TIMBER INVENTORY SYSTEM

TIS Group

CODIMEX

TAXUS IT INNOVATION

IGiK
INSTYTUT GEODEZJI I KARTOGRAFII

WL SGGW

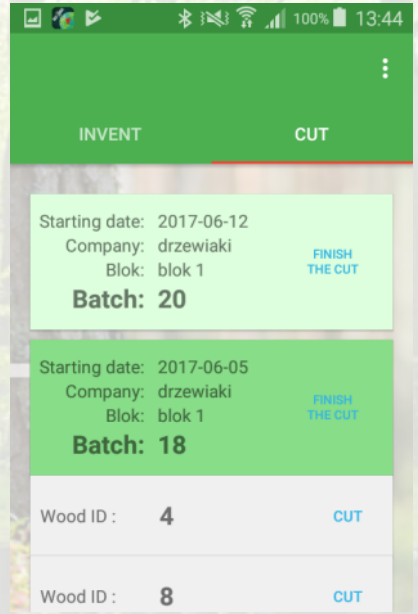
FRIENDS OF THE FOREST ASSOCIATION

TIMBER INVENTORY SYSTEM

- IT solutions for forestry
- Mobile applications
- Special wood marking tags
- Electronic calipers and smartphones
- Satellite images
- Forestry education

TIMBER INVENTORY SYSTEM

- Forestry inventory
- Wood evidence system
- Marking logs
- Smartphones
- Training
- Providing reliable information for traders and law enforcement agencies
- All information in one system



ABOUT US

CODIMEX Ltd.

Wood and tree measuring and marking equipment, mobile applications.

TAXUS IT Ltd.

Universal and local IT systems, mobile applications.

REMOTE SENSING CENTER of the Institute of Geodesy and Cartography

Specialised in use of various EO data for many applications

FACULTY OF FORESTRY WULS – SGGW

Verification of the system in local forests. Human resources education and training.

FOREST FRIENDS ASSOCIATION

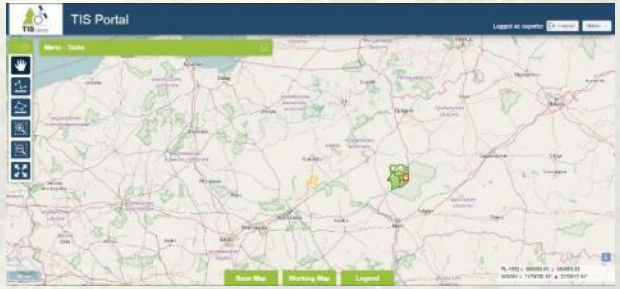
Forest education and staff training.

CODIMEX Ltd.

Producer of wood marking tags and related tools, wood measuring calipers, electronic calipers with connection to smartphones, mobile android forestry applications.

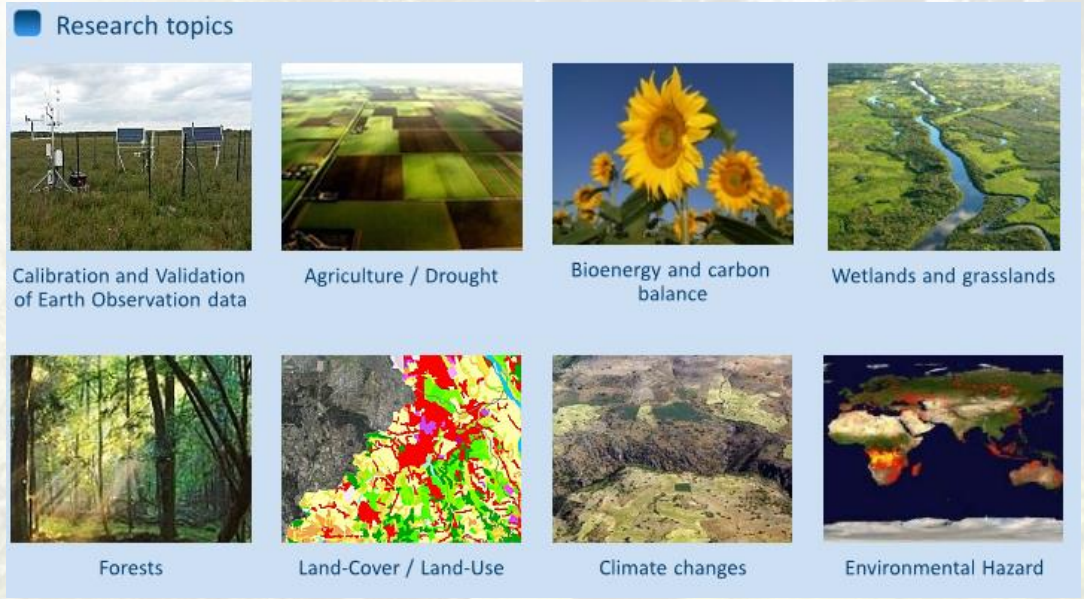
TAXUS IT Ltd.

