

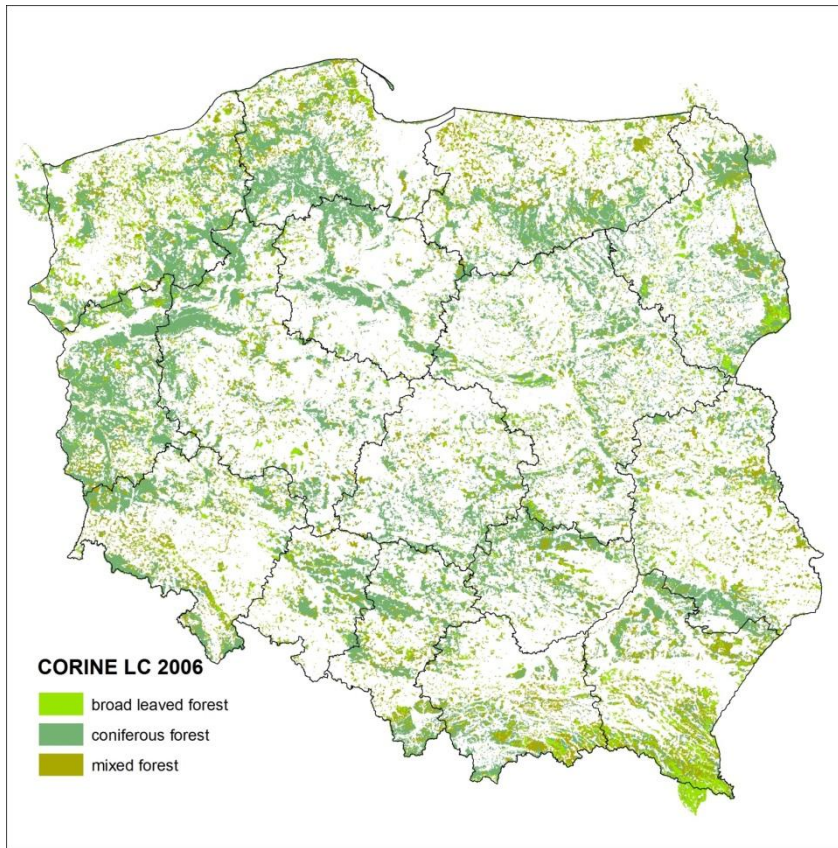
# GlobBiomass Regional Studies POLAND

Agata Hościło<sup>1</sup>, Dariusz Ziółkowski<sup>1</sup>, Aneta Lewandowska<sup>1</sup>  
Krzysztof Stereńczak<sup>2</sup>

<sup>1</sup>Remote Sensing Centre at the Institute of Geodesy and  
Cartography (IGiK)

<sup>2</sup>Forest Research Institute

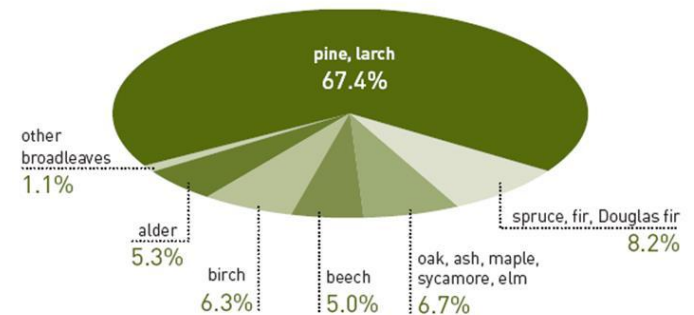
# GlobBiomass Regional Studies - POLAND



Forest - 29.3% of Poland (~91,630 km<sup>2</sup>)

77% - State Forests National Forest Holding

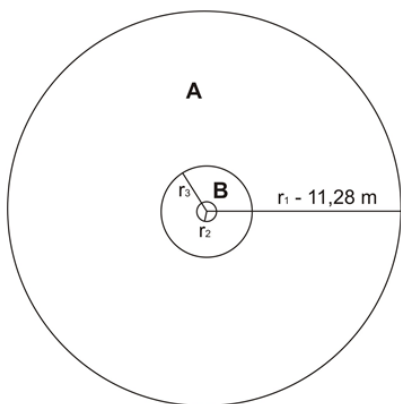
National 'Forest' definition  
a homogeneous area of 0.1 hectares



## *In situ* data

- Large-scale National Inventory of Forest Condition – the location of plots corresponds to ICP Forests network

