

# **The use of TerraSar-X and Non LPIS datasets to deal with the absence of optical imagery**

## BACKGROUND

- Ireland is cloudy 1 day in every 2
- In 2008 no VHR imagery was captured for 7 zones out of 12
- VHR Windows open from Feb to end Aug
- Major Review at End of July

# BACKGROUND

WEATHER 30.07 – 31.08



**ICON** Group  
Information  
Expertise

# REVIEW

## POSSIBLE OPTIONS

- TerraSar-X RADAR Imagery
- Local Spatial Datasets
- Additional Rapid Field Visits

# REVIEW



## LOGISTICAL PROBLEMS

- The timing –it was August, holiday time
- There was no framework agreement between JRC and InfoTerra
- The cost/budget implications
- Late stage in the programme
- An untried image type

# PLAN



## STEPS TAKEN

- Identify usable archive material
- Identify acquisition targets
- Arrange a budget & agree a supply contract
- Establish and implement modalities for transferring data between ICON & InfoTerra
- Process the imagery & deliver the imagery

# PLAN



## ATTRIBUTES

- Delivered as orthorectified
- Resolution 1 Metre to 3 Metre
- Resolution not directly comparable between optical and RADAR data

# PLAN

## OTHER DATASETS

- Spatially attributed
- Current
- Relevant to area of coverage
- Providing reliable information about the land use or boundaries.



# PLAN

## OTHER DATASETS

- National Roads Authority –New road development
- Local Authorities –Planning data
  - Details of approvals for new buildings, including location
  - Mostly digitised from the same ortho photos used in LPIS
  - Already available for query via web sites
  - Up to date data

# ACTION

## PLANNING DATA

- 16 Different Local Authorities
- Data Protection Issues
- Variation in file structure

# ACTION

# PLANNING DATA



Road & Building Planning Data is an indication of the possible existence of an ineligible area

- Spatially referenced
- It has a high level of accuracy
- Frequently updated

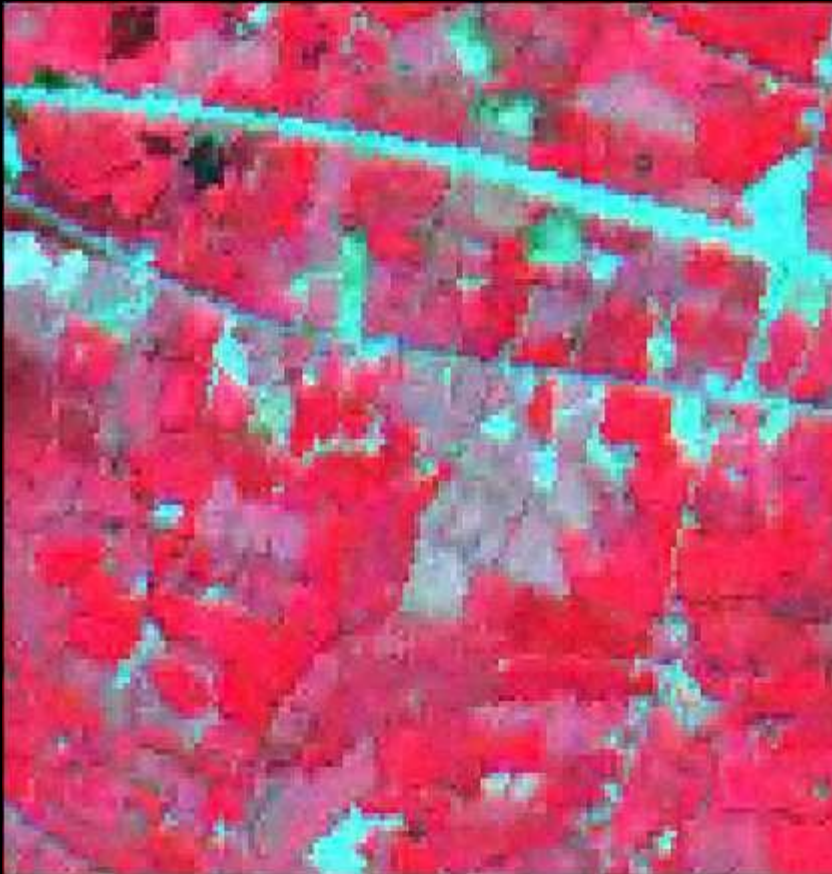
BUT...

