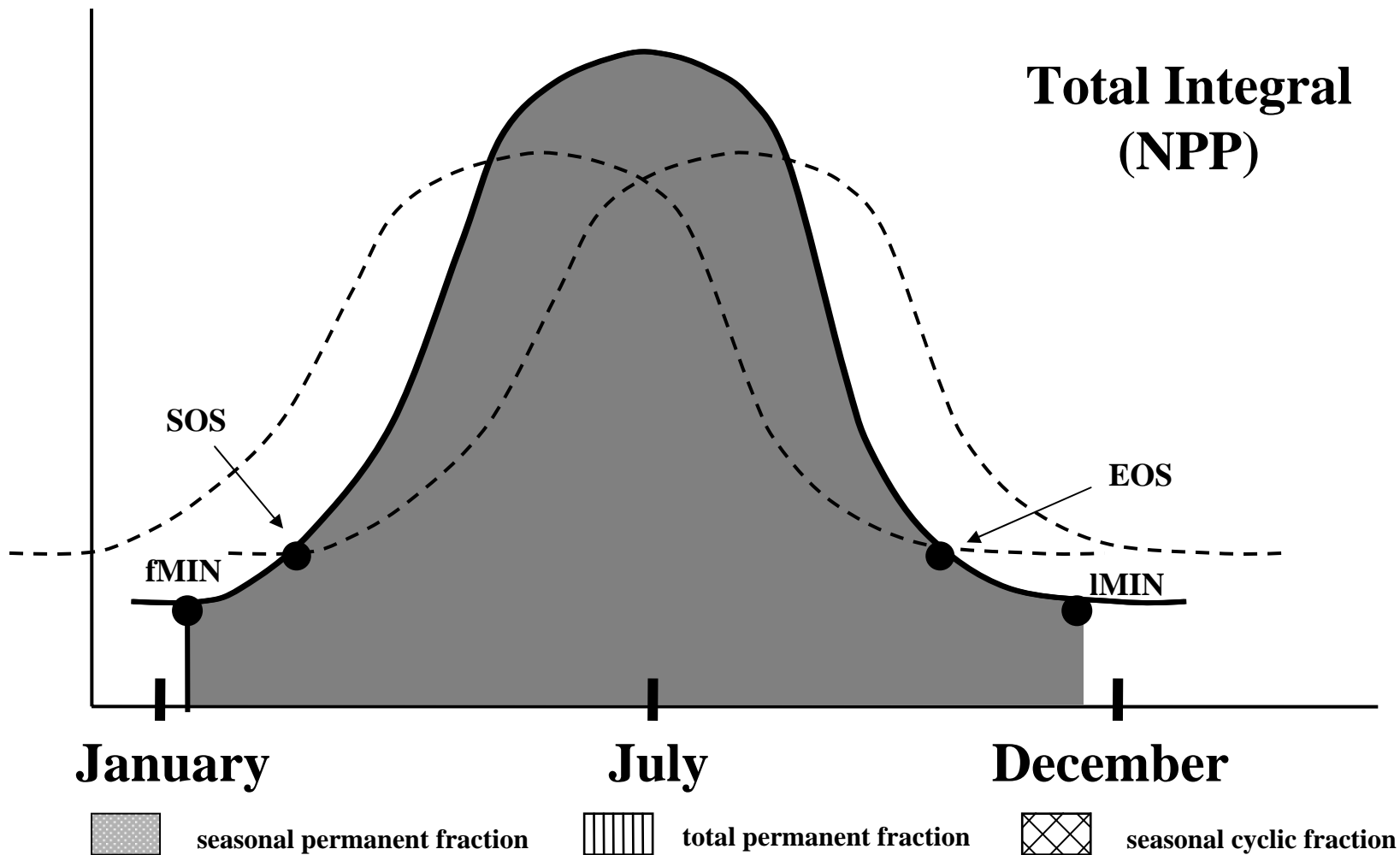
- **Needs of in situ data**

**Remotely sensed time series analysis methods for the observation of environmental status**

January   July   December

seasonal permanent fraction   seasonal cyclic fraction

Derived phenological indices

Total Integral (NPP)