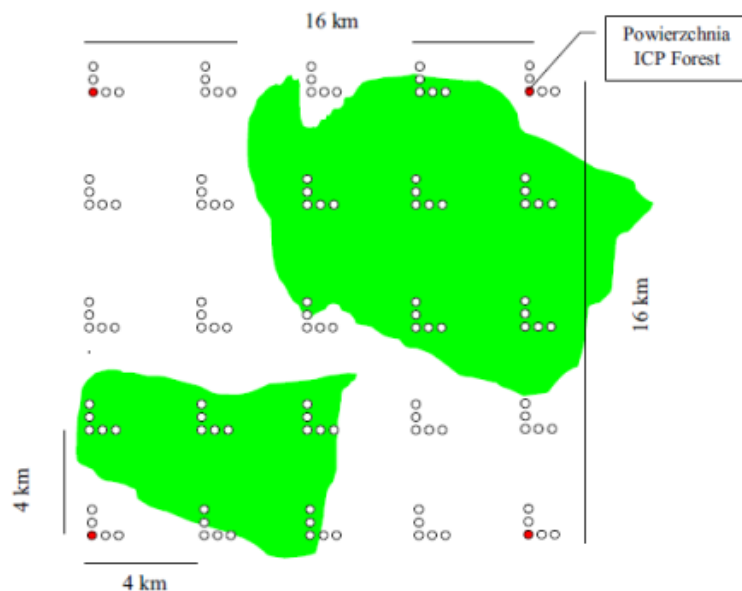
Systematic 16 x 16 km grid – inside 25 L-shaped plots – 4 x 4 km grid consisting 5 sampling plots located 200 m apart



$r_2 = 0,56$  m

$r_3 = 2,59$  m

Plot size 0.05 ha



DBH, height and number of trees,  
growing stock volume

biomass expansion factors (BEFs) (IPCC, 2006)  
+  
wood density (WD) following IPCC guidelines  
National Center for Emission Management

Forest biomass [t/ha]

