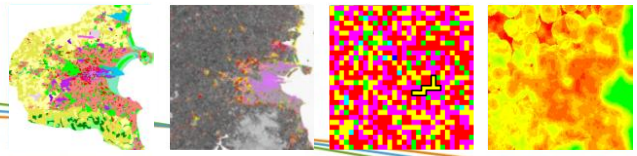

Remote sensing data assimilation in modelling of urban dynamics

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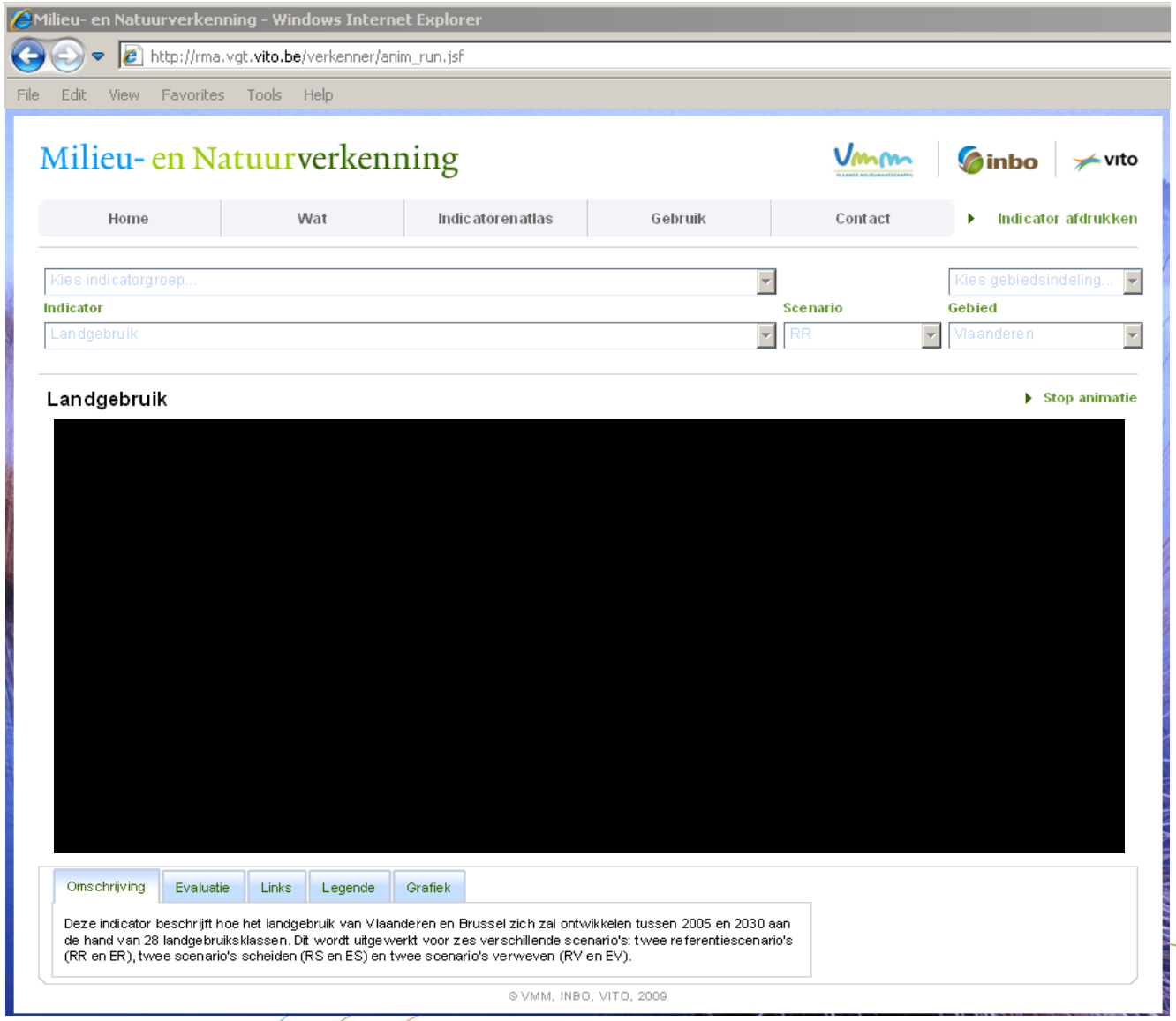
vito vision on technology