SOS

EOS

fMIN

lMIN

January   July   December

seasonal permanent fraction   total permanent fraction   seasonal cyclic fraction
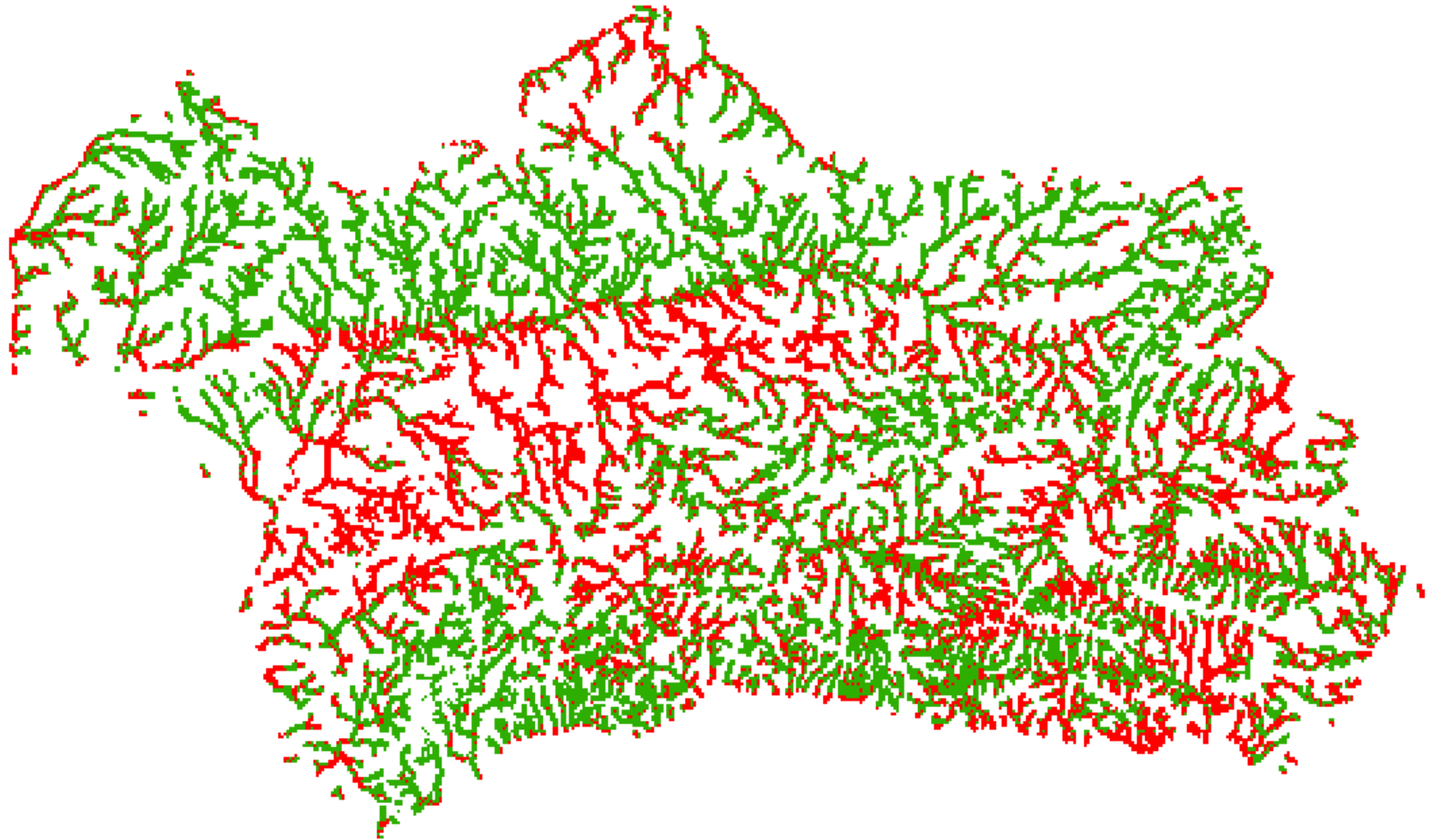
geo**la**nd**2**