GSV

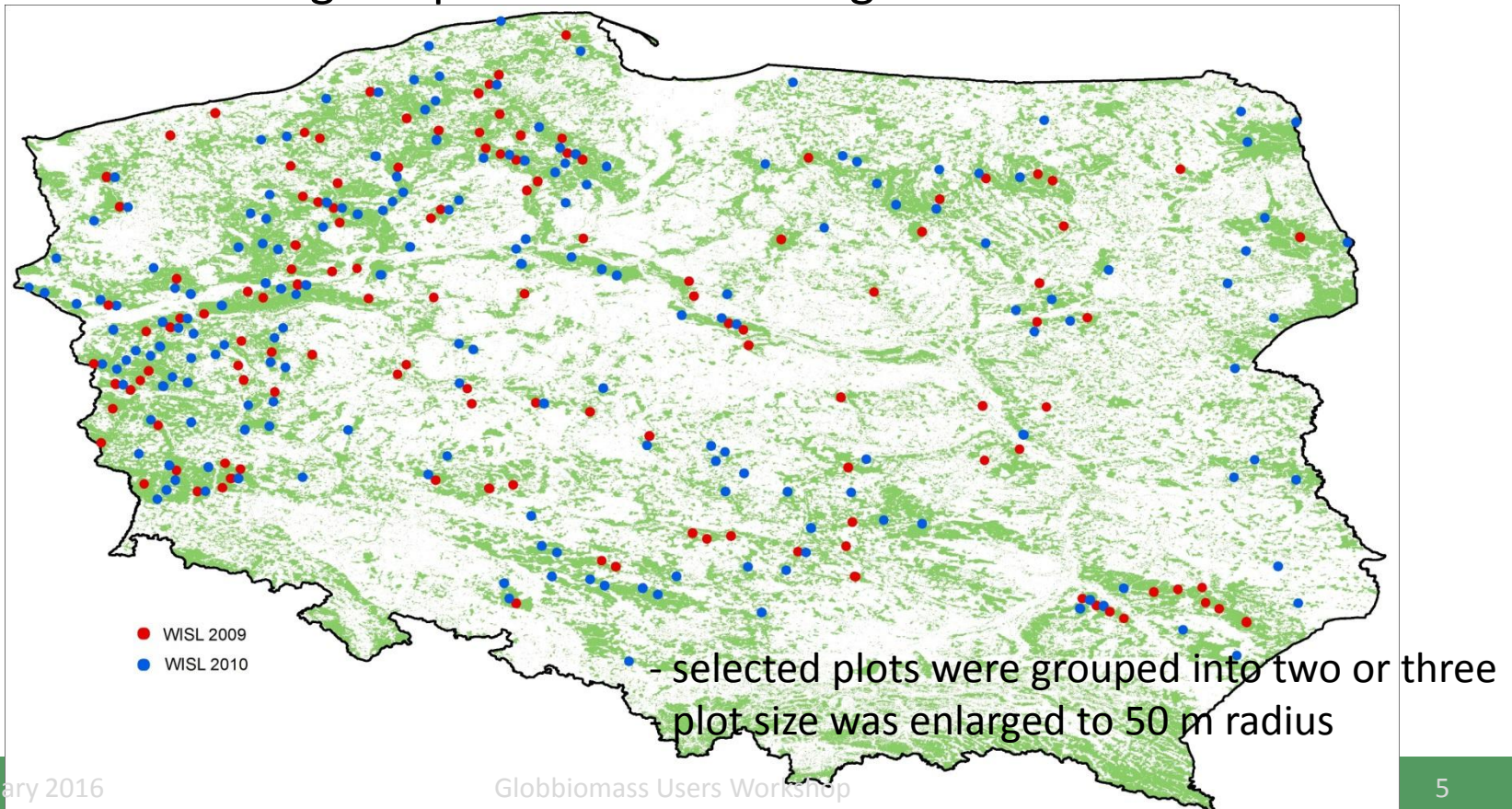
Biomass



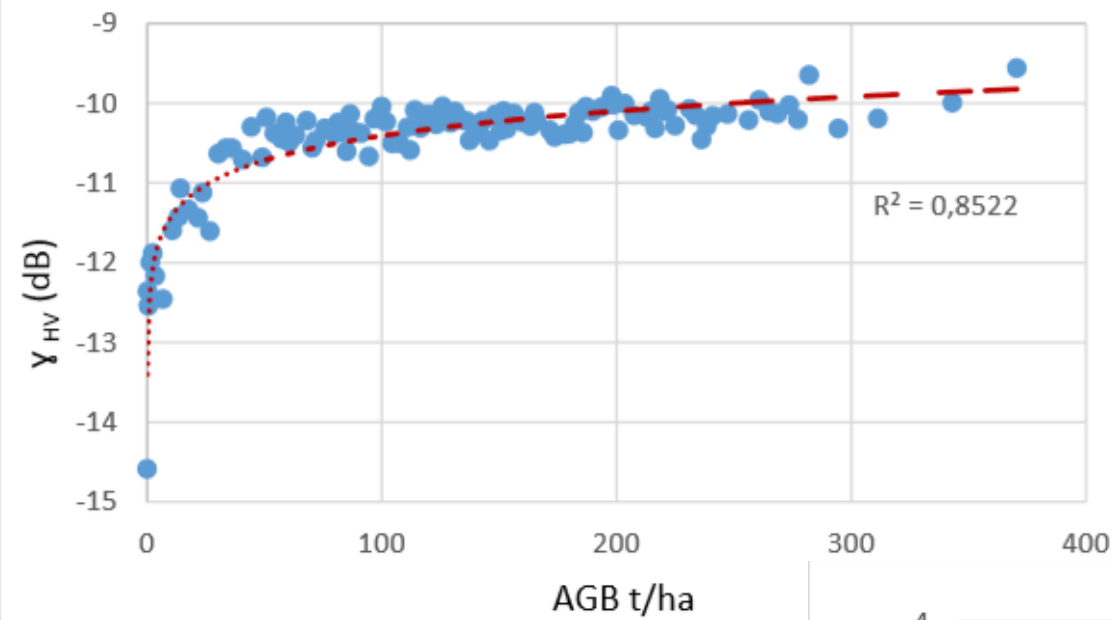
# GlobBiomass Regional Studies - POLAND

Selection of plots for biomass modeling:

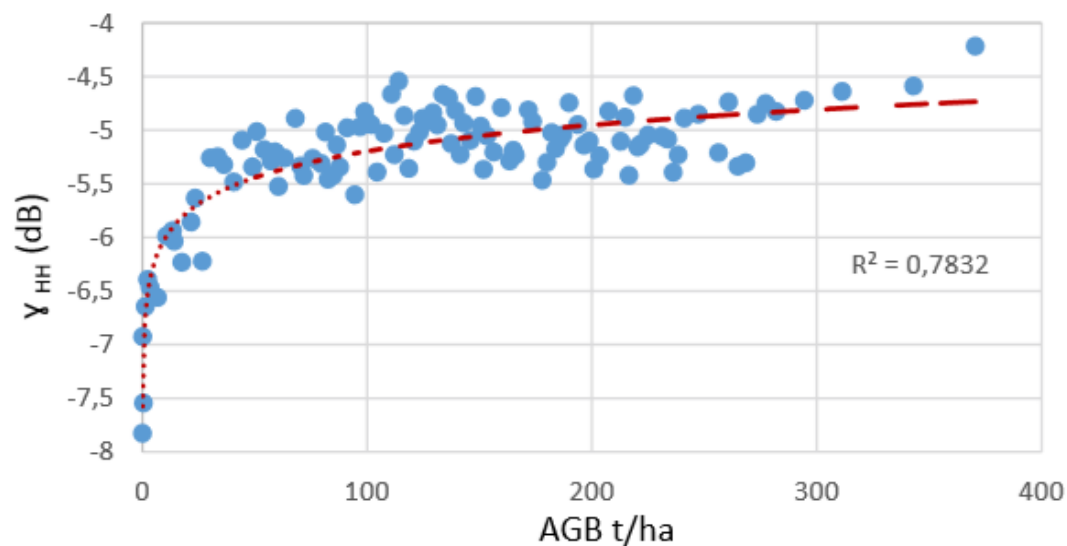
- plots fully covered with forest
- located on terrain with slopes less than 5deg
- the forest surrounding the plot must be homogenous