- The farmer may have excluded the area
- The building may not yet be built
- The shape may not represent the building
- Not all buildings require permission

# ACTION

## HR Imagery

**ICON** Group  
Information  
Expertise



SPOT 20M XS

FERB zone

Scale 1:20,000

# ACTION

# RADAR

**ICON** Group  
Information  
Expertise



TerraSar X 1 M

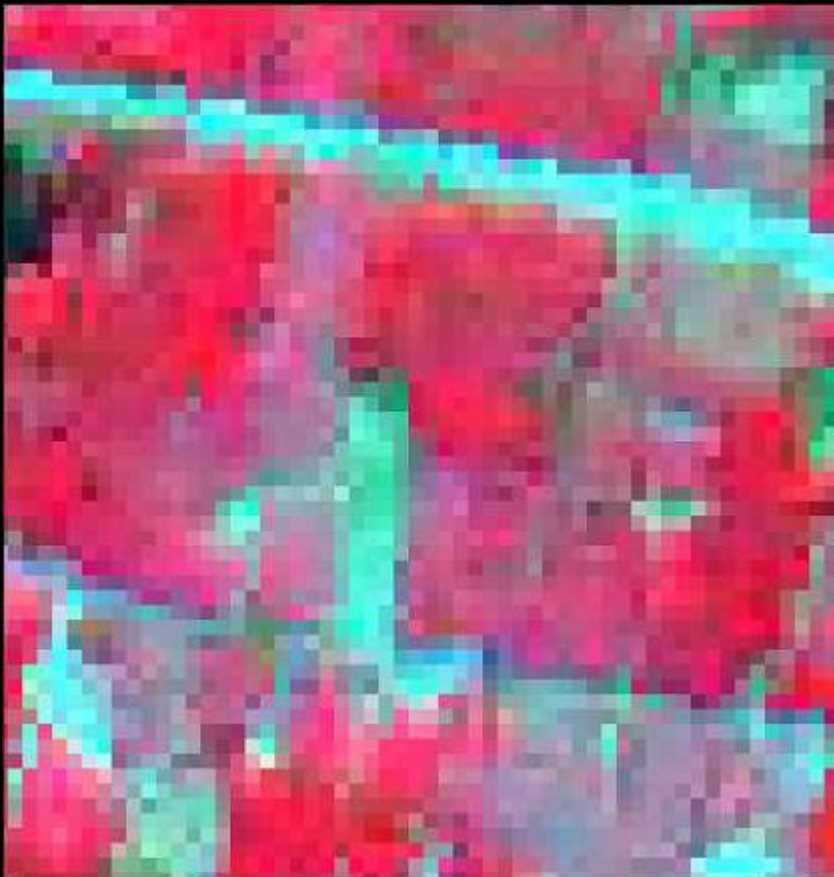
FERB zone

Scale 1:20,000

# ACTION

## HR Imagery

**ICON** Group  
Information  
Expertise



SPOT 20M XS

FERB zone

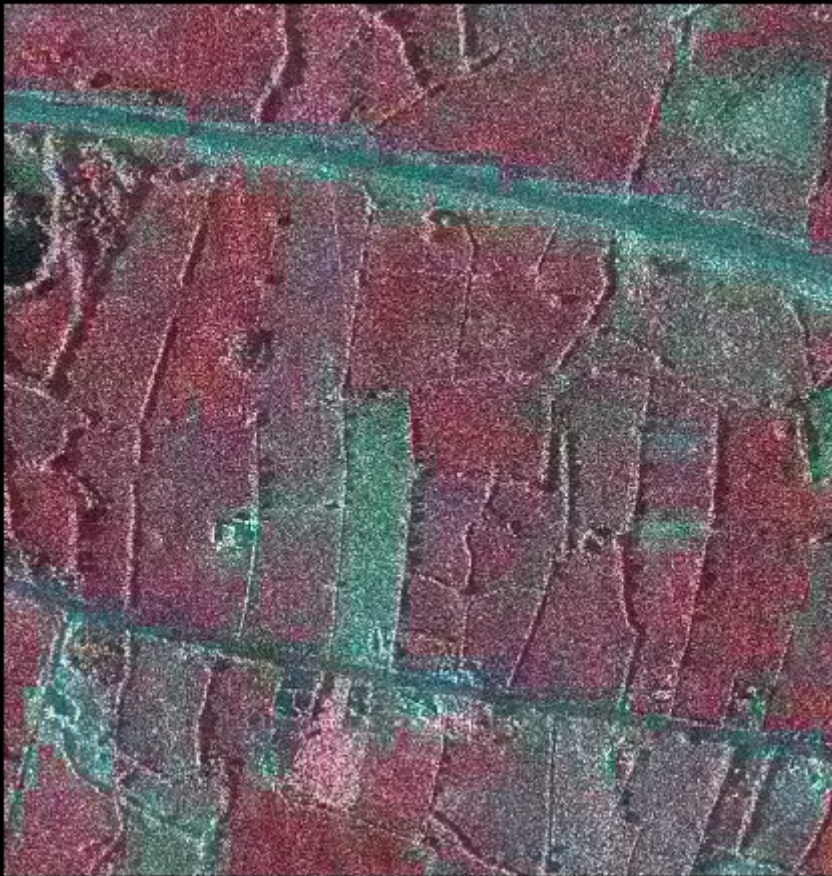
Scale 1:10,000



# ACTION

# BLEND

**ICON** Group  
Information  
Expertise



SPOT/TerraSar

FERB zone

Scale 1:10,000

# ACTION

## BLEND v ORTHOS

**ICON** Group  
Information  
Expertise



1 Metre ORTHO

FERB zone

Scale 1:5,000