Introduction

- **ASIMUD** is a **spin-off** of the **MAMUD** project
- Duration: 2 years, started April 1st 2011

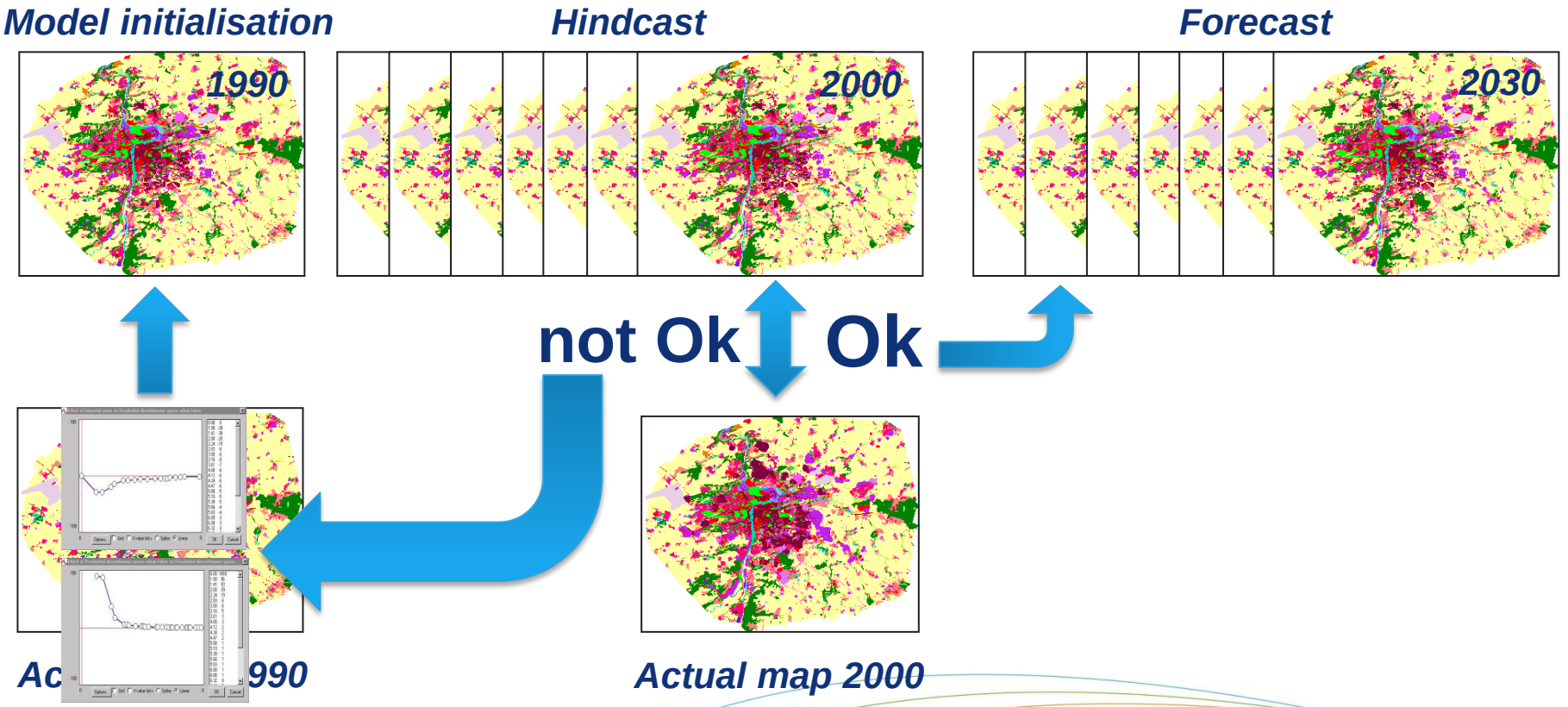
- Consortium:
  - VITO
  - Vrije Universiteit Brussel
  - Universiteit Utrecht