Remote Sensing Phenological Indicator of the status of the riparian zone
(permanent vegetation fraction)
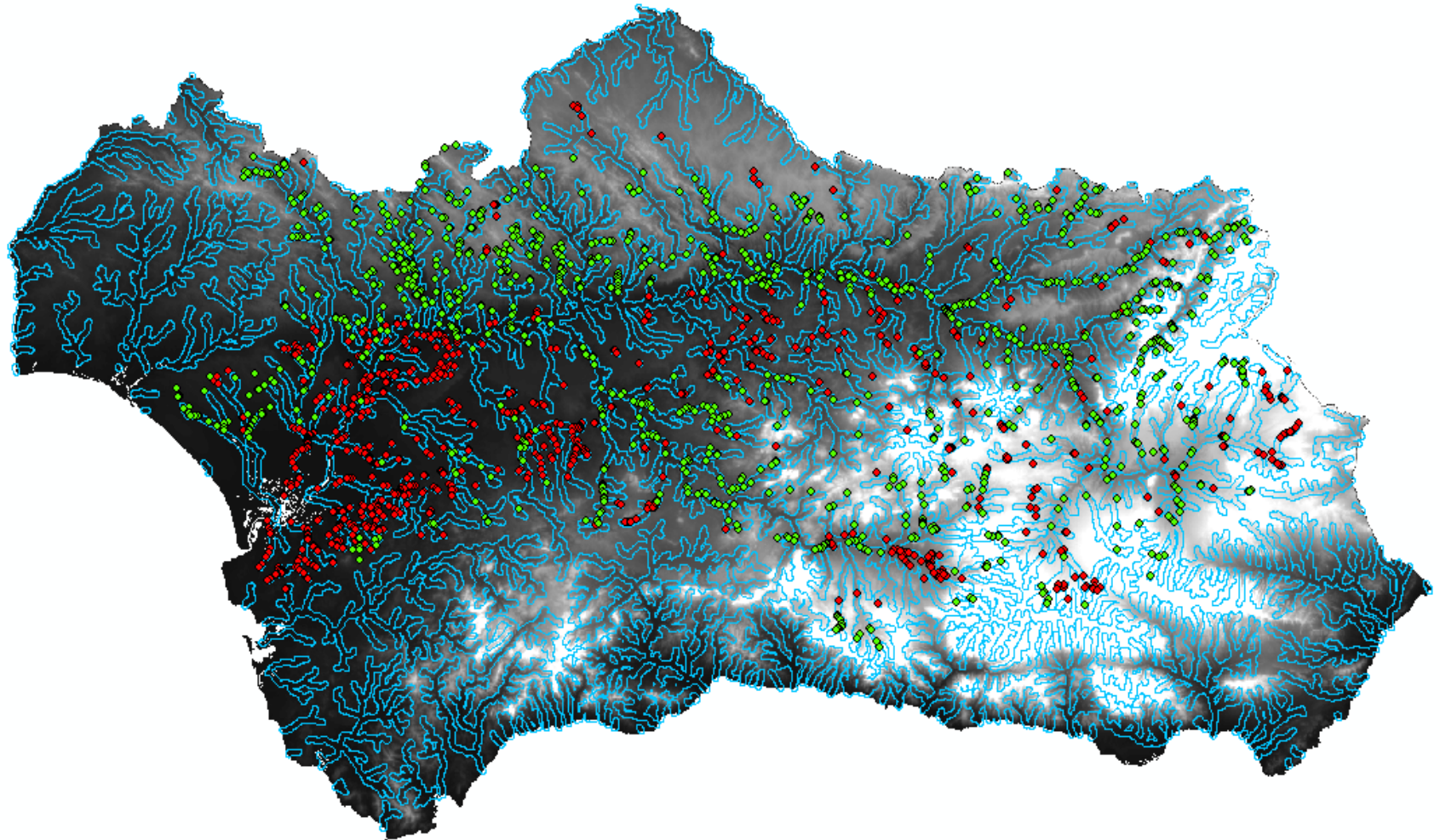
Green dots: field observations of the natural riparian status. Red dots: field observations of the bad riparian status