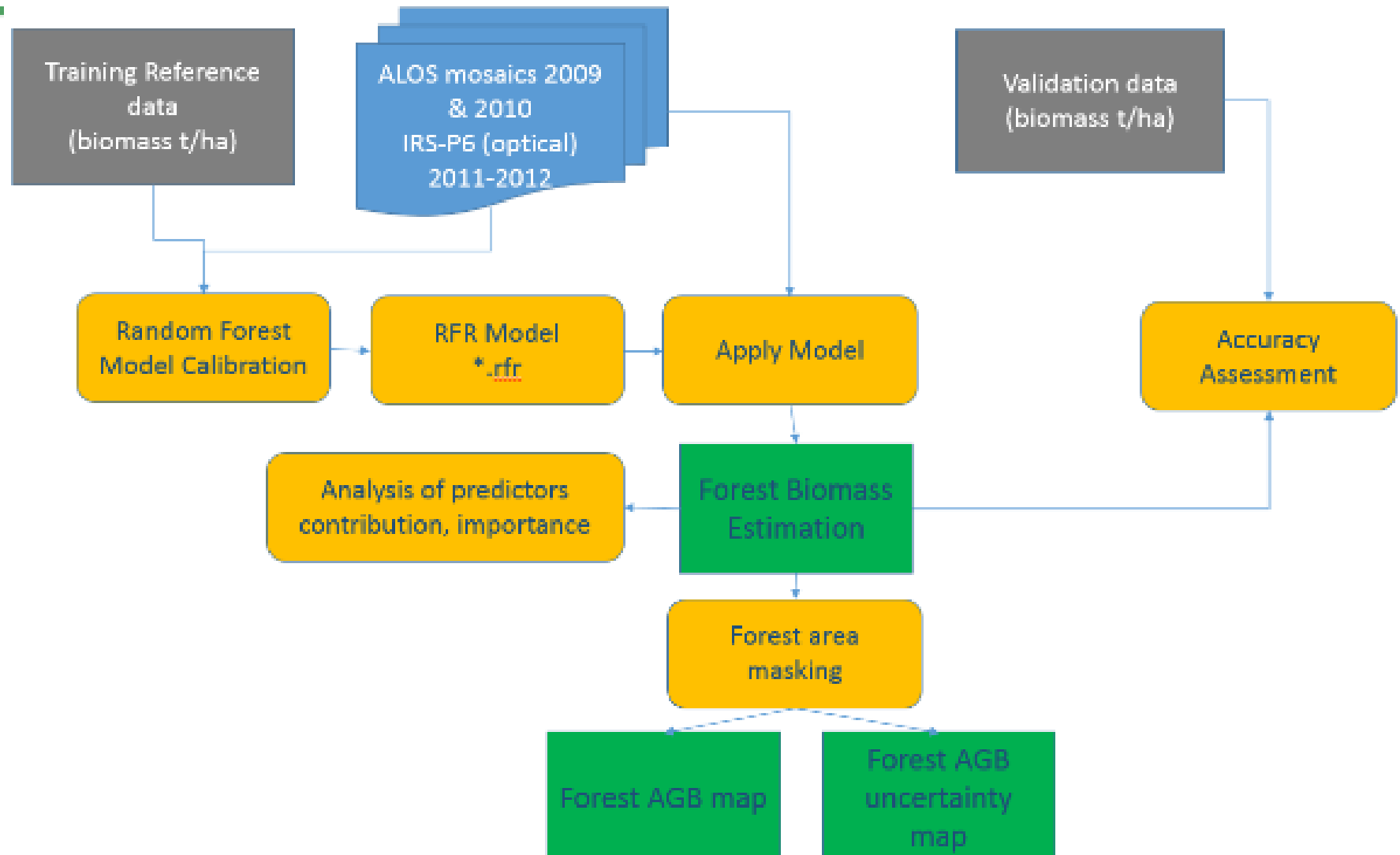
# GlobBiomass Regional Studies - POLAND



Enlarged size of the plots



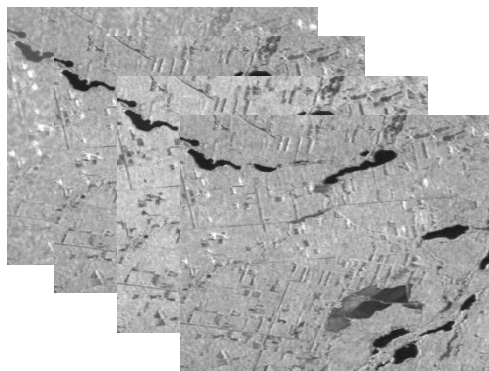
# GlobBiomass Regional Studies - POLAND



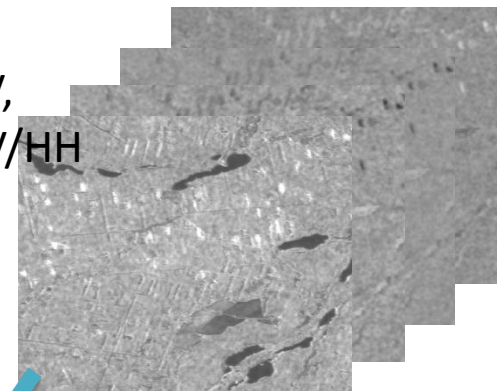


# GlobBiomass Regional Studies - POLAND

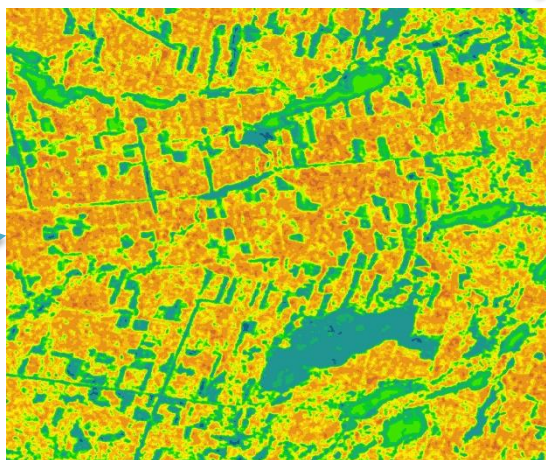
ALOS MOS (HH, HV 2009, 2010)  