Universal and local IT systems for forestry and mobile applications. Producer of specialized software for forestry management. Experience in preparing systems for state forests, national parks.



REMOTE SENSING CENTER
of the Institute of Geodesy and Cartography

- Use of various EO data for many applications
- R&D Activities
- Collaboration with SMEs
- Promotion of satellite technology
- Training, Education
- International collaboration



FACULTY OF FORESTRY WULS – SGGW

Verification of the system in local forests. Human resources education and training

Fot M.Orzechowski

FOREST FRIENDS ASSOCIATION

Non-governmental organization focused on forest education and forestry trainings.

THE TIS PROJECT SCOPE

LOCAL

Addressed to the local foresters and forestry companies, wood sellers and buyers. Based on the VPA agreements, provides the proper inventory recording database, mobile applications, measuring tools and equipment for marking trees and logs.

REGIONAL

Addressed to the regional forestry units and organizations, provides the proper software system and modern forest inventory tools and equipment.

NATIONAL

Common project of national authorities and TIS Group. Develop the national forest law, VPA agreements and long term management plan. Provides software, mobile app., comprehensive equipment, staff training and local societies education.

CROSS-BORDER

Due to heavily usage of mobile and satellite technology, allows for timber tracking, and with inventory and marking equipment provides the ability for confirm the origin of imported wood to all interested parties.

TIS Group

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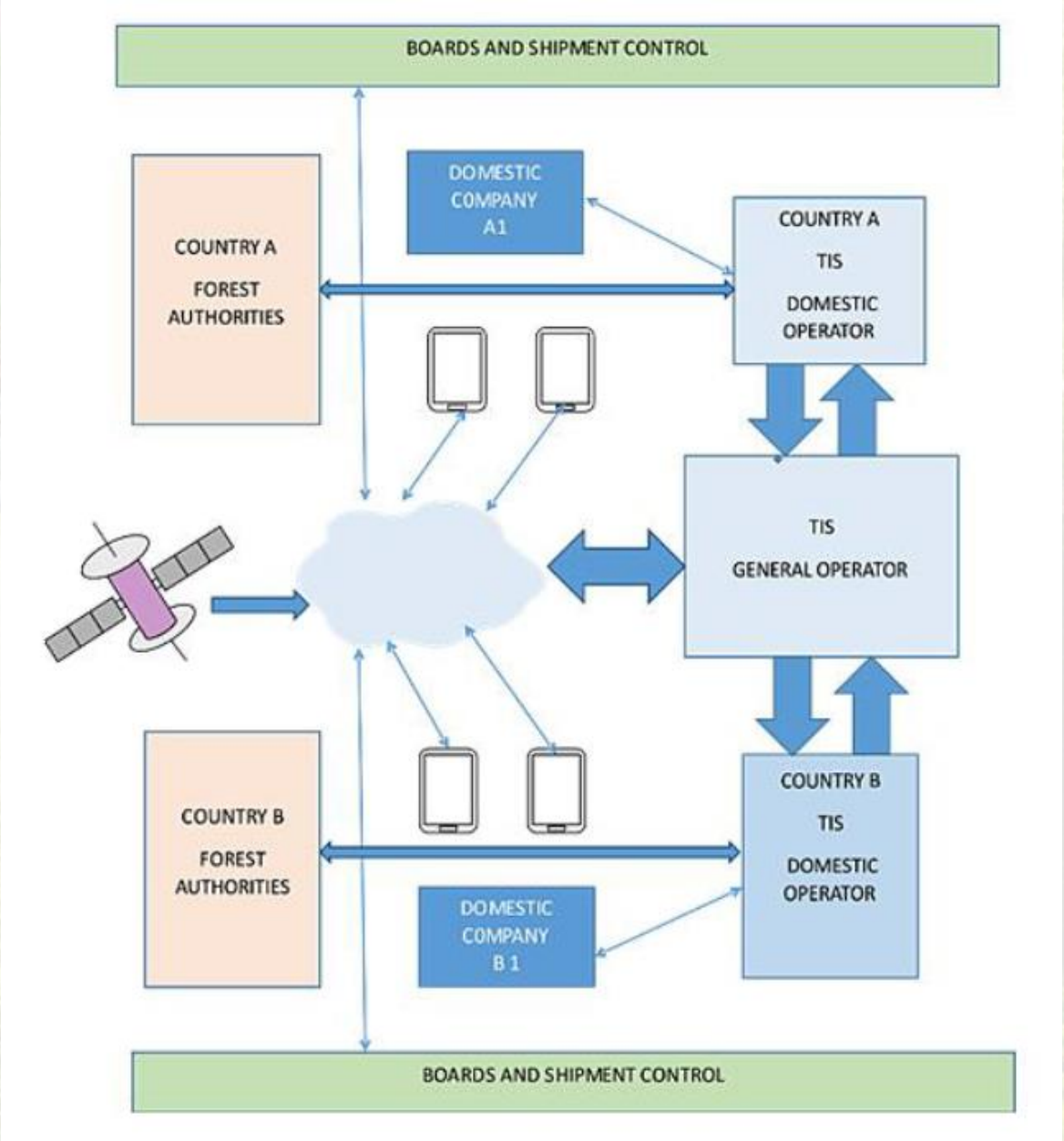
FRIENDS FOREST ASSOCIATION