Land use models: tools for planners



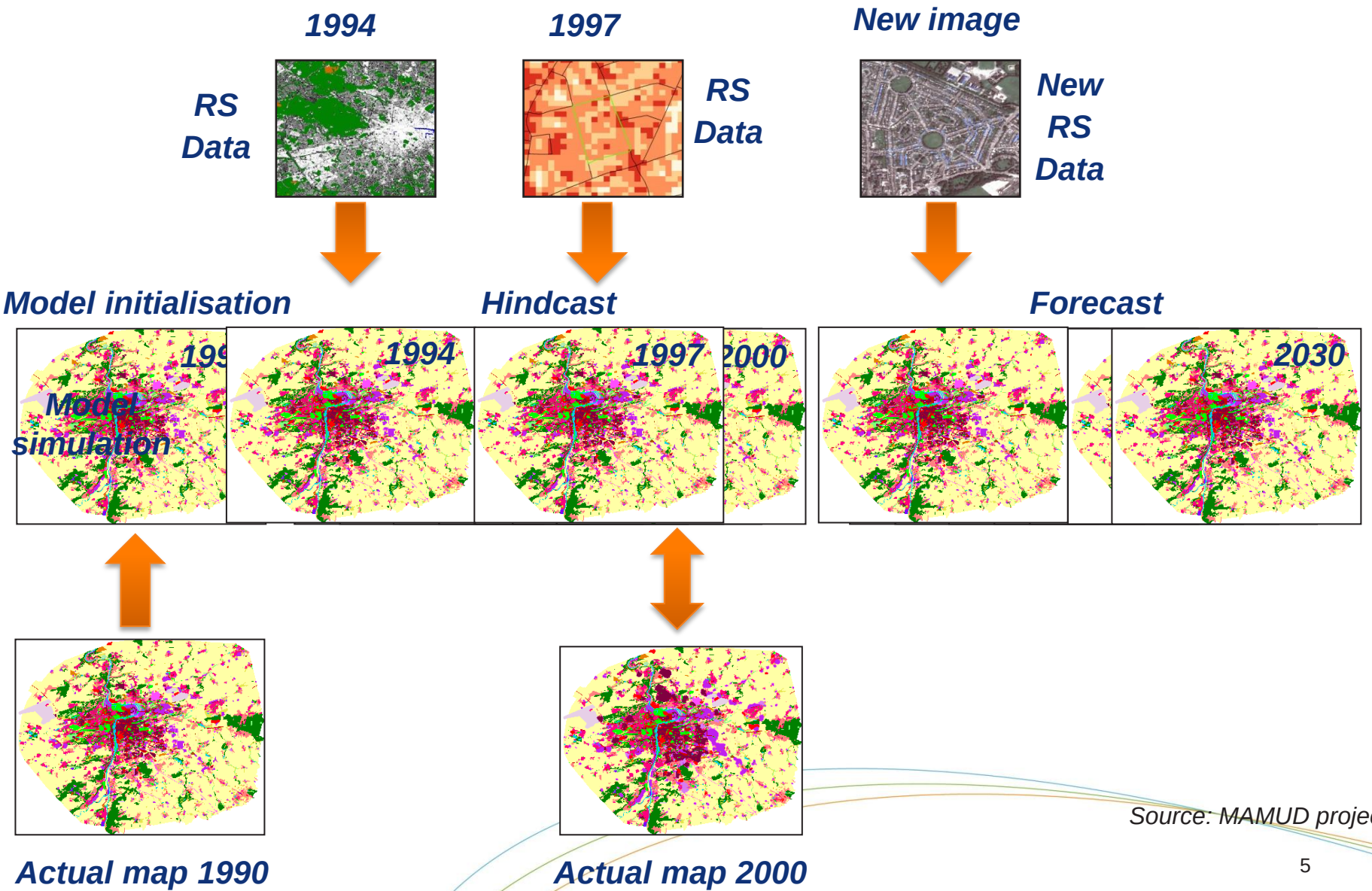
Historic calibration

- Land-use change models are typically calibrated using a **historic calibration**



