

Dynamic predictive mapping using multi-sensor data fusion:  
Demonstration for malaria vector habitat

# DYNMAP

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Belgian Earth Observation Day - DYNMAP (STEREO II)



# Objectives

1. Develop a new Bayesian data fusion method
2. Update land surface descriptors of interest for malaria vector control in South East Asia
  - (a) land cover
  - (b) relative humidity
3. Delineate restricted zone for dry season *An.dirus* habitat

Validation with field data

# Study sites

One site in Vietnam and two sites in Cambodia

Forested sites with contrasted season

High level of malaria due to the vector *Anopheles dirus*

Each site correspond to the superficie of a SPOT 5 high resolution image

Dry season



Wet season





# New Bayesian data fusion method



Multispectral and panchromatic images

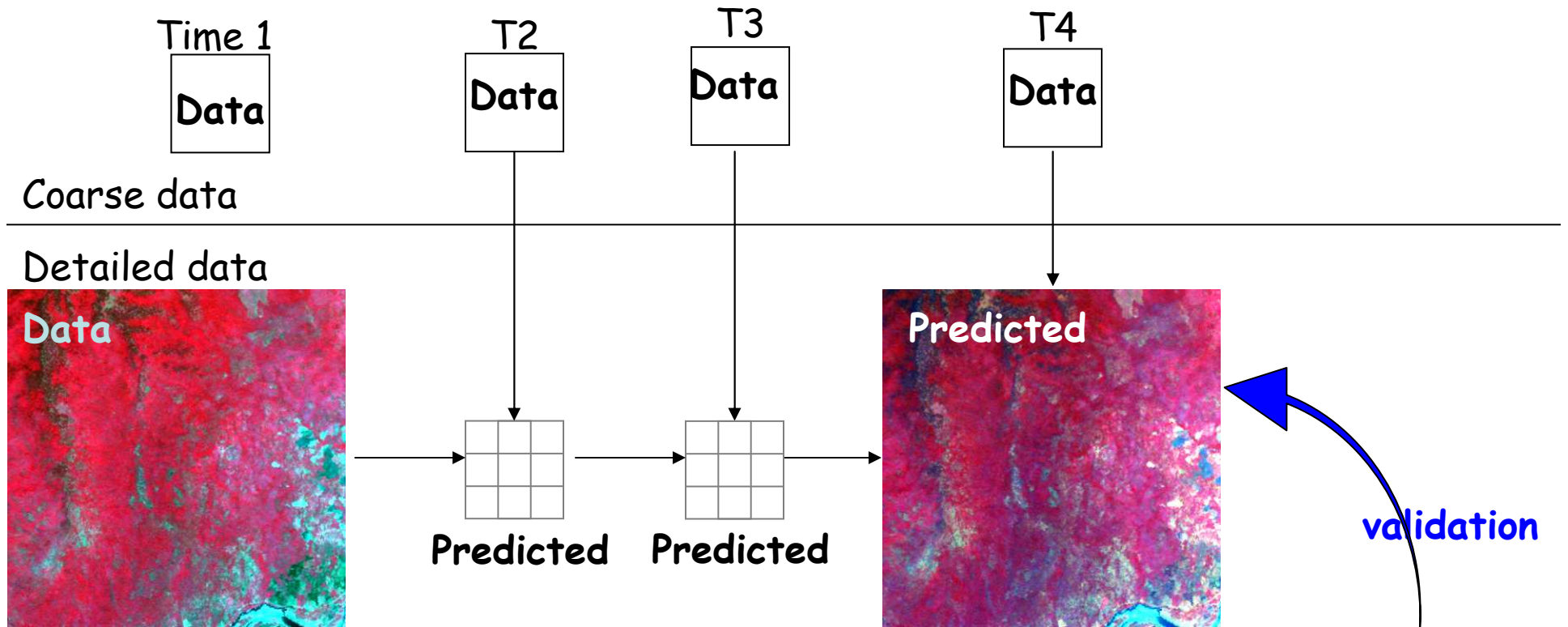
Good results: enhance resolution and keep spectral information

Fusion



$B_1$	$B_2$	$B_3$	$B_4$	Pan—Intensity
0.97	0.97	0.98	0.97	0.80

# Adaptation for different dates



*Need for improvement: enhance resolution but spectral information influenced by seasonality*

# Predictive mapping: *An. dirus* habitat in dry season

*An. dirus* seems to recede to some areas in the deep forest during the dry season

Delineation of restricted zone for dry season vector habitat