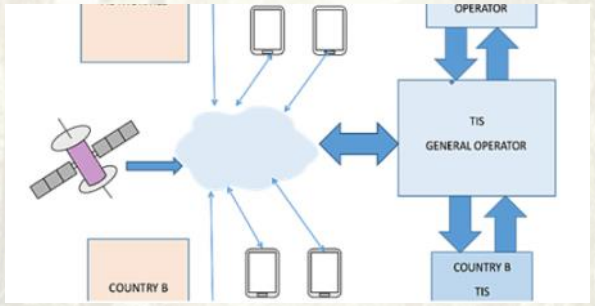
CROSS-BORDER PROJECT

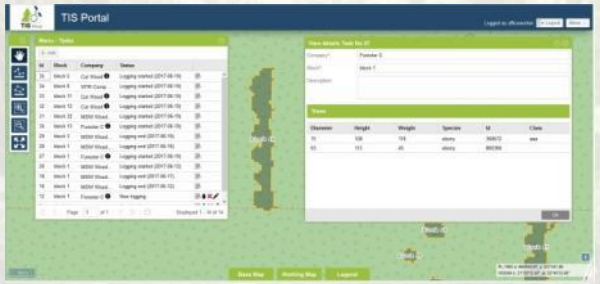


SYSTEM DESCRIPTION

Three main elements:

- Cloud database
- Web application
- Mobile application





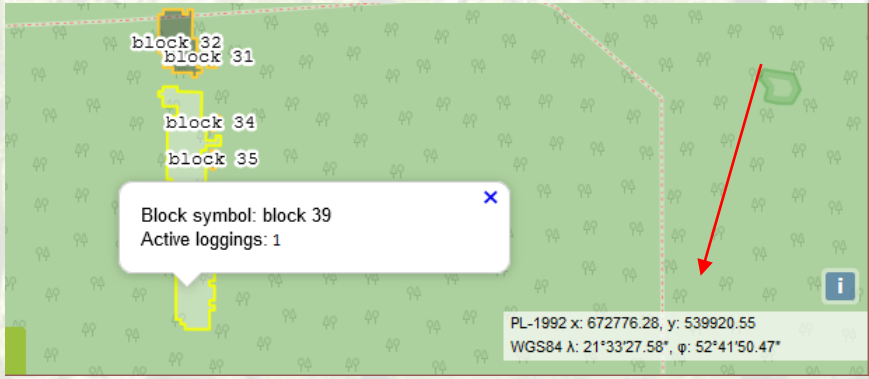
Tasks divided between applications:

- Mobile application
  - Inventory
  - Logging
  - Transport validation
- Web application
  - Logging planning
  - Pre-export validations

SYSTEM DESCRIPTION

„Silent” verification

- All actions done through mobile application are marked with GPS coordinates
- Localization precision is low, but sufficient as audit data



Additional input devices

- Mobile application can use digital calliper and laser barcode tag
- Specified data fields can be locked by administrator to be filled only from input device (manual data entry forbidden)
- Build-in digital camera can be used as cheap barcode/QR-code reader

SYSTEM DESCRIPTION

Volume verification

- Logged volume verification is done outside system, based on satellite images

- Verification can be done after logging ended, based on best images acquired prior to start date and after end date.

Planned features

- Log dividing with tags assignment

- Log processing with volume-based validation

- On-line transport tracking (if data available)

- Free access info/validation portal

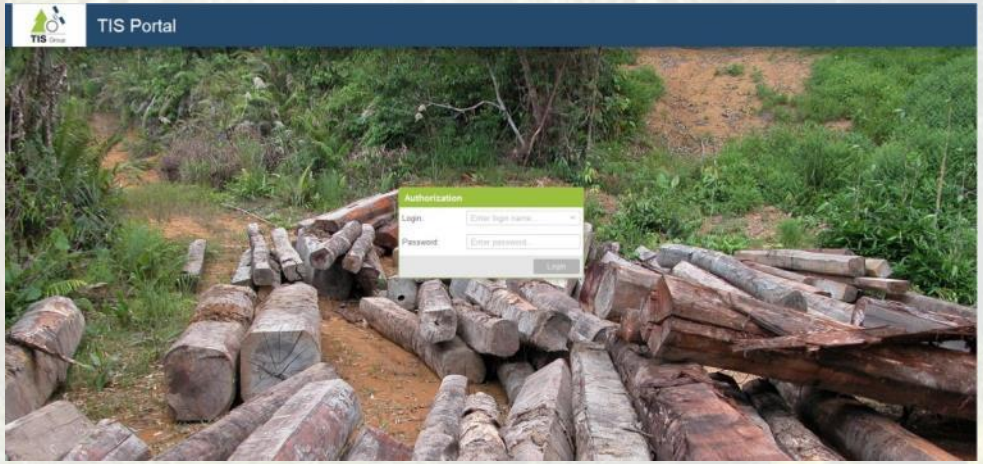
- Possibility to attach additional files (scans, images, photos etc.) as additional proof for each step of proces.

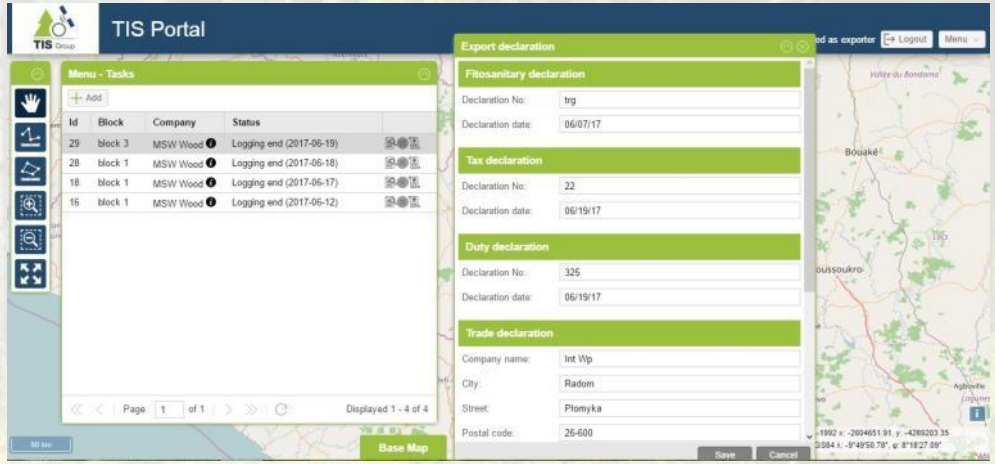
SYSTEM DESCRIPTION

All TIS users have to be authorized. Different levels of data access depending on users permissions. Each activity in TIS will be logged and can be controlled by competent supervisory authorities.