multichannel filtering (7x7 window)



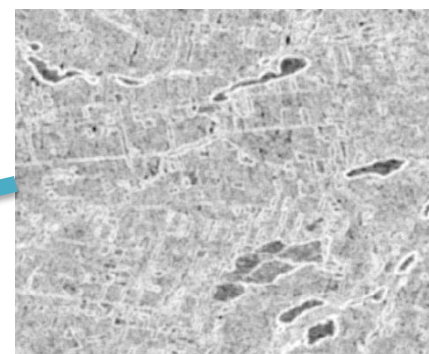
Additional  
(HH-HV, HH/HV,  
HH-HV/HH), HV/HH  
HV/HH+HV)



Forest biomass  
2010



Optical data

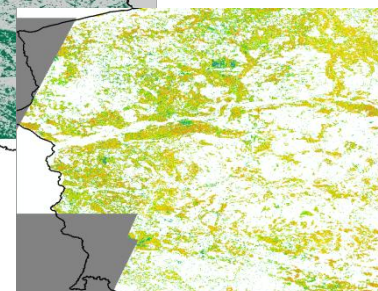
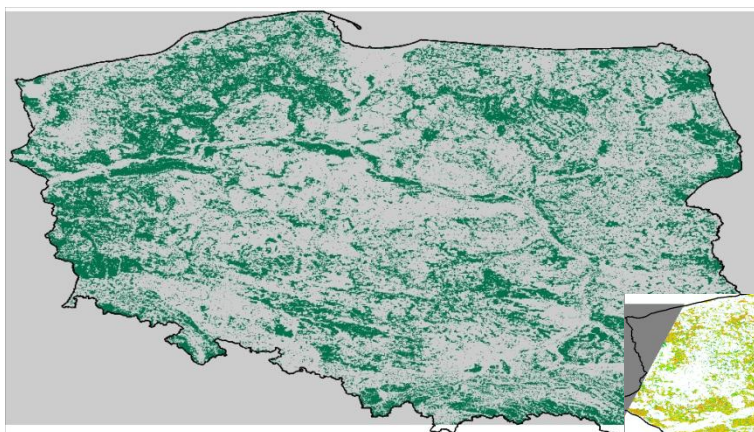
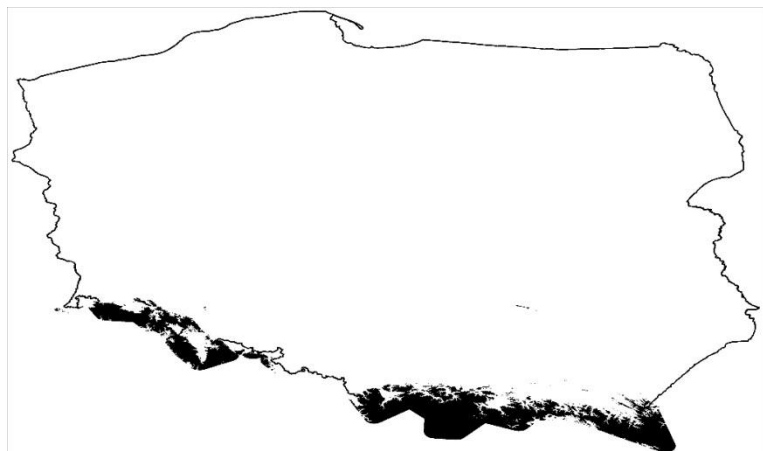
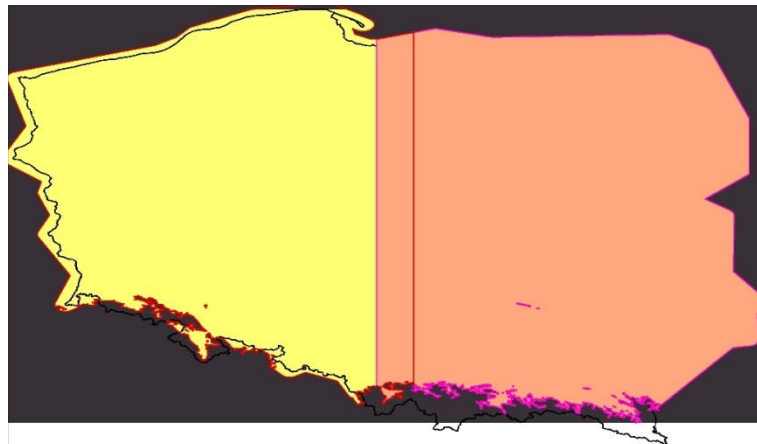