Remote Sensing Phenological Indicator of the status of the riparian zone (permanent vegetation fraction)
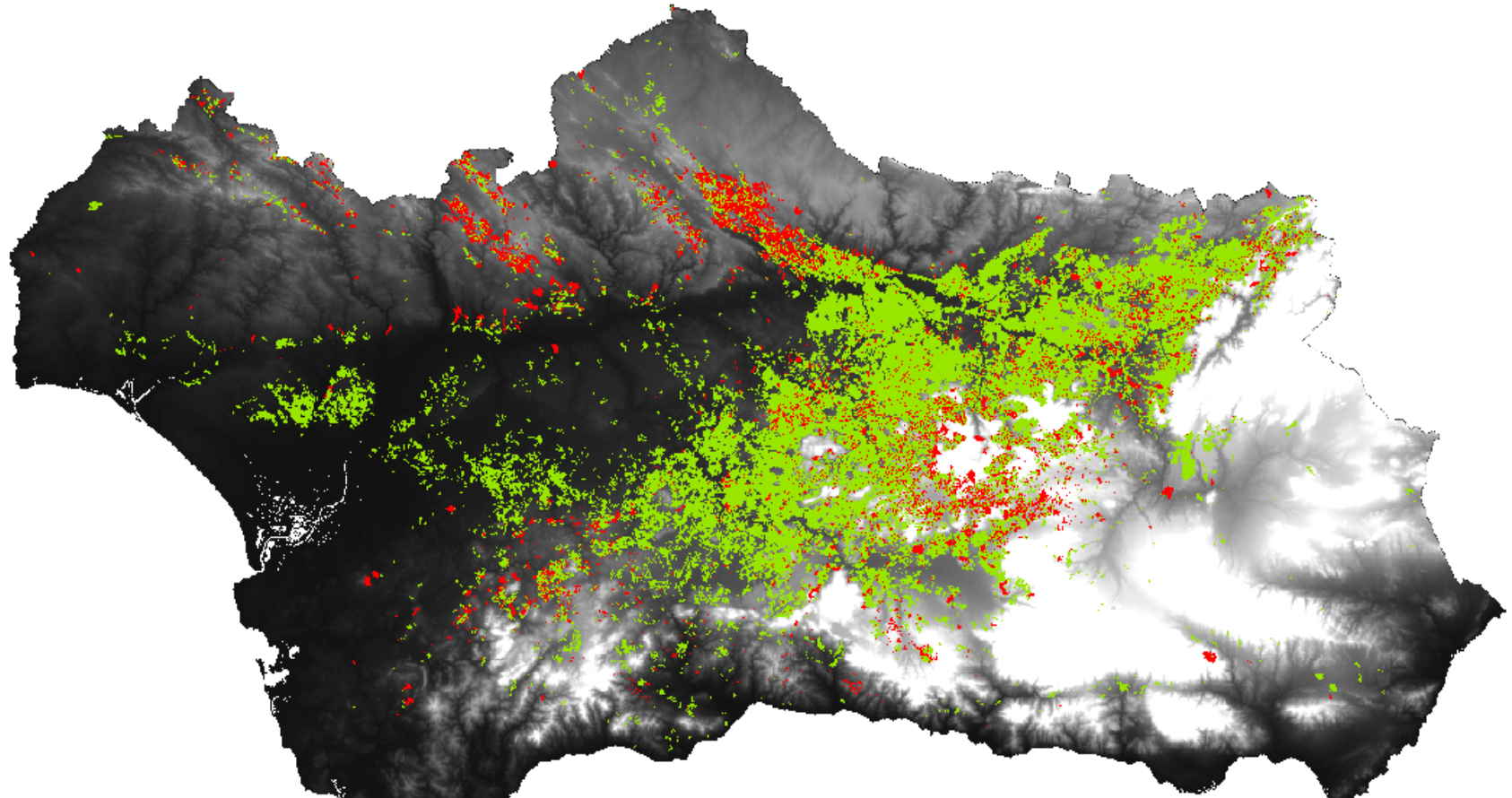

Classification accuracy = 87%.