SOFTWARE

All software is designed according to national and international forestry law regulations. Internet web portal to manage tasks and provide forestry management. Special access for international law enforcement agencies, certification organizations.





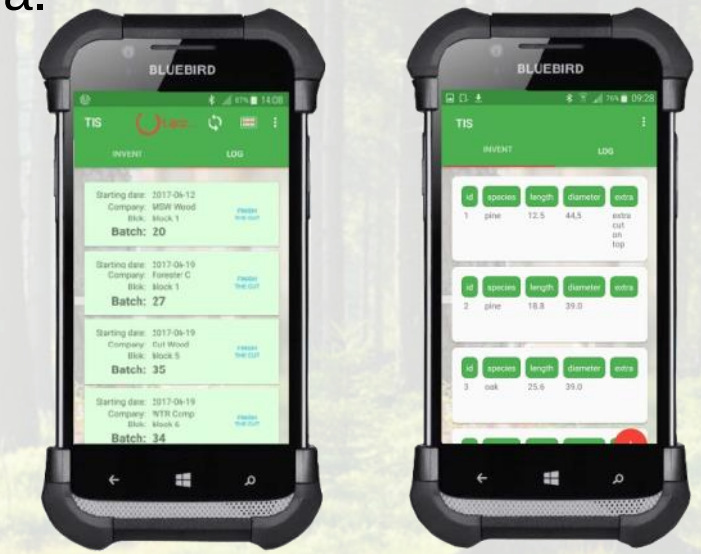
SYSTEM DESCRIPTION

MOBILE TECHNOLOGY

- All results of work are registered and can be checked on users smartphones for example to check legality of shipment.

- Available different applications depending on the requirements, can be installed on the smartphone with Android OS.

- Applications can be connected via Bluetooth with simple electronic calipers, possibility to send result of work directly from logging area.



SYSTEM DESCRIPTION

SATELLITE TECHNOLOGY

The use of various EO data: radar and optical data i.e. Sentinel-1, Sentinel-2, high and VH resolution images

- Location of the clear cuts
- Approximate date of clear cuts
- Clear cut extent
- Tracing the history of the forest area based on archive satellite data
- Assessment of the GSV/biomass