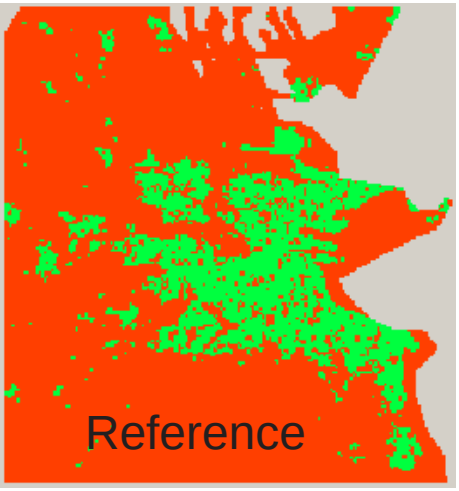
Courtesy of EC JRC

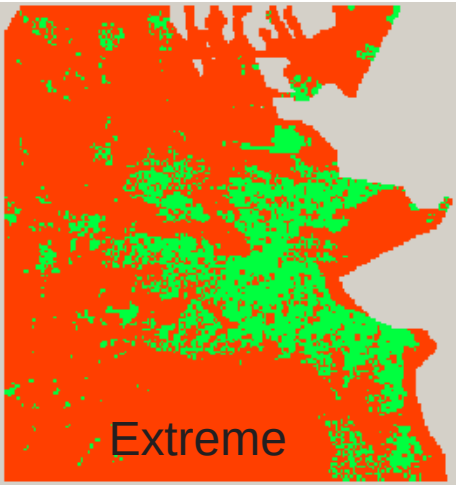
Remote sensing data for calibration



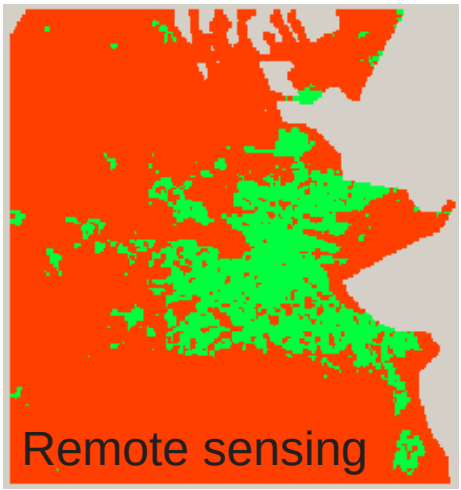
Source: MAMUD project

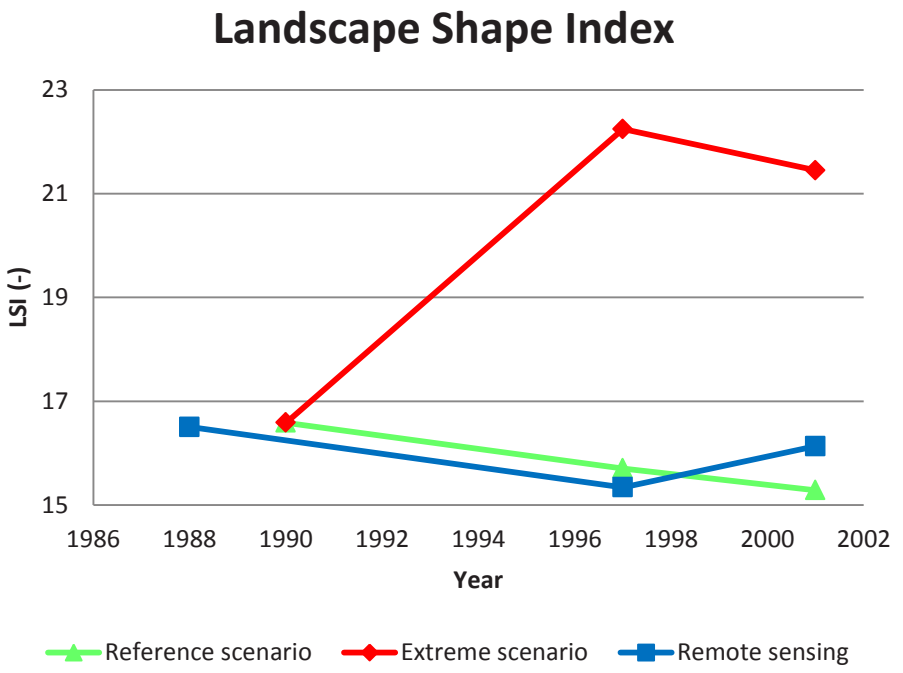
Spatial metrics for calibration



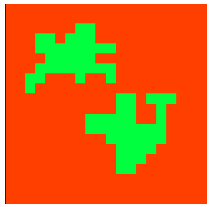


Masks 1997





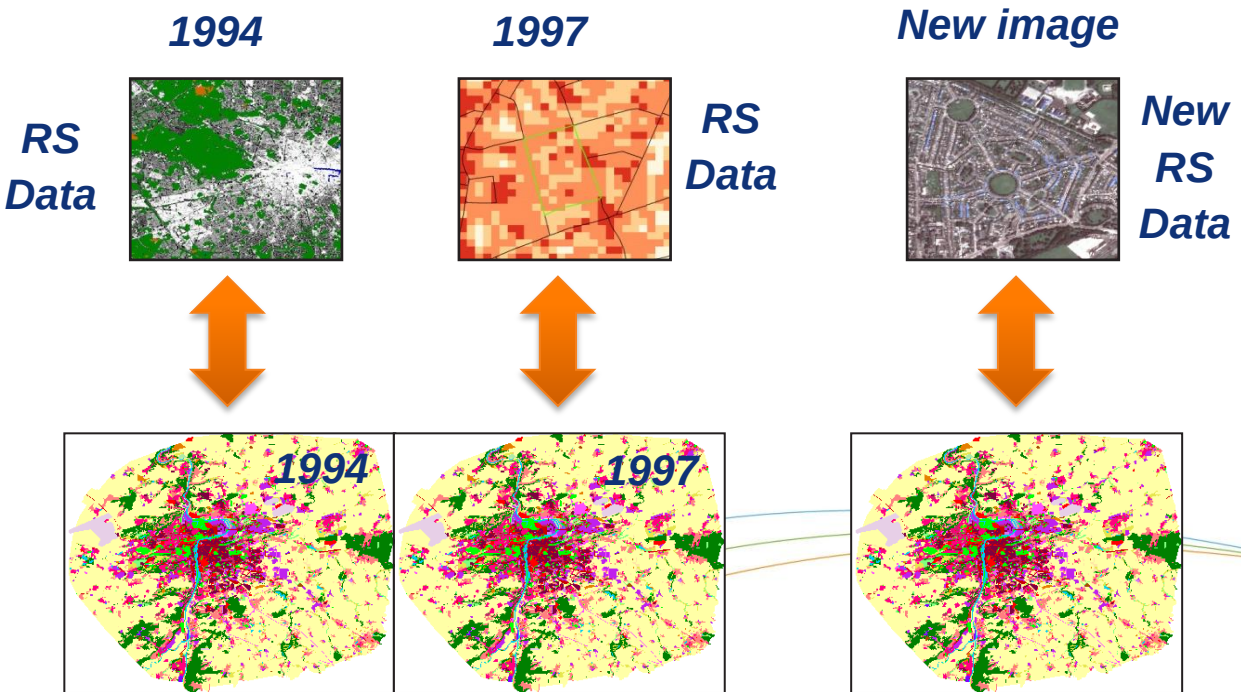
LSI = 1.4



LSI = 2.5

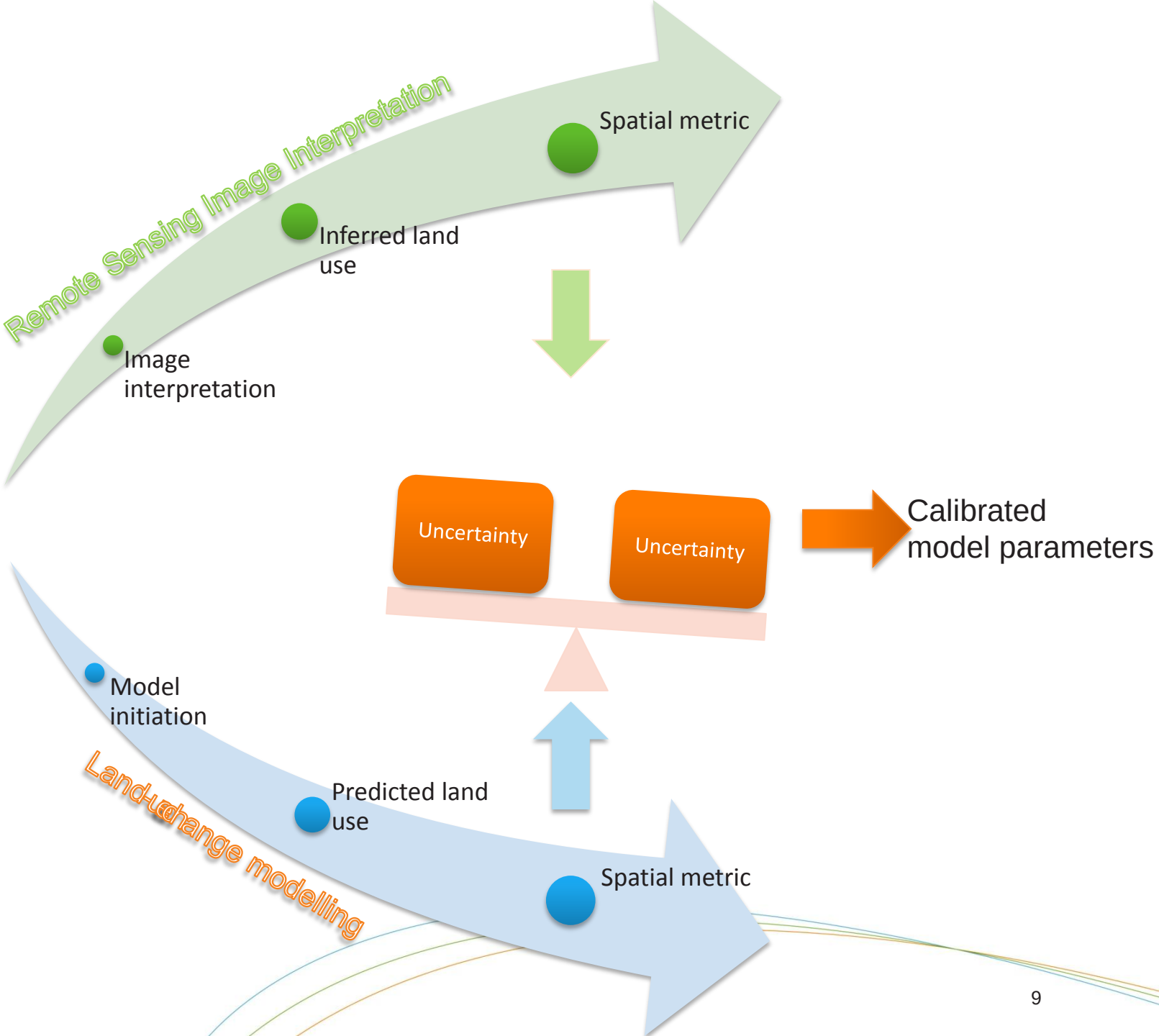
Uncertainties in predicted land use

- A major shortcoming in the calibration of land-use change models is that **uncertainties are neglected**. Uncertainties mostly exist in:
  - Model parameters
  - Reference data used for calibration of the model
- This leads to uncertainties in the prediction of land use



Objectives ASIMUD

- Main objectives of ASIMUD:
  - **Improving** the **quality** of predictions of future land use by **reducing** the **uncertainty** in land-use simulations
  - Provide end users with **robust** and **reliable** tools for land-use change modelling and calibration, based on the best available scientific knowledge and data


Remote Sensing Image Interpretation
Spatial metric
Inferred land use
Image interpretation
Uncertainty
Uncertainty
Calibrated model parameters
Model initiation
Land-use change modelling
Predicted land use
Spatial metric

Anticipated results

- **Improved land-use simulations** with **lower uncertainties** compared to other automatic calibration methods
- An **automatic calibration method** based on methods developed in the MAMUD project combined with an innovative data-assimilation approach
- **Robust** and **reliable tools** for land-use change modelling and calibration for use in policy contexts will be facilitated and promoted
- The **probability maps** of simulated land use will be valuable additional data for end users to assess planning policies

- Website: http://www.asimud.be