Erosion control measures in olives in Andalusia

CORINE olive classes

Erosion control measures in olives

Erosion control measures in olives in Andalusia

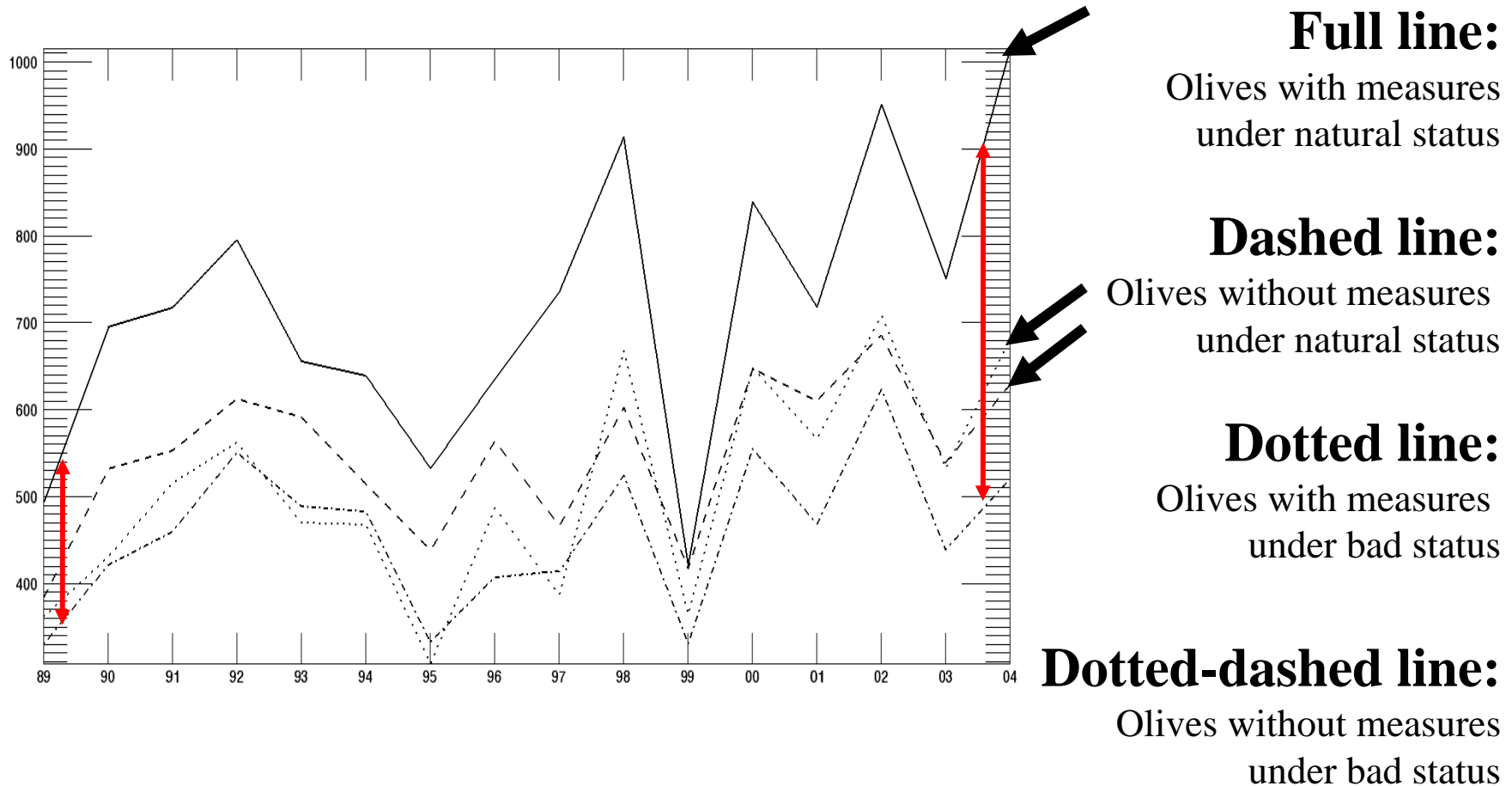Integrated intensive olive cultivation (irrigated)

Production is increased only if new trees are planted

Traditional intensive olive cultivation (irrigated)

Production per tree is increased by external input

Temporal evolution (1989-2004) of the phenological indicator in the natural and bad riparian status in olives with and without AEMs