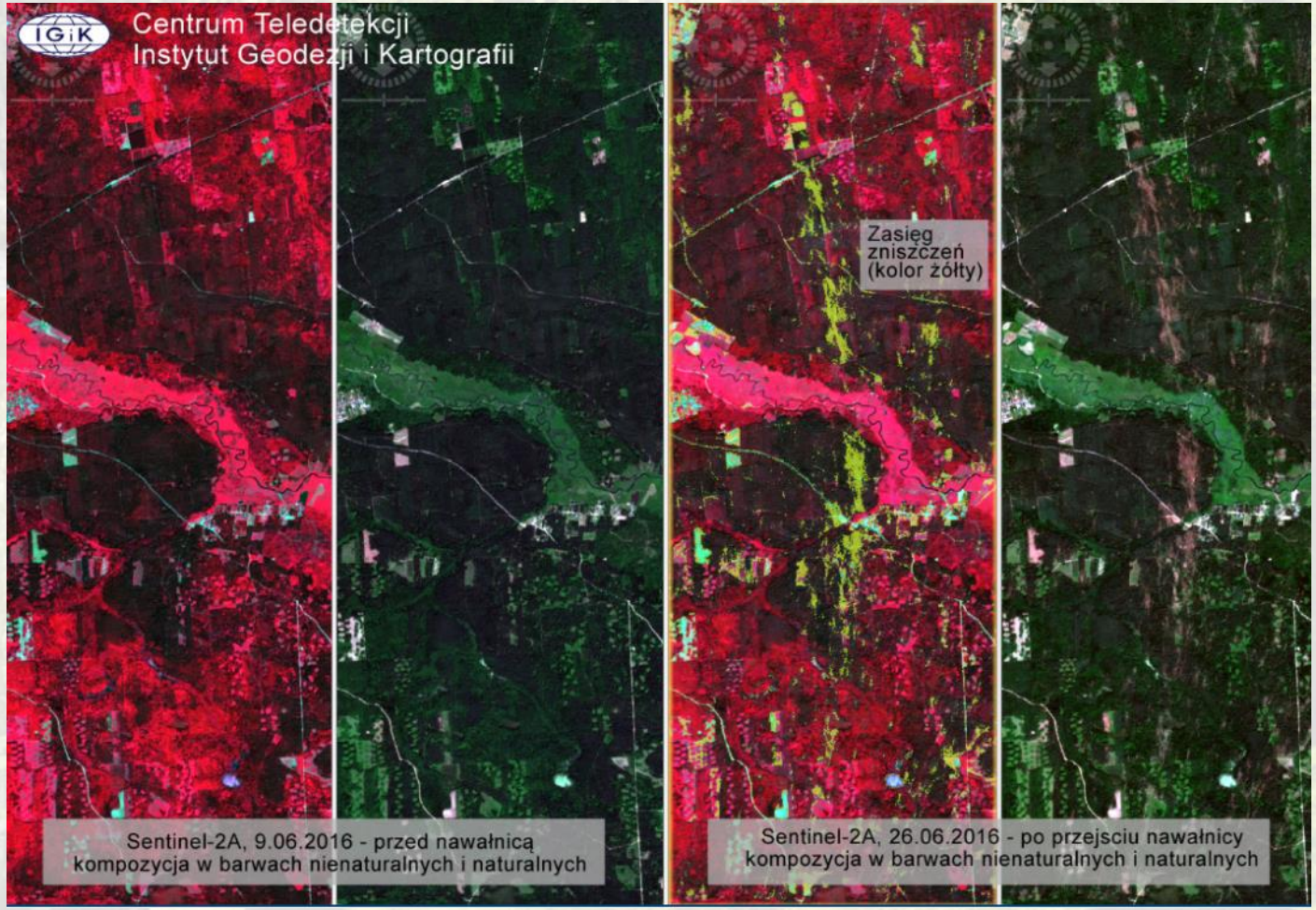
Integration of the EO based products into the system

Based on Sentinel-2

SYSTEM DESCRIPTION

SATELLITE TECHNOLOGY

Detection and assessment of the forest disturbance (windstorm, fires, illegal logging)

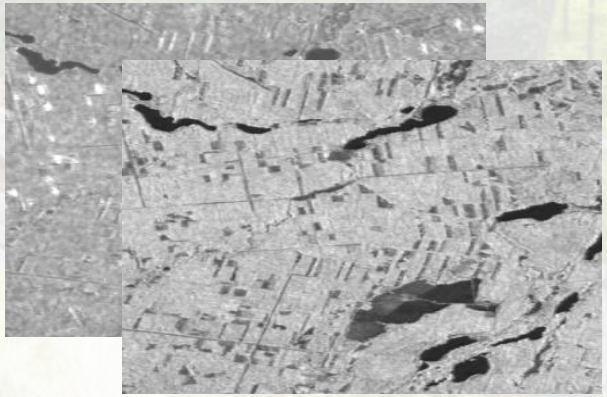


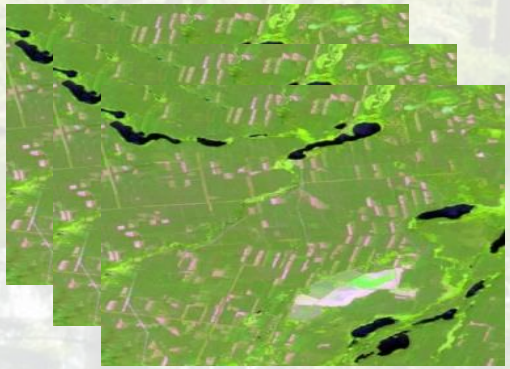
Forest affected
by windstorm
End of June 2016
Based on Sentinel-2 da