# ACTION

# BLEND v ORTHOS

**ICON** Group  
Information  
Expertise



I Metre ORTHO

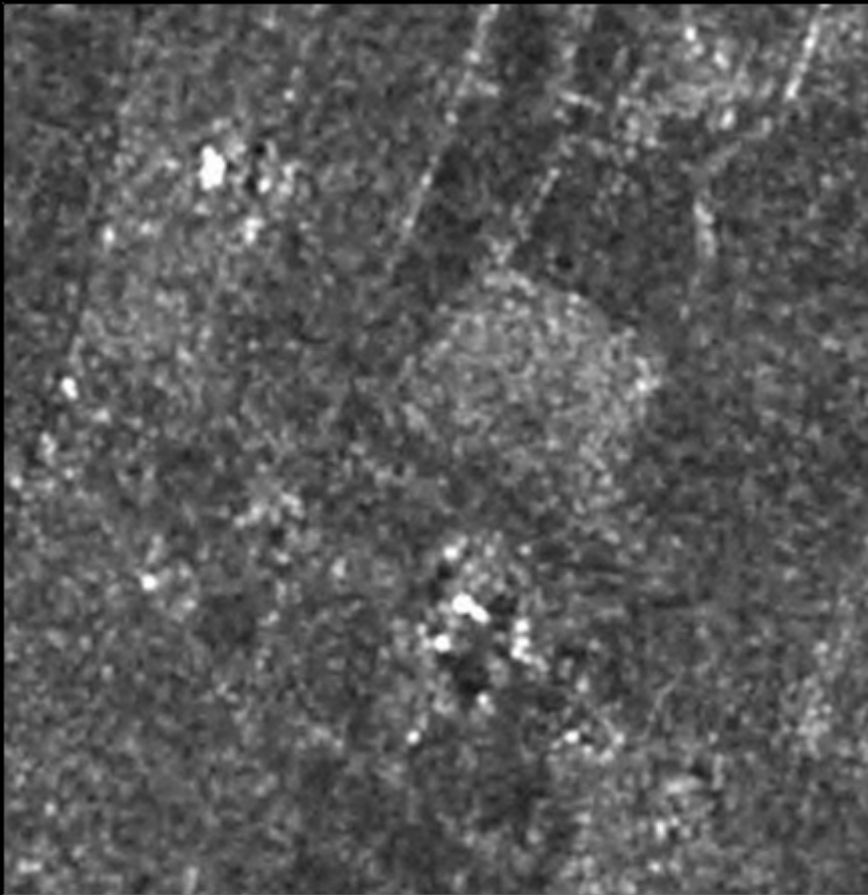
FERB zone

Scale 1:5,000

ACTION

RADAR

ICON<sup>Group</sup>  
Information  
Expertise



3 Metre TerraSar

BELM zone

Scale 1:4,000

# ACTION

# EROS

**ICON** Group  
Information  
Expertise



1.8 Metre EROS B

BELM zone

Scale 1:4,000



# ACTION

## EROS v TerraSar

**ICON** Group  
Information  
Expertise



1.8 Metre EROS B

3 Metre TerraSar

BELM zone

Scale 1:4,000

# BACKGROUND

- In Ireland parcel boundaries are stable and bounded by natural features
- The digitising work is mainly dealing with exclusions and updates

# ACTION

# BLEND

**ICON** Group  
Information  
Expertise



SPOT 20M XS

TerraSar 1M

**Parcel Boundaries**

FERB zone

Scale 1:5,000