Full line:
Olives with measures under natural status

Dashed line:
Olives without measures under natural status

Dotted line:
Olives with measures under bad status

Dotted-dashed line:
Olives without measures under bad status

Temporal evolution (1989-2004) of the permanent vegetation in the natural and bad riparian status in olives with and without AEMs
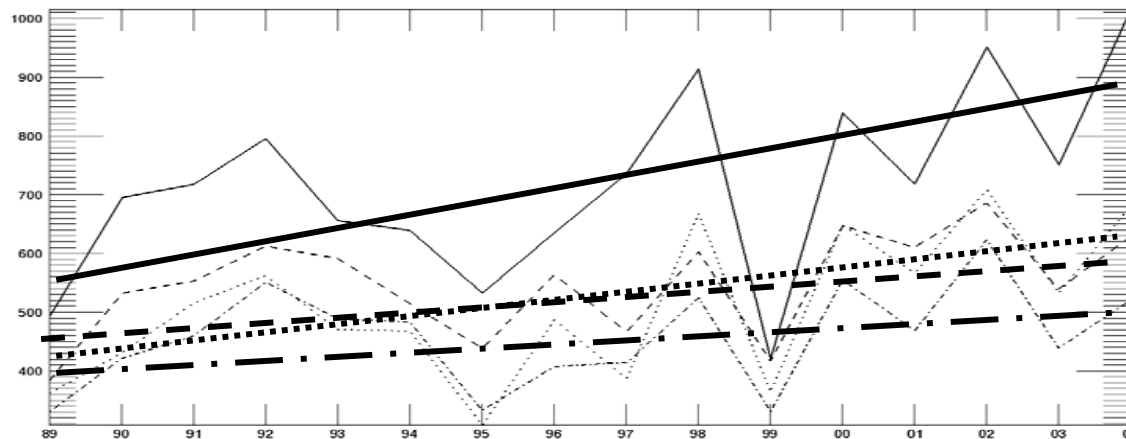
Full line:

Olives with measures under natural status

Dashed line:

Olives without measures under natural status

Dotted line:

Olives with measures under bad status

Dotted-dashed line:

Olives without measures under bad status

Linear trend analysis of the remotely sensed phenological index

	R^2	Durbin-Watson	B-value of time	Significance
Natural status, AEM	0.263	2.468	17.414	0.042
Natural status, no AEM	0.198	2.254	8.086	0.084
Bad status, AEM	0.323	2.680	14.770	0.022
Bad status, no AEM	0.132	2.308	6.536	0.166

- **Concise product description**
  - Indicator displaying the area and rate of abandoned arable land

- **State of the art / overview of the methodology**
  - Comparison of land cover maps but only if resolution is detailed
  - Verified method 2 not based on RS: comparison of UAA evolution in two FSS censuses at LAU2 and considering only losses > 100 ha/year (or 0,6%/year)*
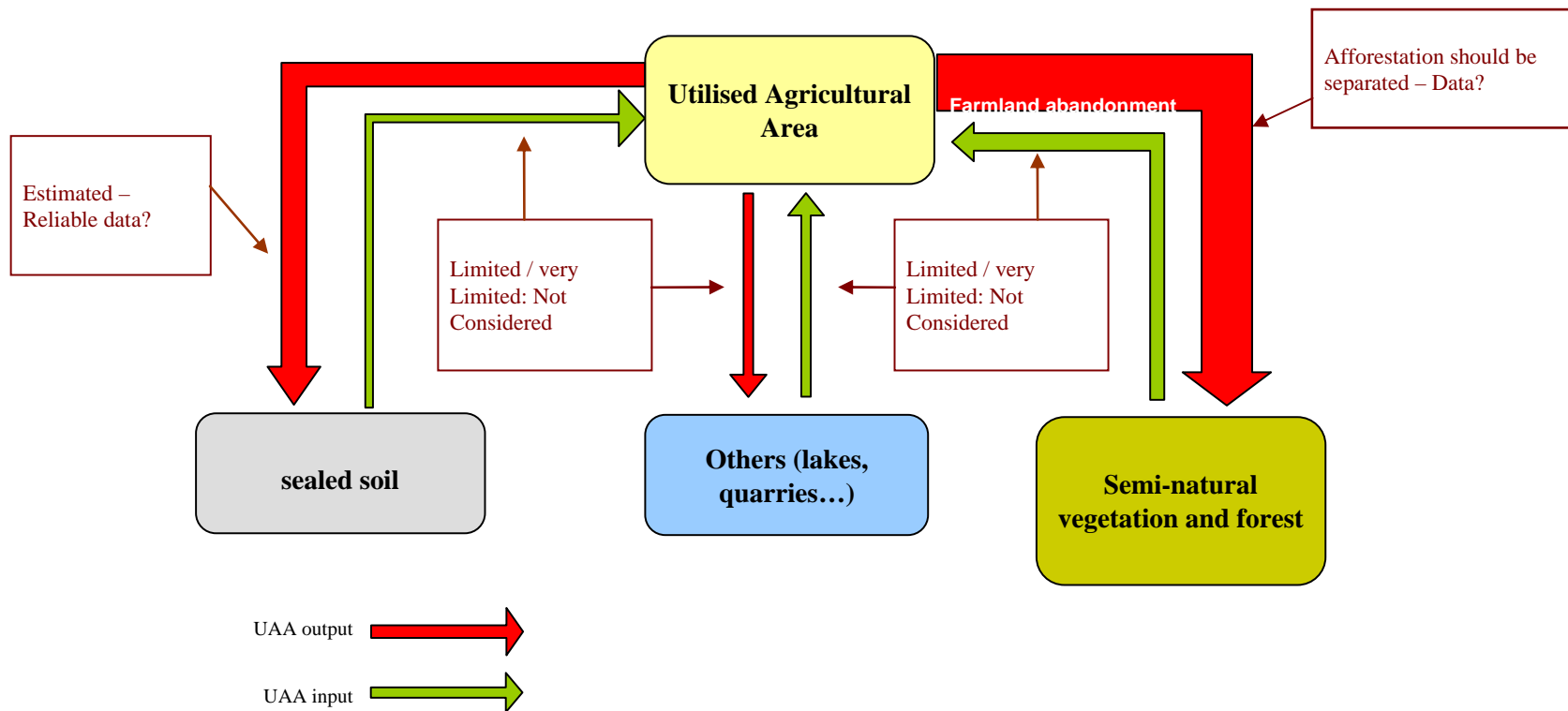
- **Related projects**
  - Geoland, FAO-GLCN, LPIS