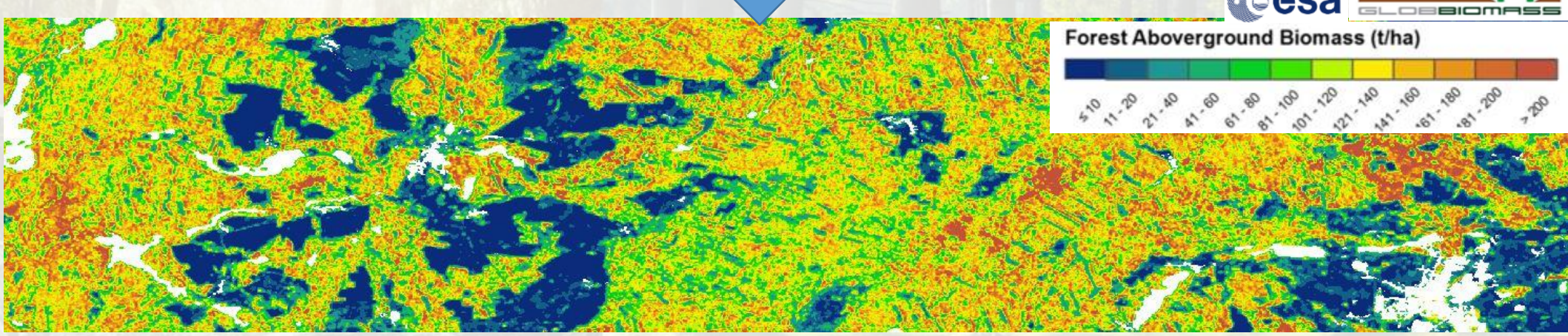
SYSTEM DESCRIPTION

SATELLITE TECHNOLOGY

Estimation of the forest aboveground biomass.
Synergy of radar data (ALOS1, ALOS2, Sentinel-1) and optical data (Landsat, Sentinel-2)







SYSTEM DESCRIPTION

EQUIPMENT – Marking tags and tools

- Marking tags „introduce” logs to the system. Barcodes and QR-codes on tags provide easy connection between marked wood and data in the system.
- Tools for double marking (logs and trunks) are used.
- Marking tags provides the same marking standard. The unique construction prevents to illegal reuse of tags.

SYSTEM DESCRIPTION

EQUIPMENT - Calipers

- Electronic caliper CODIMEX E-1 is a simple and low-priced measuring device which works together with a user smartphone.
- Caliper communicates via Bluetooth with user smartphone on which is installed chosen application.
- Measurement results are stored in smartphone and can be easily sent to computer.
- Manual calipers and dedicated application on the smartphone can be also used.

SYSTEM DESCRIPTION

EQUIPMENT – Smartphones and applications

Every smartphone with Android OS can be used.

Basic application of the system is TIS application. For local and regional systems can be also used:

- **E - caliper app** - universal application
- **SLT - caliper app** – application dedicated to measuring standing and lying trees.
- **LOG - caliper app** – application dedicated for logs.
- **Forestry notebook app, LOG app** – applications dedicated for manual calipers.

All applications are available in following languages: English, French, German, Italian, Polish, Portuguese, Russian, Romanian, Spanish, Turkish, Ukrainian.

HOW DOES IT WORK ?

- Authorized user performs harvesting, measurements, marking logs by barcode tags, register field work data, takes pictures of logging area and sends all to the TIS application.
- Authorized operator sends to the system the transportation route, confirms and sends data to the cloud server
- Authorized operator (e.g. customs official) downloads the input data on the smartphone and checks them with paper documentation provided with wood transport.
- The delivery is checked again during transhipment and in destination place on the same way: the authorized officer download the data from cloud server and check them with existing delivery and documentation.
- Confirmation of receiving the wood is sent by the recipient to the TIS system.

BENEFITS OF THE SYSTEM

- Providing reliable information about the harvesting, traders and institutions responsible for the legality of the harvesting process and control of chain of custody.
- Providing reliable information for the buyer who wants to confirm the origin of wood.
- Facilitation for EU institutions and international organizations concerning control of the wood imported on the EU market.
- Facilitation for the wood and wood products producers to ensure all interested parties that their products are made from legally harvested wood.

TIS Group
THANK YOU!
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