**ACTION**

**PLANNING**

**ICON** Group  
Information  
Expertise

SPOT 20M XS

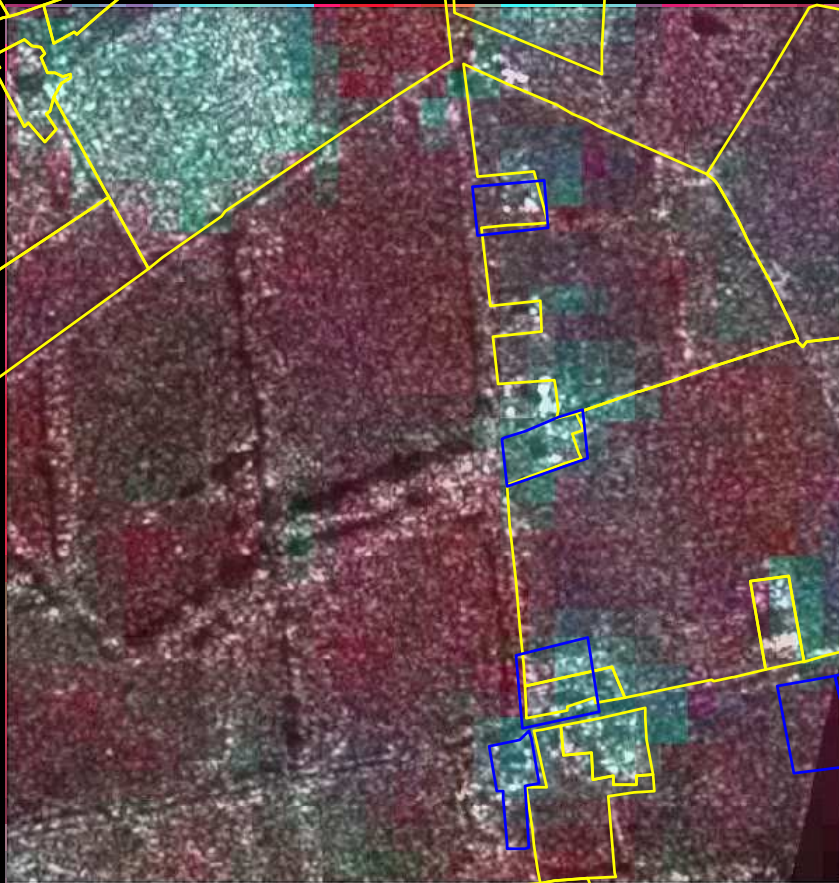
TerraSar 1M

Parcel Boundaries

Planning Data

FERB zone

Scale 1:5,000



# SUMMARY

The response to the problem of bad weather was:

To use TerraSar X in combination with HR XS data

To use planning data to corroborate building exclusions

To use additional rapid field visits where no data was available or no decision could be made



# CONCLUSIONS

The weather in Ireland will continue to be an issue

TerraSar is a valuable back up dataset in 1 metre mode

The main advantages of TerraSar are:

- Cloud penetrating
- Ordered when needed
- Delivered already geocorrected

Caveat: the quality of feature definition

The planning data is a very useful validation tool

Thank You  
for your  
attention