- **Test sites on which the product will be produced**
  - EU15 – Strymonas/Struma river basin (12,500 km2)

* **Based on the JRC Scientific and Technical Report on the "Analysis of Farmland Abandonment…" 23411EN**

- **Needs of CMS products**
  - Euroland
    - Very high resolution Urban Atlas inventory and change
  - SATChMo (Seasonal and Annual Change Monitoring)
    - SATChMo to provide a complete medium resolution continental coverage of seasonal and annual vegetation parameters to produce Land Cover and agricultural Land Use
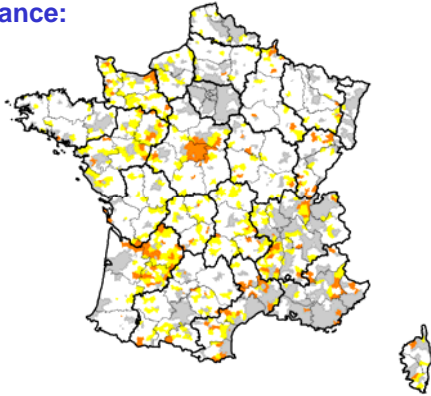
- **Needs of in situ data**
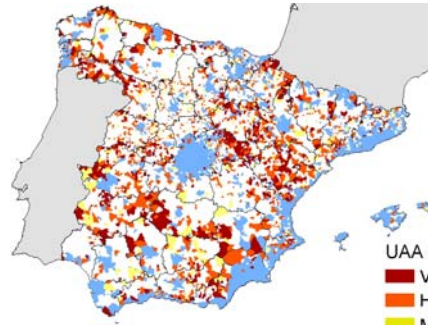 - In situ data are needed to field validation of the results

geo2**land**

FLA intensity and location*:

France:

Sources: FSS censuses/SCESS, Population Survey/INSEE and calculation by SOLAGRO.

Spain:

UAA decrease level
- Very high (>500 ha/year or >7.5%/year)
- High (>300 ha/year or >1.2%/year)
- Medium (>100ha/year or >0.6%/year)
- Low (< 100ha/year and <0.6%/year) or none
- Urban areas

Sources: Instituto Nacional de Estadística, (Population census 1999), MAPA (FSS censuses 1989 & 1999) and calculation by SOLAGRO.

Poland:
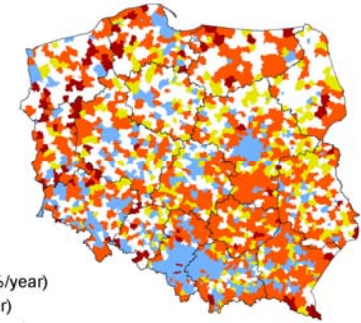
Sources: Central Statistical Office (GUS-Poland) 1996 & 2002, FSS Census 1996-2002 and calculation by SOLAGRO.

* **Based on the JRC Scientific and Technical Report on the "Analysis of Farmland Abandonment…"**
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Thank you

Paolo Prosperi
JRC-agri, Ispra
E-mail: paolo.prosperi@jrc.it