Texture GLCM  
(Entropy 2010 HV,  
2009 HV)

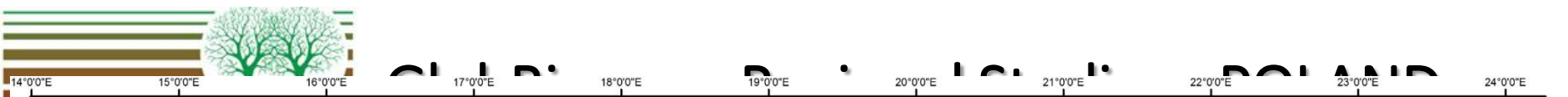




# GlobBiomass Regional Studies - POLAND



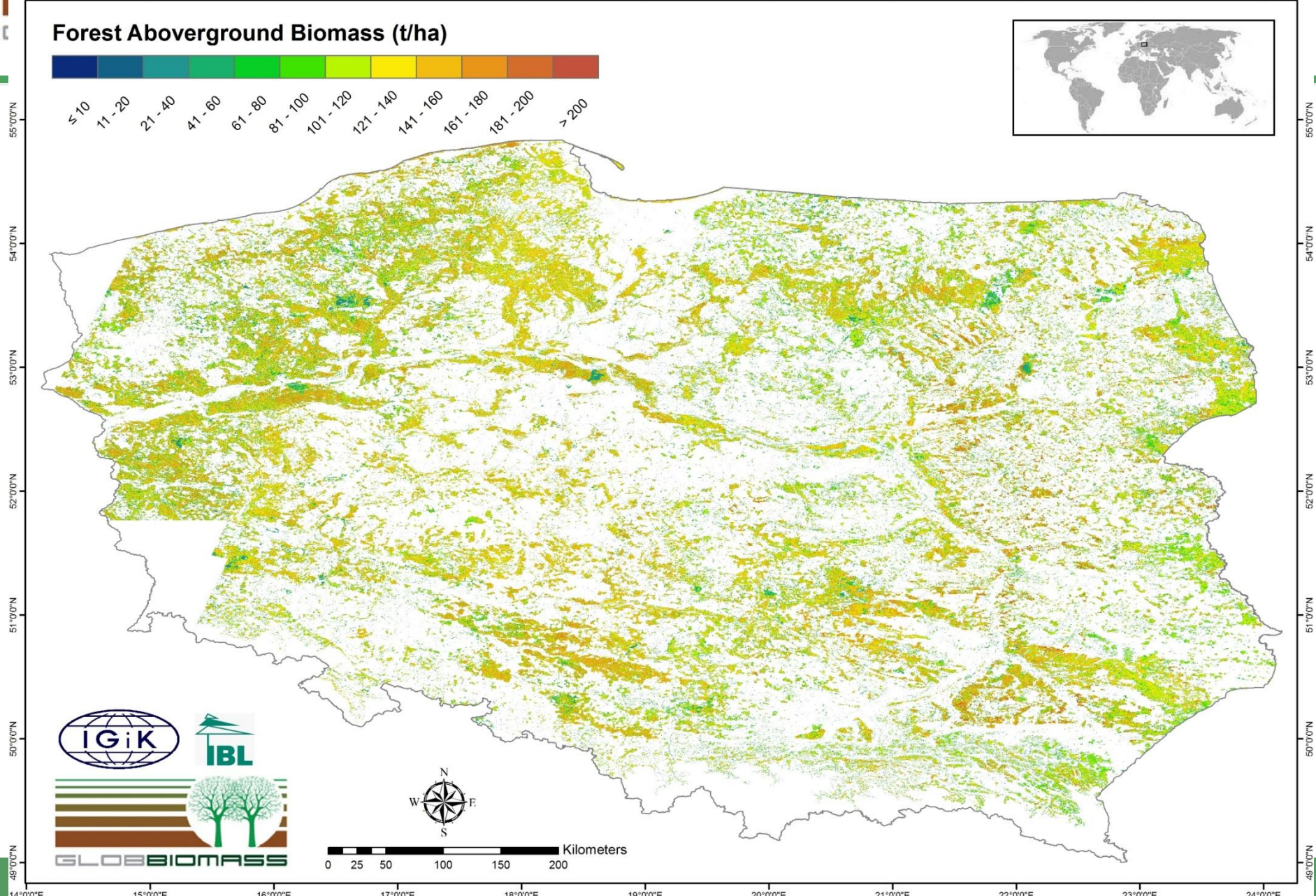




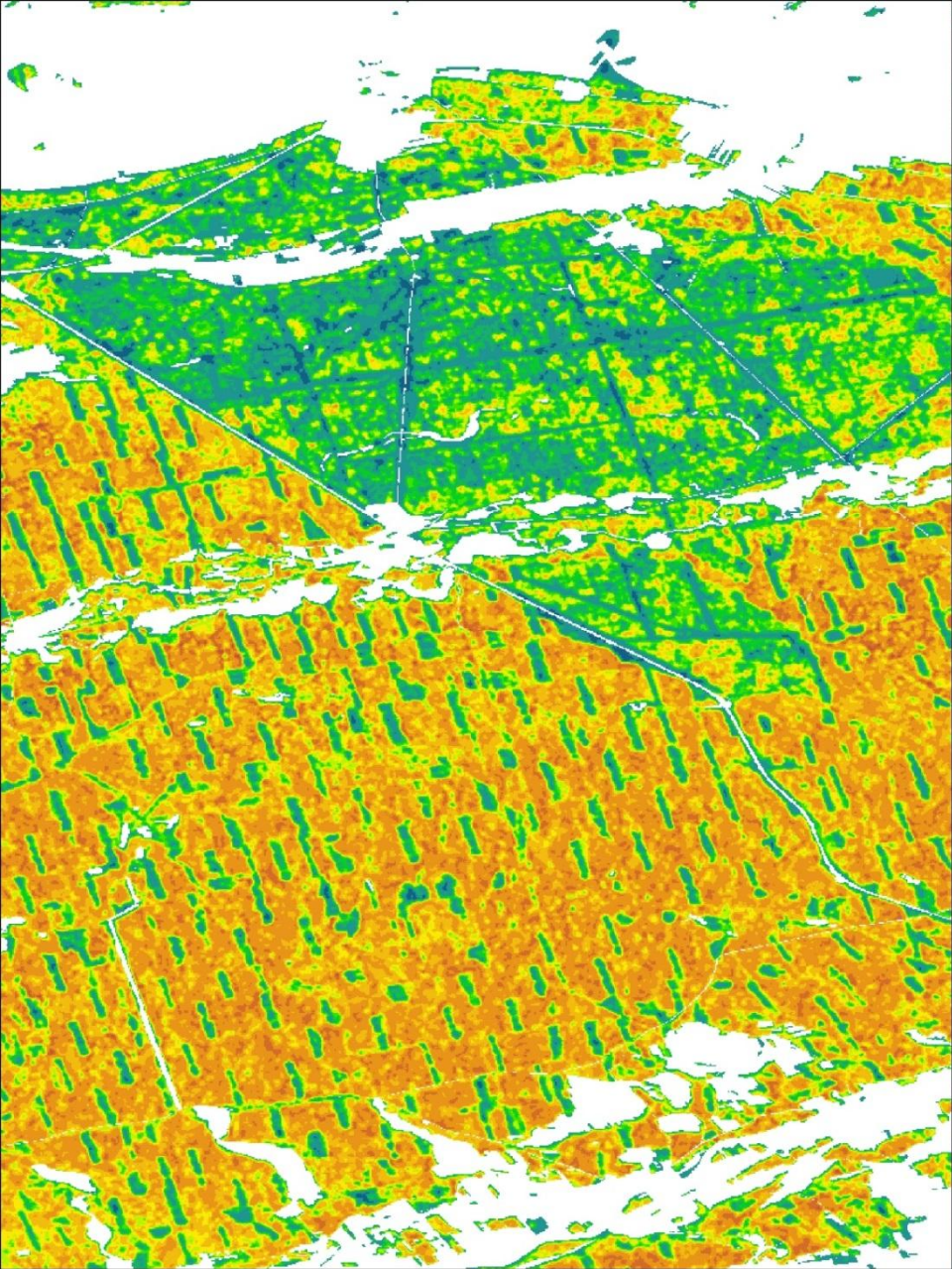
# Forest Aboveground Biomass (t/ha)



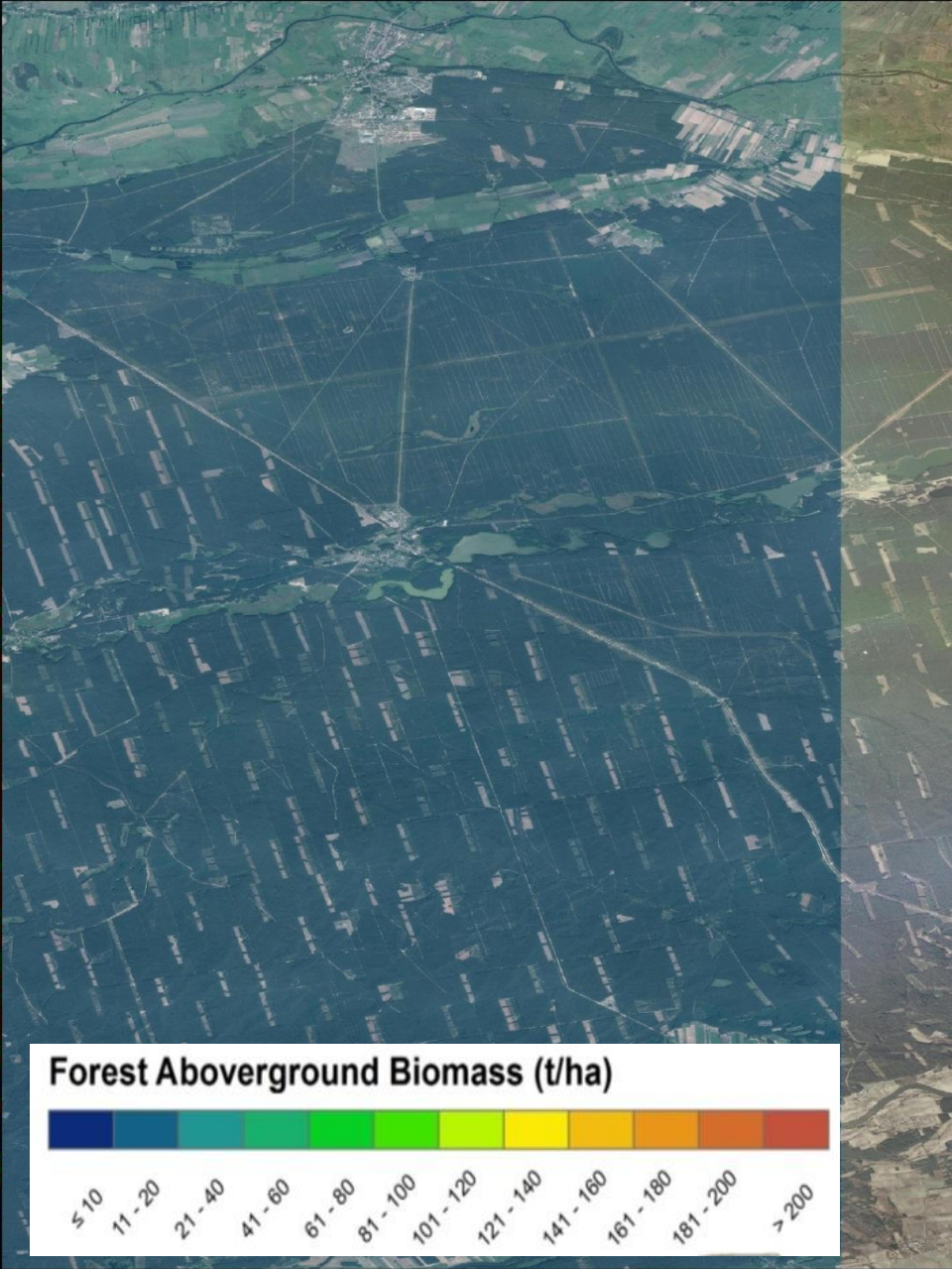
≤ 10  
11 - 20  
21 - 40  
41 - 60  
61 - 80  
81 - 100  
101 - 120  
121 - 140  
141 - 160  
161 - 180  
181 - 200  
> 200







0 3 6 12 Kilometers



## **Accuracy assessment**

ALS

National Forest Inventory



## END USERS

State Forest National Forest Holding

National Center for Emission Management

# GlobBiomass Regional Studies - POLAND

**Thank you for your attention!**